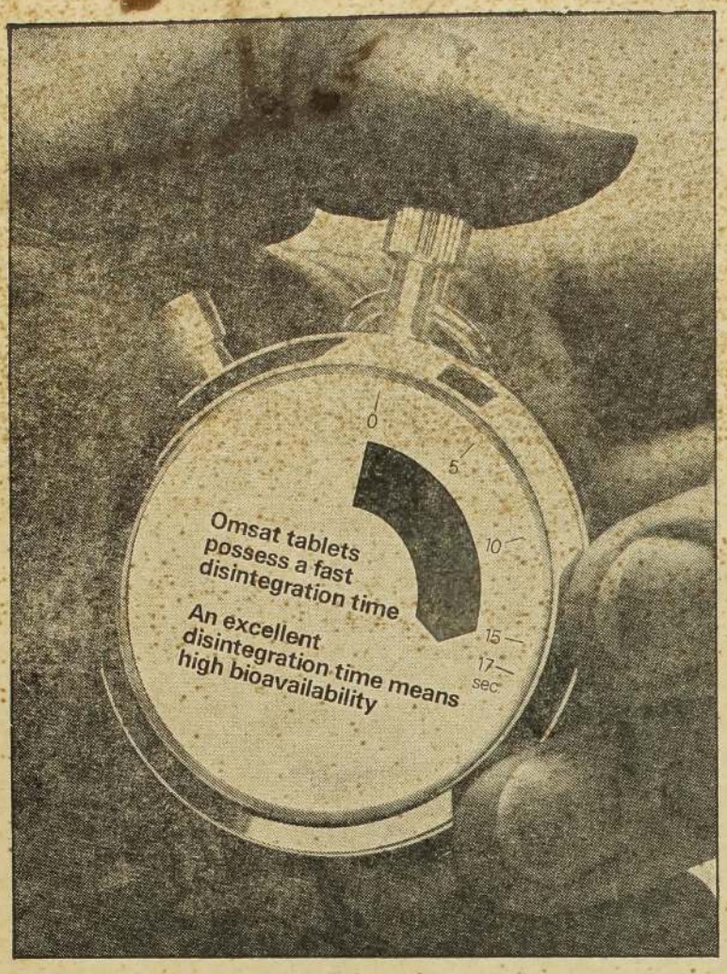
The CEYLON MEDICAL JOURNAL

Established in 1887

Vol. 28 **MARCH 1983** **No. 1**

CONTENTS

Quarterly, ISSN 0009-0875



The bactericidal broad-spectrum chemotherapeutic agent

Omsat® Co-trimoxazole

stops bacterial infections

- of the urogenital tract
- of the gastro-intestinal tract
- of the respiratory tract
- of the ear, nose and throat region

41-025-Januar 81

Composition:
1 tablet of Omsat contains:
80 mg trimethoprim
400 mg sulphamethoxazole
1 tablet of Omsat for children contains:
20 mg trimethoprim
100 mg sulphamethoxazole

Indications:
Urinary tract infections:
cystitis, acute and chronic pyelonephritis.
Respiratory tract infections:
infections of the upper and lower respiratory tract, acute and chronic bronchitis, bronchiectasis, pneumonia, tonsillitis, sinusitis.
Infections of the male and female genital organs (gonorrhoea).
Infections of the gastrointestinal tract:
enteritis, typhoid and paratyphoid fever.
Infections of the skin: pyoderma, abscesses, furuncles, wound infections.
Septic infections.
Other infections with co-trimoxazole-sensitive organisms.

Contraindications:
Pregnancy, lactation.
Blood dyscrasias.
Sulphonamide sensitivity (attention also to allergy due to sulphonylurea antidiabetics and saluretic sulphonamide derivatives).
Severe kidney and liver damage.
Omsat should not be administered to premature and new-born children and in the first weeks of life or with B_{12} and folic acid deficiency states.

Side-effects:
In individual cases rashes may occur, also nausea, vomiting and diarrhoea.
Haematological changes have been observed especially in older patients. The phenomena were usually minor and regressed after discontinuing the preparation.
Also reported are thrombocytopenia, leukopenia and neutropenia, more rarely purpura or agranulocytosis.

Precautionary measures:
Monitoring of the blood picture in long-term treatment is indicated.
Impaired renal function calls for reduction of dosage in order to avoid a cumulative effect. In such cases determination of the plasma concentration should be carried out.
When functional thyroid disorders exist, this should also be monitored. Because of the sulphonamide component, simultaneous or alternating treatment with hexamethylene-containing preparations must be avoided. This also applies to infusions and teas containing hexamethylene tetramine.

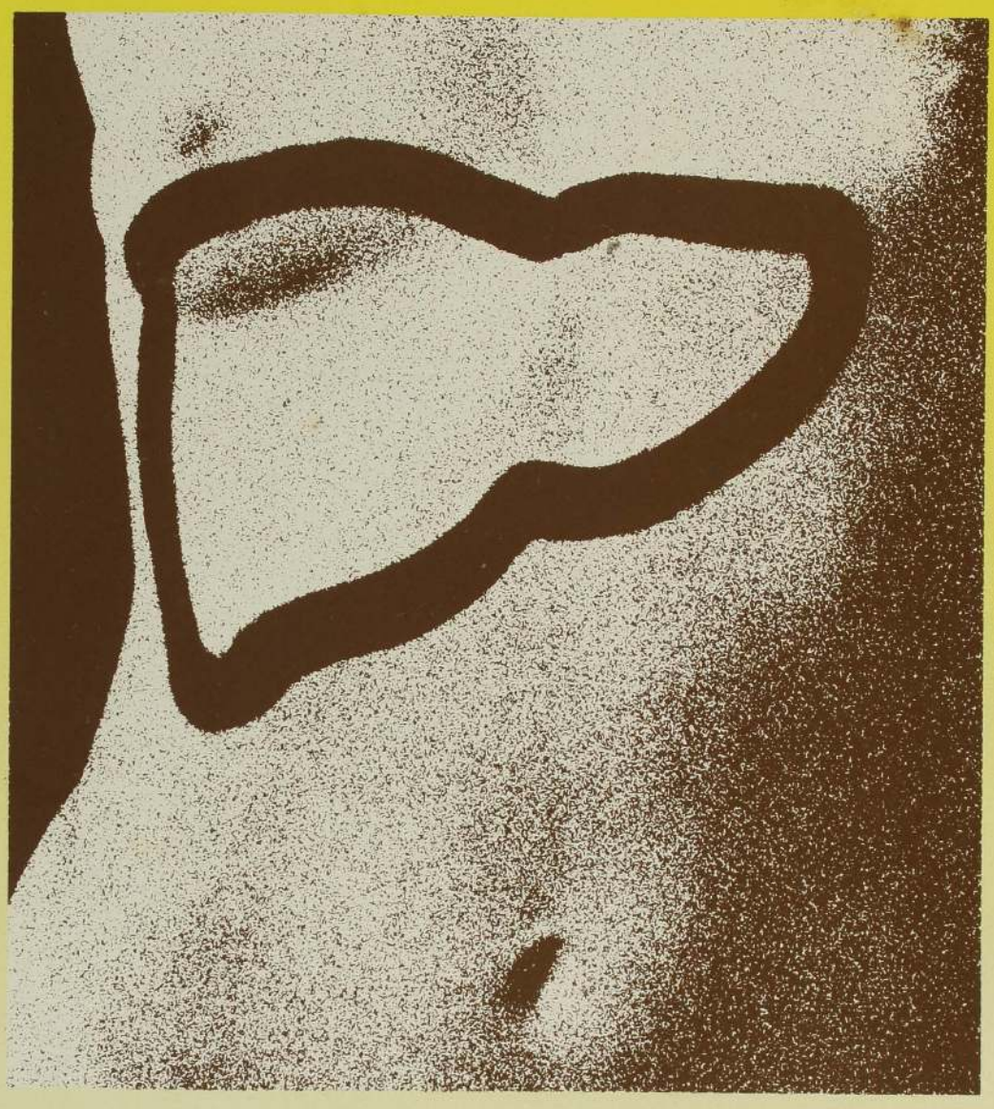
Our representative in Sri Lanka:
J.L.Morison Son&Jones (Ceylon) Ltd.,
P.O. Box 430, Colombo 15,
Sri Lanka

Your partner in diagnosis and therapy

mannheim boehringer

Boehringer Mannheim GmbH
D-6800 Mannheim 31
West Germany

Catergen®
for acute viral hepatitis



Catergen®

* relieves symptoms * improves liver function tests
* accelerates disappearance of HB_SAg (Australia antigen)

and thus diminishes the risks of *chronic hepatitis*

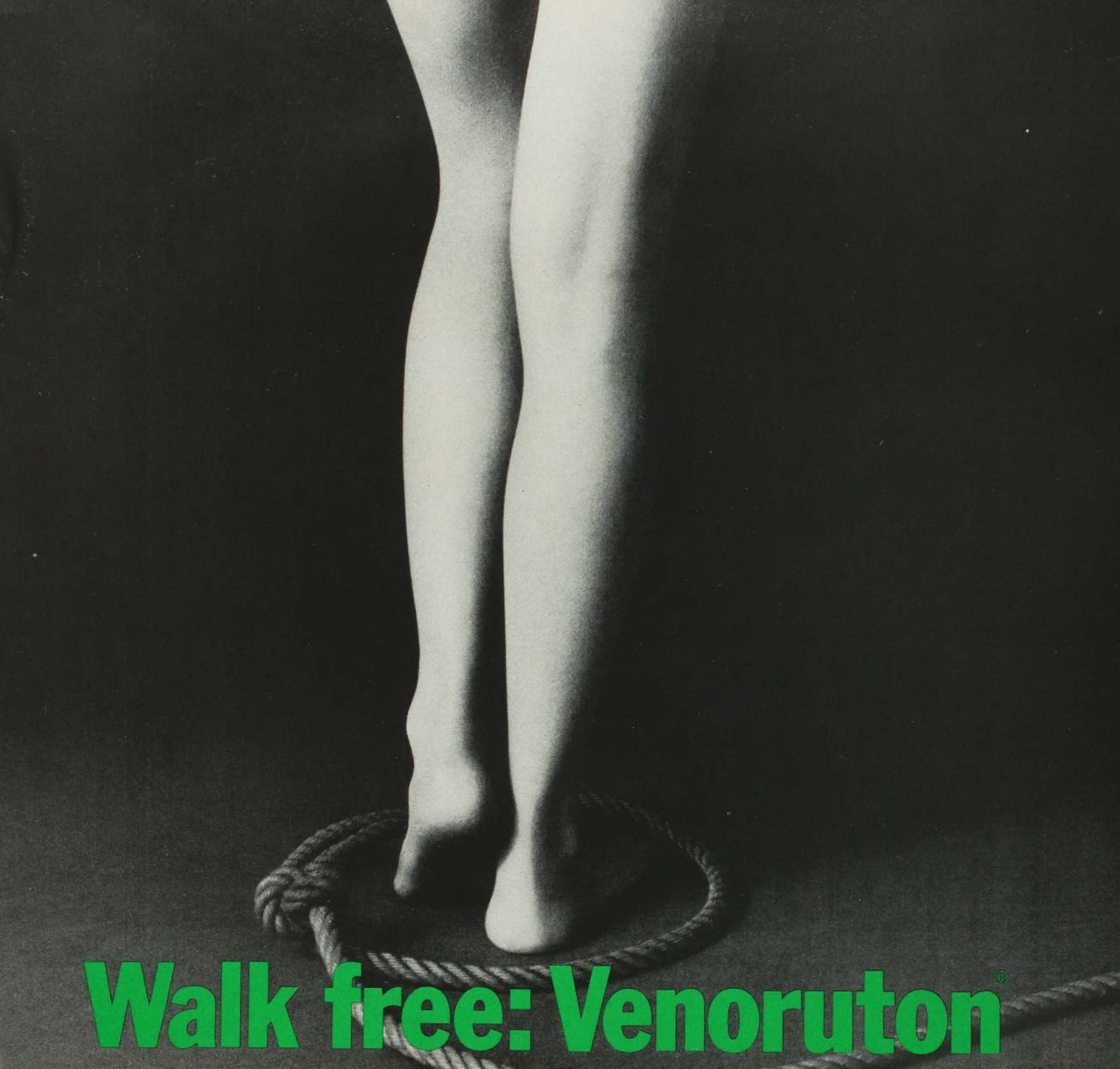
A.L. Blum et al., Lancet *2*, 1153-1155 (1977)

Catergen®

Tablets of 500 mg (+)-cyanidanol-3

1 tablet three times daily

Zyma Switzerland Pettah Pharmacy Ltd., Colombo



Walk free: Venoruton®

In normal circumstances the calf 'muscle-pump' maintains efficient drainage of the lower limbs and thus walking is an essential component of the management of patients with varicose disorders, especially those patients whose work or way of life entails long periods of standing or sitting.

Venoruton also improves venous return and – by reducing venous stasis and tissue congestion – improves many of the symptoms of varicose disorders, such as heavy legs, cramps, paraesthesiae, restless legs and aching pain; accelerated healing of varicose ulcers has also been reported.

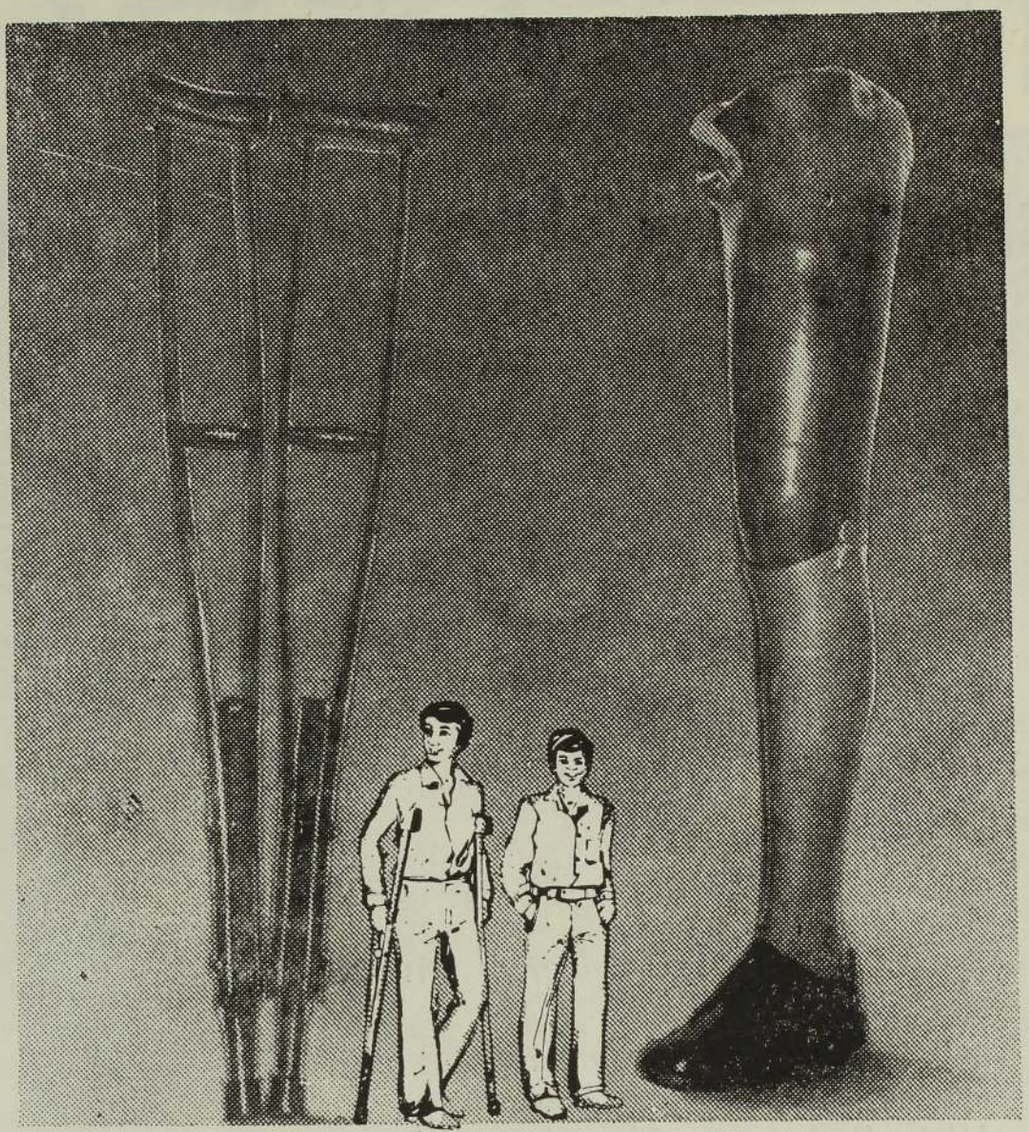
Dosage: for best results it pays to adhere to the correct dosage of one capsule four times a day for three to four weeks, then one or two capsules daily.

In varicose disorders Venoruton is the simple answer to a complex problem

Venoruton®

Full information is available

Zyma Switzerland Pettah Pharmacy Ltd., Colombo



To make disabled people able

We fabricate all types of appliances including artificial legs and arms, from local and foreign components according to individual needs.

We also have in stock the following:

ARM CRUTCHES, ELBOW CRUTCHES, WHEEL CHAIRS, CERVICAL COLLARS, ETC., BOTH LOCAL AND IMPORTED.

"Special Prices to Social Service Organisations"

MEDI-AIDS DIVISION

CA Colombo Agencies Limited,

No. 15, Morgan Road, Colombo 2.

Telephone Nos. 20171/2

MASTERS CA 9/82

From the experience of Schering Corporation, U.S.A.

Netromycin*

netilmicin sulfate injection. aqueous solution

INJECTION

A SIGNIFICANT ADVANCE IN AMINOGLYCOSIDE THERAPY

"Netilmicin has a wide antibacterial spectrum, is active against some gentamicin-resistant bacteria, and appears to be less nephrotoxic and ototoxic than other aminoglycosides in therapeutic dosages."[2]

Netromycin*

INJECTION

netilmicin sulfate injection, aqueous solution

Destined to become the new standard in safety, efficacy, and dosage simplicity.

Increases Benefits:

- bactericidal against the majority of aminoglycoside — resistant organisms.
- documented efficacy with 90% favorable results in a broad range of clinical indications.
- kinetics favour efficacy and convenience.

Decreases Risks:

- highly favorable profile with greater freedom from risks of nephrotoxicity and ototoxicity.
- local reactions to NETROMYCIN IM or IV injection or infusion were very infrequent.

Simplifies Dosage:

- twice daily administration for most infections.

ADULTS: For patients with normal renal function.

40 - 50 Kg. (88 - 110 lbs) **100 mg**  1 VIAL TWICE DAILY

50 - 90 Kg. (110 - 198 lbs) **150 mg**  1 VIAL TWICE DAILY

In life-threatening infections doses up to 7.5 mg/kg/day may be administered in three doses every 8 hours.

See package insert for dosage in pediatrics.

Reference

2. Baumueller, A., Madsen P.O., Clinical Therapeutics (1978), 1,244-50

* Trade Mark.

SCHERING U.S.A.

SCHERING CORPORATION U.S.A.
KENILWORTH, NEW JERSEY

PEDICULOSIS

Only 4 minutes treatment with

QUELLADA

Head Lice Treatment

(*Gamma Isomer of benzene Hexachloride* 1%)

RESEARCHED & DEVELOPED BY

Stafford Miller Ltd.

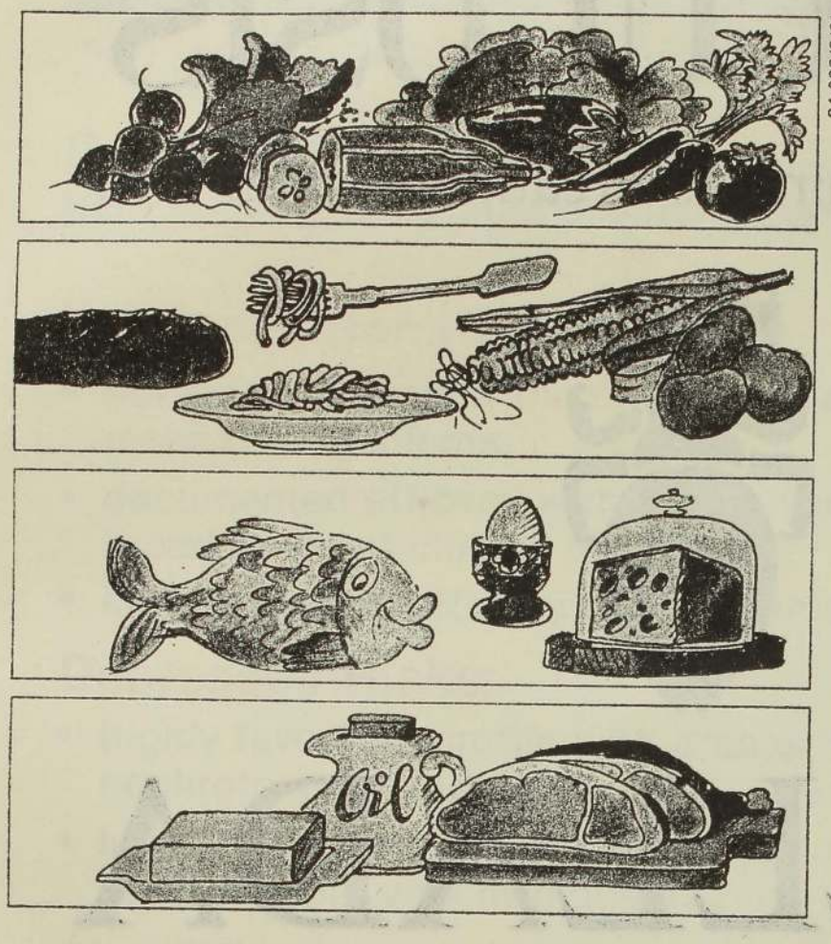
AUSTRALIA

Descriptive Literature available from sole agents

ESTABLISHED 1956

Pettah Pharmacy Ltd.

Chemists & Druggists



34-008/2/81

Trizymal®

the modern enzyme dragée for all kinds of digestive disorders.

That you can even enjoy an opulant meal without worry.

Composition
Each tablet contains:

Pancreatic enzymes	150 mg
Fungal enzymes	100 mg
Fel tauri	25 mg

Triple standardisation
Proteinases:
40 Willstätter-Units* (55 I.U.)
Amylases:
32 Willstätter-Units* (5,000 I.U.)
Lipases:
15 Willstätter-Units* (1,500 I.U.)
*Minimum activity per gram active substance

Indications
Dyspepsia due to fatty foods and foods rich in protein. All forms of enzymatic deficiency of the digestive tract in diseases and functional disorders of the stomach, intestine, liver, gallbladder and pancreas in chronic pancreatitis, total or subtotal pancreatectomy. Enzymatic insufficiency, mainly in older persons. Fermentative dyspepsia due to vegetarian diet.

Dosage
1–2 tablets to be taken at meal-times. In severe digestive disorders the dosage may be increased without any misgivings, for instance in chronic pancreatitis: 3×4 tablets at meal-times.

Our representative in Sri Lanka:
J. L. Morison, Son & Jones (Ceylon) Ltd.
P.O. Box 430, Colombo 15,
Sri Lanka

Your partner in diagnosis and therapy

mannheim boehringer **Trizymal®**

Boehringer Mannheim GmbH
West Germany

The CEYLON MEDICAL JOURNAL

Established in 1887

(The official Publication of the Sri Lanka Medical Association)

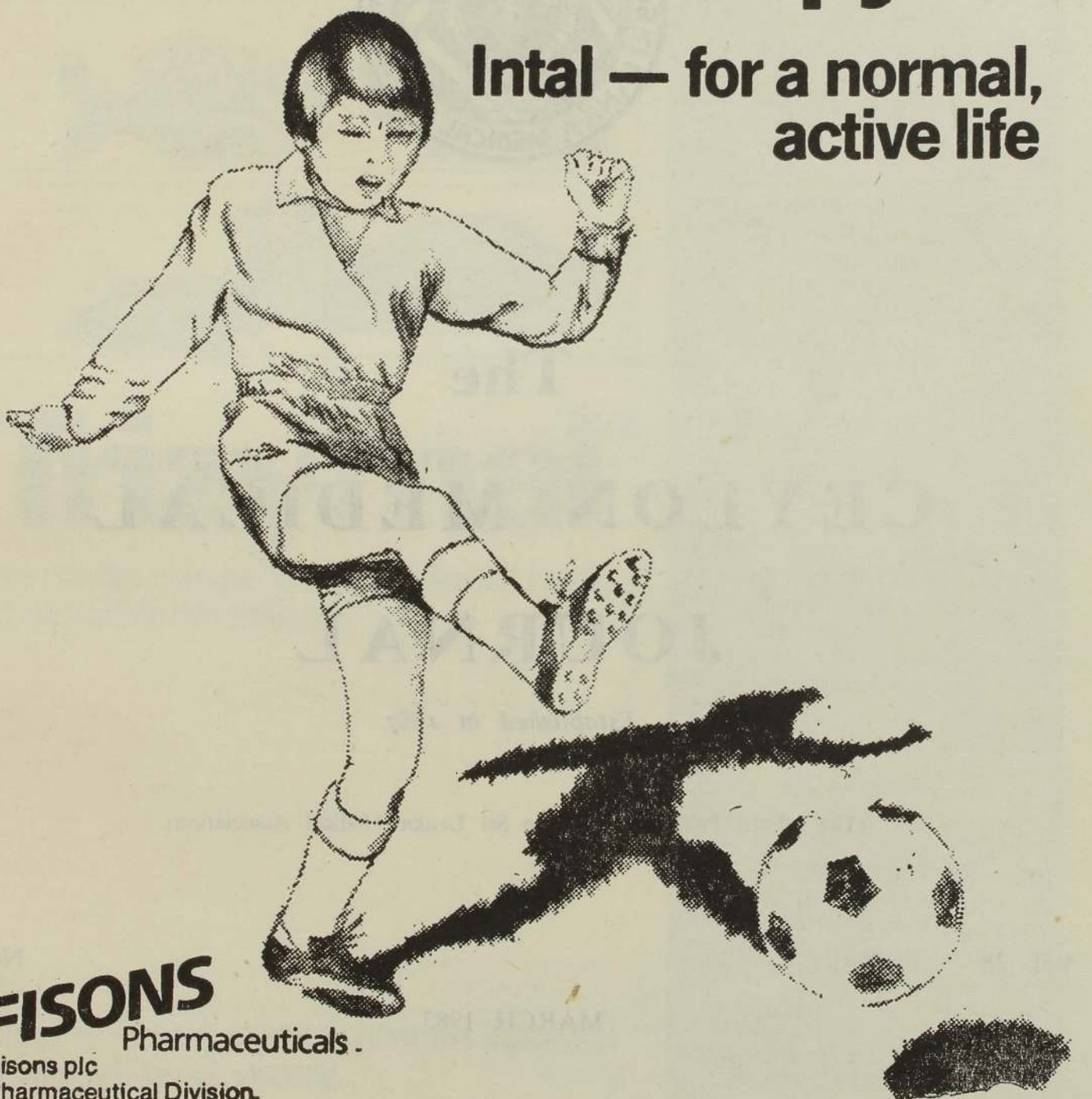
Vol. 28 No. 1

MARCH 1983

Intal®

effective, preventive asthma therapy

Intal — for a normal, active life



FISONS Pharmaceuticals.

Fisons plc
Pharmaceutical Division.
12, Derby Road,
Loughborough,
Leicestershire.
U.K.

NEW

®VOLTAREN SR 100

(tablets containing 100 mg. diclofenac sodium in a sustained-release form)

the first genuine once-daily antirheumatic

1 SINGLE TABLET KEEPS YOUR RHEUMATIC PATIENT GOING FOR A FULL 24 HOURS

Besides displaying the almost legendary antirheumatic properties of Voltaren, the sustained-release formulation of

®VOLTAREN SR 100

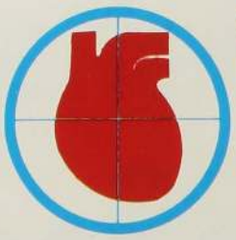
- **simplifies long-term treatment**
- **promotes patient compliance**
- **ensures greater success**

Geigy

Detailed product and prescribing information available from:

A. Baur & Co. Ltd.
P.O. Box 11
Colombo
Sri Lanka

Selectivity, Safety and Simplicity in the treatment of hypertension with ...



®Lopresor

metoprolol tartrate

the new antihypertensive from Geigy

Selective because its action is concentrated on the cardiac β_1-receptors, leaving the peripheral β_2-receptors relatively unaffected.

Safe because it has practically no side effects and can be given once daily, thus improving patient compliance, which is an important factor for successful treatment.

Simple because it need be given only once a day and can be combined with other antihypertensives if necessary.

Lopresor is the first cardioselective beta-blocker and
THE BRAND OF METOPROLOL
APPROVED and recommended by American FDA
for the treatment of hypertension

Geigy

Detailed product and prescribing information available from:

A. Baur & Co. Ltd.
P.O. Box 11
Colombo
Sri Lanka

Daonil® makes the most of making the least of diabetes

- Superior metabolic control
- Single daily doses normalize blood glucose levels for 24 hours
- Non-diminishing effectiveness
- No water retention by antidiuretic activity
- No increase of body weight
- Minimal incidence of side effects. No prolonged hypoglycaemia

- Extra pancreatic effects
  - Effects on insulin receptors
    - Inhibition of platelet aggregation

Indication
Maturity-onset diabetes which responds inadequately to dietary measures alone.

Contraindications
Juvenile diabetes; diabetic coma and precoma; serious impairment of renal, hepatic or adrenocortical function; febrile infections; pregnancy; circumstances of unusual stress (e.g. major surgical operations).

Notes
Overdosage may lead to hypoglycaemic reactions: these may also occur in patients with cerebrosclerosis, hyperthyroidism or autonomic instability, or if meals are omitted or exercise habits are changed. The improvement in glucose tolerance frequently observed during Daonil treatment may necessitate a reduction in dose. For this reason, a very careful check should be made 4–8 weeks after the patient's metabolism has been successfully stabilized.

Presentation
1 tablet Daonil contains 5 mg glibenclamide

Daonil® (Glibenclamide)

Hoechst

Hoechst (Ceylon) Company Limited
P.O.Box 1127,
315, Vauxhall Street,
Colombo 2.

RJA 1470

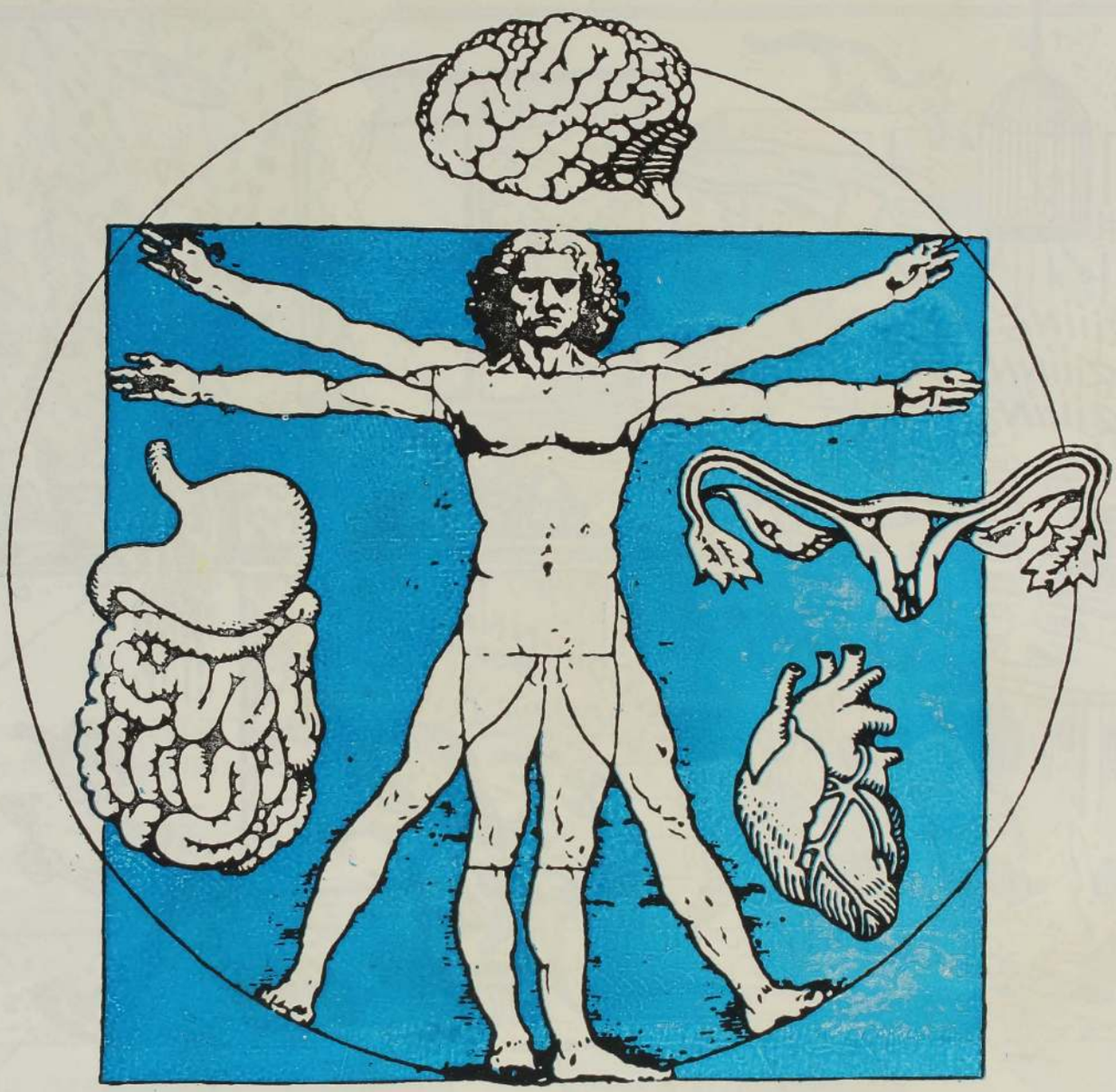
PFIZER LIMITED Pfizer Science for the world's well-being

For the many dimensions of anxiety

ATIVAN*

(lorazepam, Wyeth)

A single anxiolytic



provides deeper, more selective anxiolytic relief

in both functional and organic disorders
with low-dosage safety
compatible with standard treatment regimens

Wyeth International Limited
Philadelphia, Pa. 19101 U.S.A.

*trademark

Local Agents MULLER & PHIPPS (CEYLON) LTD
P.O. BOX 10, COLOMBO - SRI LANKA.

When stress leads to gut reaction...

it's time to recommend

MUCAINE* **: the antacid with a plus.**

Wyeth

Wyeth International Limited
Philadelphia, PA 19101 U.S.A.

Local Agents: **MULLER & PHIPPS (CEYLON) LTD.**
P. O. BOX 117, COLOMBO - SRI LANKA.

* Trademark

THE CEYLON MEDICAL JOURNAL

Vol. 28 **MARCH 1983** **No. 1**

CONTENTS

Quarterly, ISSN 0009-0875

Psoriasis Rx
Alphosyl

Alphosyl is the most widely prescribed product used specifically for the treatment of Psoriasis. Clinical evidence underlines the success of Alphosyl in Great Britain and the U.S.A.

The two principal components of Alphosyl have been combined for the first time. Allantoin loosens scaling and a unique alcoholic extract of coal tar produces a keratoplastic effect. This is the secret of Alphosyl's high success rate, even in stubborn cases of psoriasis where other forms of treatment have failed.

Alphosyl is safe. "It certainly avoids the hazard of antimetabolites and local systemic corticosteroids. and it does not have disadvantages of staining, burning and discolouration that occur with other topical preparations." (British Medical Journal 1967-4535).

Alphosyl is available in four forms, Lotion, HC Lotion, Shampoo and Cream. Remember, Alphosyl is a specific for psoriasis and certainly deserves a trial in all cases.

Professional samples are available on request from Stafford-Miller Ltd., Post Office Box 185, Revesby. NSW 2212.

Sole Agents:

Pettah Pharmacy Ltd
P.O. Box 875,
Colombo 12.

Protussa

Boots

For prompt and sustained, control of Children's coughs — without complications

- Reduces frequency and intensity of coughs
- Controls bronchospasm
- Expels tenacious mucus

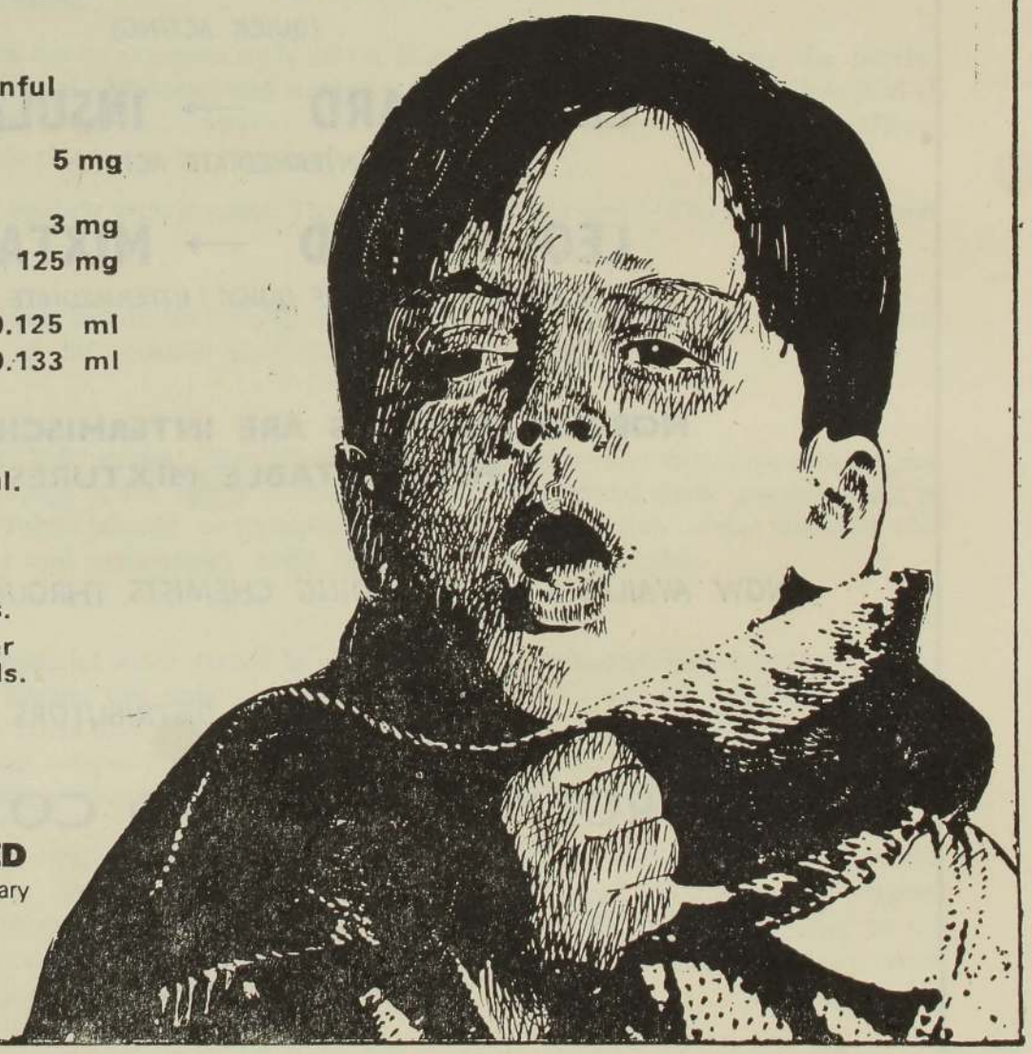
COMPOSITION:
Each 5 ml (one teaspoonful approx.) contains:

Noscapine B.P.	5 mg
Ephedrine Hydrochloride I.P.	3 mg
Sodium Citrate I.P.	125 mg
Belladonna Tincture I.P.	0.125 ml
Tolu Solution B.P.C.	0.133 ml

in a syrup base.

DOSAGE: (6 hourly)
Infants: 1/2 teaspoonful.
Children 2 to 5 years:
1 teaspoonful.
5 to 12 years:
2 teaspoonfuls.
Adults and Children over 12 years: 3 teaspoonfuls.

Presentation:
Bottle of 100 ml.



HAYLEYS LIMITED
Pharmaceuticals & Veterinary Medicines Department
25, Foster Lane, Colombo 10.
Telephone: 96331-6.

Instructions to Contributors

Ceylon Medical Journal, 1983, **28**, v–vi

The Ceylon Medical Journal is published by the Sri Lanka Medical Association and contains original papers dealing with the medical and allied sciences, as well as lectures delivered before, and the proceedings of, symposia and seminars held under the auspices of the Association.

Articles are accepted for publication with the understanding that they are contributed solely to the Ceylon Medical Journal.

Although rejected manuscripts are always returned to the author(s), the Editors are not responsible in the event of any manuscript being lost.

Statements contained in articles are the sole responsibility of the authors and do not in any way reflect the opinion or attitude of the Sri Lanka Medical Association. Published articles may not be reproduced without permission.

FORMAT OF THE MANUSCRIPT

Manuscripts should be typed double spaced on one side of the paper, with 1½" margins. The title of the paper, and name(s) of the author(s), their present posts and the place where the work was carried out should be typed on a separate sheet (the title page). Authorship should be limited to direct participants. Technical assistance can be acknowledged as a footnote. The title should be brief and meaningful to facilitate indexing. The usual plan, — a short summary, introduction, material and methods, results, discussion, and references, should be followed, whenever possible.

The **Introduction** should be not an extensive study of the literature but a review of only the portion which is pertinent to the subject material. **Material and methods** must be clearly and adequately described to enable proper assessment of the methods used and results. The **Discussion** must be restricted to the significant findings presented. Wide digressions cannot be permitted.

Drugs should be designated by their generic name. The trade name may be given after the generic name.

ABBREVIATIONS

Abbreviations used in the article should conform to those given in the Appendix (See page vi). Non-standard abbreviations especially of infrequently used words should not be used.

TABLES

Tables should not exceed 8" X 6" in size. They should be self-explanatory and should supplement, not duplicate, the text. Since the purpose of the data is to compare and classify related items, the data must be logically and clearly laid out. Tables should be typed on separate sheets, be given *roman numerals* and each must have a caption above and explanatory notes below the tabular material.

ILLUSTRATIONS

Illustrations consist of all material which cannot be set in type, such as photographs, drawings, graphs and charts. For **drawings** and **graphs** use only *black Indian ink on white bristol board or white drawing paper*. **Photographs** and **X-ray films** must be supplied as sharp glossy prints. Illustrations in full colour are accepted for publication if the editor believes that such colour is absolutely necessary to illustrate a significant point. When full colour illustrations are accepted the expenses must be borne by the author(s).

All illustrations must have arabic numerals and be cited in the text. Each illustration should be accompanied by a descriptive legend typed on a separate sheet and numbered, as **figures** corresponding to those on the illustration. The following information should be written in pencil on the back of each illustration: figure number, title of manuscript, name of the first author and an arrow indicating the top of the figure.

REFERENCES

The number of references cited should be kept to a reasonable minimum. In the text, references should bear the author's surname and the year of publication within parentheses, e. g. (Peiris, 1958). When the author's name is a part of the text sentence, the year of publication of the reference, in parentheses, should follow the name, e. g. "as Fernando (1960) observed..."

If the reference is to a joint publication, names of all authors should be indicated on first appearance e. g. (Singham and Pieris, 1960), while in subsequent references the form should be: (Singham *et al.*, 1960).

References should be listed at the end of the text in consecutive numerical order. **References to articles and papers** should mention: 1. Name(s) followed by the intials of the author(s); 2. Year of publication in parentheses; 3. Title of Journal in **full**; Example: Nordin, B E C and Fraser, R (1960) Lancet, **1**, 947.

If several papers by the same author and from the same year are cited, a, b, c, etc., should be written after the year of publication, e. g. Mendis (1923a).

References to books and monographs should include: 1. Author(s) or editor(s); 2. Year of publication; 3. Title underlined; 4. Page referred to, where specific; 5. Town of publication; 6. Publisher.

Example: Marshall, F H A (1922) Physiology of Reproduction, p. 305, London. Longmans Green.

When both authors and editors are involved, the form should be as given in the following example:

Hunter, T D (1967) in New Aspects of the Mental Health Services, ed. H Freeman and J Farndale p. 64, Oxford. Pergamon.

Authors are responsible for the accuracy of the references.

GALLEY PROOFS

Galley proofs will be submitted to the first named author, unless otherwise requested, for minor corrections and should be returned to the editor within 4 days. Careful checking should be made of the numerals in text, tables and figures.

REPRINTS

Reprints, if required, should be ordered directly from the printer, and paid for by the author. Communications in this connection should be addressed to the printer at the time the galley proofs are returned by the author(s) to the editor. **No free reprints are supplied.**

The Price per copy of the journal is Rs. 50/- for non-members of the Sri Lanka Medical Association. Members are supplied with free copies. Annual subscription for membership is Rs. 60/-. Communications in this connection should be addressed to the **Hon. Secretary, Sri Lanka Medical Association, Wijerama House, 6, Wijerama Mawatha, Colombo 7.**

ADVERTISING

All inquiries in connection with production, advertising space and rates of this Journal should be addressed to:

The Editor, **Ceylon Medical Journal,**
Wijerama House,
6, Wijerama Mawatha,
Colombo 7.

APPENDIX: ABBREVIATIONS

Blood Pressure	B P	Inches	in	Milligram	mg
Centimetre	cm	International Unit	I U	Minute	min
Cubic millimeter	cu mm	Intramuscular	i m	Milliliter	ml
Feet	ft	Intravenous	i v	Molar	M
Fluid ounce	fl oz	Kilogram	kg	Ounce	oz
Gallon	gal	Litre	L	Per cent	%
Grain	gr	Metre	m	Pint	pt
Gramme	g	Microgram	mcg	Pound	lb
Hour	h	Milliequivalent	mEq	Year	yr

Selective steroid therapy for asthma

"If a drug could be produced that had the anti-asthmatic properties of steroids without their side-effects, the trials and tribulations of asthmatic patients would be at an end."
(*Lancet* 1966, 2, 13,54.)

Such a drug is now available

Becotide

Becotide Inhaler gives steroid control without steroid side-effects.

Becotide Inhaler contains Beclomethasone dipropionate BP, a steroid which differs from those previously administered to asthmatics by aerosol in that it is highly active within the lungs in doses which are not systemically active. Used as an aerosol it provides remarkable control of asthma without causing significant systemic effects. This result is attributable to the intrinsic properties of the compound and to its localisation at the intended site of action.

Extensive clinical trials of Becotide Inhaler have shown that it gives effective control of asthmatic symptoms in patients who are no longer obtaining adequate relief from bronchodilators or sodium cromoglycate. In addition, it has been shown that Becotide Inhaler can be used successfully to replace systemic steroid; even in asthmatic patients who have become steroid dependent.

In a double-blind controlled trial involving asthmatic patients, Becotide Inhaler provided control which was at least as effective as that obtained from oral prednisolone; the only significant difference was that plasma cortisol levels were NOT depressed with Becotide Inhaler therapy.

(*Brit. Med. J.*, 1972, 3, 314)

Becotide Inhaler ensures for your asthmatic patients :

1) **Highly effective treatment controlling the three main pathological processes involved in asthma-bronchospasm, oedema of bronchial mucosa and hypersecretion of mucus.**

   "Topical treatment with beclomethasone dipropionate by means of an aerosol (Becotide Inhaler) thus provides excellent control of patients with asthma." *Practitioner*, 1973, 211, 86,

2) **Freedom from steroid side-effects including adrenal suppression.**
   "Beclomethasone dipropionate aerosol would seem to provide an alternative to long term oral steroid therapy in many cases of chronic perennial asthma. Effective control of the asthma is achieved with no evidence of systemic absorption or of steroid side-effects."

   (*Brit. Med. J.*, 1972, 1, 585.

   "They now remain as well, if not better, controlled on the ateroid serosol in a dose of 100 mcg. four times a day and all have normal plasma cortisol levels." *Lancet*, 1972, 1, 1361.

3) **A fuller and less restricted life as the advantages of steroid therapy can be introduced at an earlier stage of the disease.**

PRESENTATION

Becotide Inhaler is a metered aerosol which delivers 50 mcg. beclomethasone dipropionate BP per inhalation. Each container of Becotide Inhaler provides 200 inhalations.

It is manufactured by Allen & Hanburys Ltd., U.K. a member of the Glaxo Group of Companies.

In asthma Becotide Inhaler is highly effective and without systemic effects.

Glaxo

Glaxo Ceylon Limited,
P. O. Box 1653, Colombo.

Melville Assauw Designs

BRILLIANT
IN ITS MANY FACETS

galactorrhoea with or without amenorrhoea

post-pill amenorrhoea accompanied by galactorrhoea

Parkinson's disease, both idiopathic and postencephalitic

secondary amenorrhoea with hyperprolactinaemia

prevention and suppression of postpartum lactation

Parlodel may be used where there are urgent reasons for lactation prevention or suppression and general nursing measures appear to be inadequate.

acromegaly

PARLODEL®

SANDOZ

SANDOZ LTD., BASLE, SWITZERLAND

Composition:
Each tablet contains 2.5 mg bromocriptine as the mesilate

Agents : **A. BAUR & CO. LTD.**

- highly effective against almost all pathogens which invade the eye, including *Pseudomonas* and *Staphylococcus aureus*
- bacterial resistance rarely develops on repeated or prolonged use
- low allergenic

Full information is available on request.

Distributed by:
Union Traders Ltd
Lady Catherine Estate
Ratmalana, Sri Lanka

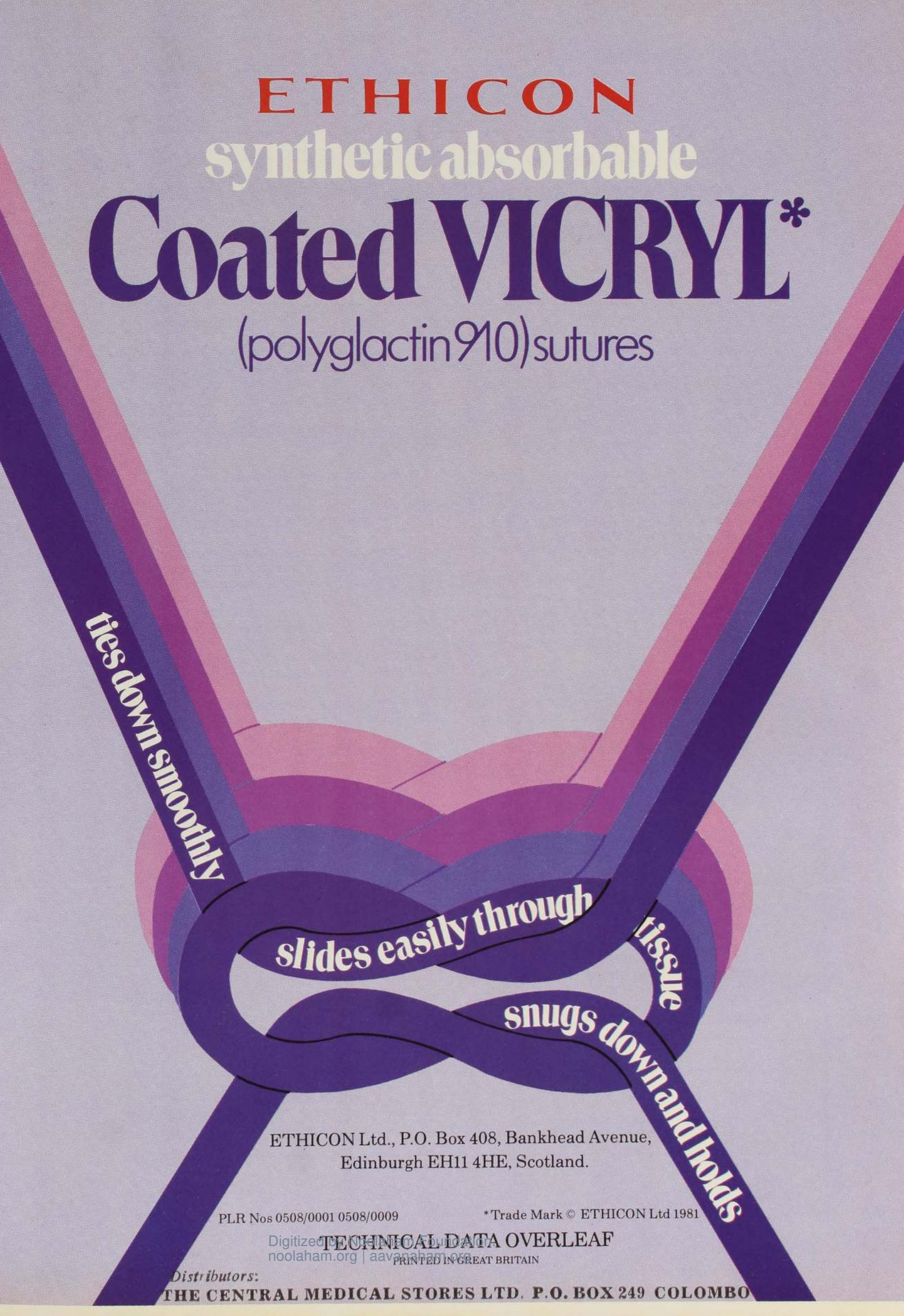
Wellcome
Research is our only shareholder

ETHICON

synthetic absorbable

Coated VICRYL*

(polyglactin 910) sutures



ETHICON Ltd., P.O. Box 408, Bankhead Avenue,
Edinburgh EH11 4HE, Scotland.

PLR Nos 0508/0001 0508/0009

TECHNICAL DATA OVERLEAF

PRINTED IN GREAT BRITAIN

Distributors:
THE CENTRAL MEDICAL STORES LTD. P.O. BOX 249 COLOMBO

STERILISED ABSORBABLE SYNTHETIC SUTURE COATED POLYGLACTIN 910 VICRYL*

Presentation The basic VICRYL (Polyglactin 910) Suture is prepared from a copolymer of glycolide and lactide. The substances are derived respectively from glycolic and lactic acids. The empirical formula of the copolymer is $(C_2H_2O_2)m(C_3H_4O_2)n$.

Coated VICRYL (Polyglactin 910) Sutures are obtained by coating the braided suture material with a mixture composed of a copolymer of glycolide and lactide and an equal amount of calcium stearate. This coating does not affect the biological properties of the suture.

VICRYL (Polyglactin 910) Sutures are coloured by adding D & C Violet No 2 during polymerisation of the lactide and glycolide. Suture may also be manufactured in the undyed form.

These sutures are relatively inert, nonantigenic, nonpyrogenic and elicit only a mild tissue reaction during absorption.

Action Two important characteristics describe the in vivo behaviour of absorbable sutures. The first of these is tensile strength retention and the second absorption rate or loss of mass.

Subcutaneous tissue implantation studies of both VICRYL and Coated VICRYL Suture in rats show at two weeks post-implantation approximately 55% of its original tensile strength remains, while at three weeks approximately 20% of its original strength is retained.

Intramuscular implantation studies in rats show that the absorption of these sutures is minimal until about the 40th post-implantation day. Absorption is essentially complete between the 60th and 90th days.

Uses VICRYL and Coated VICRYL synthetic absorbable sutures are intended for use where an absorbable suture or ligature is indicated.

Dosage and Administration
By implantation.

Contraindications, Warnings, etc.
These sutures, being absorbable, should not be used where extended approximation of tissues under stress is required.

Sutures placed in skin and conjunctiva may cause localised irritation if left in place for longer than 10 days and should be removed as indicated.

The safety and effectiveness of VICRYL (Polyglactin 910) and Coated VICRYL Sutures in neural tissue and in cardio-vascular tissue have not been established.

Pharmaceutical Precautions
Do not re-sterilise.

Legal Category P Pharmacy medicine sold to surgeons and hospitals through surgical dealers.

Package Quantities Various lengths of material packaged in sealed aluminium foil sachets. This primary pack is contained in a peel-apart secondary pack. The unit of sales is 12 packs contained in a film wrapped drawer style carton.

Adverse Reactions No suture related adverse reactions were reported during clinical trials, although a number of minor reactions were classified as being of unknown cause.

Product Licence Nos PL 0508/0001
PL 0508/0009

ETHICON LTD.
PO BOX 408, BANKHEAD AVE
EDINBURGH EH11 4HE

*Trademark

F & D A HAS CLASSIFIED DOLOBID AS IB DRUG (NEW THERAPEUTIC GAIN IN ANALGESIC MEDICATION)

LONG ACTING

DOLOBID®

〈Diflunisal/MSD〉

relieves PAIN

24 hours relief with twice daily dosage

Detailed information available to physicians on request

M S D

MERCK SHARP & DOHME INTERNATIONAL

Diabetics!

60 seconds. To check your blood sugar.

1. It requires only one drop of whole blood.
2. Results in just over 60 seconds, for blood glucose.
3. Unambiguous clear-cut digital display
4. Two-way power system with built-in rechargeable batteries or AC mains source – AC adaptor supplied.
5. Fully portable. Compact. With accessories and carrying case
6. The HEMASCOPE Blood Analyzer System is fully guaranteed. That includes the most comprehensive after-sales service programme imaginable.

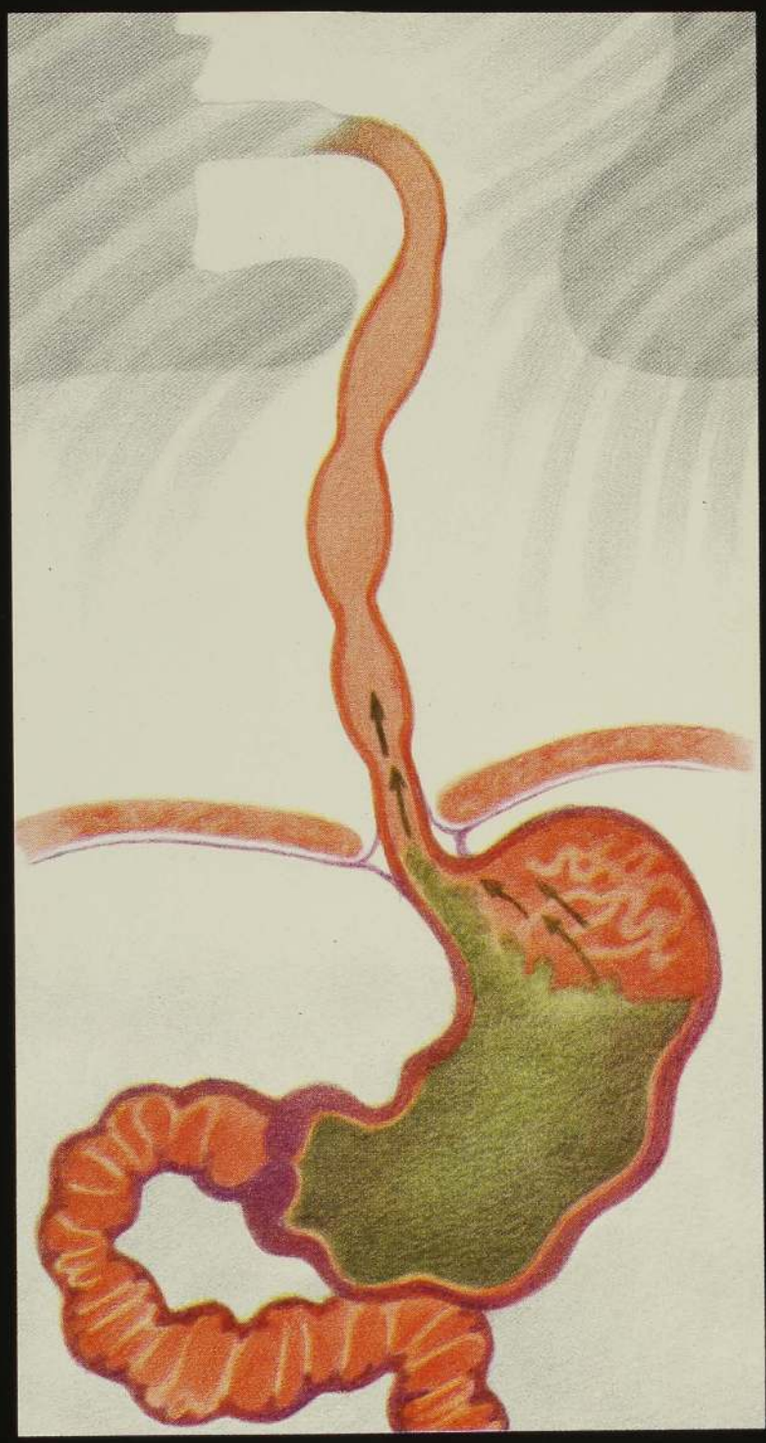
We are only a telephone call away – wherever in the island you are. Why not contact us for more details? We'd be happy to oblige.

GARADS

DIC HEMASCOPE

GENERAL SYSTEMS LIMITED
104 Keyzer Street
Colombo 11.
Telephone: 26726, 23961.

When gastric motility fails:



Nausea
Vomiting

Ructus
Pyrosis
Postprandial
burning sensation

Heavy stomach
Swollen stomach

The modern therapy :

Motilium TRADEMARK

JANSSEN

gastrokinetic

Janssen Pharmaceutica 2340 Beerse Belgium
Sde Agents : PETTAH PHARMACY LTD.
23, Dam Street, Colombo 12 P.O.Box 875
Phone 31213, 31214

In acute diarrhoea* *the duration of the symptoms and the frequency of loose stools differ from patient to patient. Treatment should preferably be tailored to fit the individual pattern of the symptom.*

Imodium TRADEMARK
JANSSEN

symbol of accuracy

(no overdose, no underdose)

The correct dosage of ***Imodium*** *takes into account the individual evolution of an acute diarrhoea* : two capsules to start with. Thereafter each further capsule must be "earned" by an unformed stool. Thus, when stools have become normal, the patient himself will automatically stop the treatment. This minimizes the risk of constipation and promotes economy of medication.*

R_x : 2 stat and 1 at each loose stool

* Full prescribing information (including dosage for chronic diarrhoea and for children) is available on request.

Janssen Pharmaceutica Beerse. Belgium
the discovery company

Sole agents :
PETTAH PHARMACY Ltd. 23, Dam Street - Colombo 12
P.O. Box 875 Phone 31213/31214

Editorial

Acute Respiratory Infections

Ceylon Medical Journal, 1983, **28**, 1–2

Acute respiratory infections (ARI) are a heterogeneous group of diseases which have recently acquired prominence as a public health problem in children. More than 300 antigenic types of viruses and bacteria are responsible for these illnesses which may affect the upper or lower respiratory tract.[1] Among the viruses the commonest pathogens are the respiratory syncytial virus, adenoviruses, parainfluenza and influenza A and B viruses. Streptococcus pneumoniae and Haemophilus influenzae are the commonest bacterial causes of ARI. Many infections which are originally viral in nature end up with secondary bacterial invasion.

ARI are responsible for much mortality and morbidity among children throughout the world. Most of the developing countries including Sri Lanka do not have reasonably accurate figures for the mortality and morbidity from ARI, but in South East Asian countries 5 to 10% of children's deaths occurring in hospital are due to ARI. The majority of deaths are caused by pneumonia (including bronchopneumonia), bronchiolitis and acute obstructive laryngitis (croup). An important observation is that the mortality in developing countries is 20 to 50 times higher than in the developed countries.

On the other hand, as regards incidence, it is similar in both the developing and developed countries, but the frequency and severity of lower respiratory tract infections, specially pneumonia, is perhaps double in the former countries. Socio–economic factors play a major role in this difference in the mortality and morbidity patterns in different regions. Poor nutrition, overcrowding, easier access to health centres and better child care services are important factors. Parental smoking is associated with an increased incidence of ARI. Domestic smoke generated by burning fuel may also be a factor that has not been adequately studied.

The wide disparity in mortality between the developing and developed countries has only recently been appreciated. The World Health Organization has taken the stand that if deaths could be prevented in developed countries which too have a similar incidence of ARI as the developing countries, then strategies could be developed to achieve a similar end in the latter countries.

The WHO has now evolved a plan of action for the control of ARI which is being launched initially in a few selected countries. One of the important elements in this plan is immunization against diseases that lead to respiratory complication, namely measles, diphtheria and whooping cough.[2] As vaccines are developed against other diseases the impact of this measure should be increasingly felt. The advantage of this programme is that it does not require separate implementation as the WHO sponsored expanded programme on immunizations (EPI) is already in operation in many countries, including Sri Lanka. In Sri Lanka, how-

ever, vaccination against measles is not one of its components at present.

Measles not only contributes to immediate pulmonary complications but may lead to bronchiectasis where a child is consigned to a life-long cough. It is difficult to understand why Sri Lanka should lag behind other countries in not adopting measles vaccination as a matter of policy. Measles vaccine is safe and effective in preventing the disease and its pulmonary complications.[2] Its inclusion in the EPI should contribute to an overall reduction in mortality and morbidity from ARI.

An analysis of the reasons for the low mortality from ARI in developed countries shows that the efficient use of antimicrobial therapy is one of the important contributory factors. In the developing countries, specially in the rural areas, access to proper medical care is limited. The WHO has now embarked on a programme of implementing ARI control through the primary health care system in these countries. In Sri Lanka where primary health workers have limited technical training their participation in the programme will be mostly limited to selecting children who, according to an easily recognisable set of criteria, should be referred without delay to medical centres or general practitioners for more specific therapy. The prompt institution of antimicrobial and other definitive measures in these selected children should help to reduce the mortality from ARI.

REFERENCES

1. Pio, A Leowski, J and Ten Dam, H G (1983). The problem of acute respiratory infections in children in developing countries. WHO/RSD/83.11, World Health Organization, Geneva. (Mimeographed).

2. World Health Organization (1983). Acute respiratory infections in children, Report of the first meeting of the technical advisory group, 7–11 March 1983, Geneva. (Mimeographed).

C. G. Uragoda

For ladies who hate to wait... the fast, new cure for candidal vaginitis. New Gyno-Daktarin Ovules :

New **Gyno-Daktarin Ovules** cure 90% of all patients in 3 days. 1)

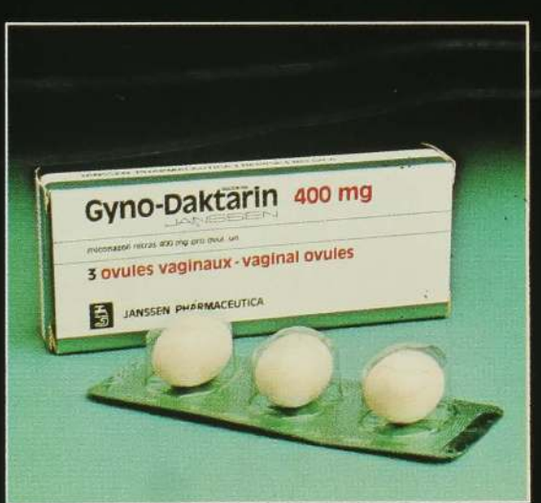
The uncommon ovule... is a capsule.

The gelatin shell melts within 2 minutes to enable the specially developed miconazole formulation to immediately cover and penetrate the vaginal mucosa.

New **Gyno-Daktarin Ovules** clear candidal vaginitis in a matter of days.

They bring a new flexibility to the treatment of candidal vaginitis.

Patient compliance enhances **Gyno-Daktarin**'s fungicidal properties.



TRADEMARK

Gyno-Daktarin

JANSSEN

The standard fungicidal treatment

1) Dierickx, P. et al. : Multicentre Evaluation, data on file at Janssen Pharmaceutica, Beerse.

Janssen Pharmaceutica 2340 Beerse Belgium
Sole Agents : PETTAH PHARMACY LTD.
23, Dam Street - Colombo 12 P.O.Box 875
Phone 31217, 31241

Composition
Each **Gyno-Daktarin** gelatin ovule contains 400 mg miconazole nitrate in the form of a liquid excipient. After insertion in the vagina, the gelatin coatin rapidly decomposes and the active suspension is almost instantaneously released.

Properties
Gyno-Daktarin (miconazole nitrate R 14889) is a synthetic 1-phenethyl-imidazole derivative which combines a potent antifungal activity against dermatophytes and Candida with an antibacterial activity against gram-positive bacilli and cocci. In most cases **Gyno-Daktarin** produces a rapid and complete clinical and mycological cure of vaginitis caused by yeasts.

Indications
Vulvo-vaginal infections by Candida.
Due to its antibacterial action against gram-positive bacteria, **Gyno-Daktarin** can be used to treat mycoses secondarily infected by these micro-organisms.

Dosage and Use
Once a day (before retiring) for three days, deeply insert one ovule in the vagina. If required, this dose can be repeated.
For serious infections and in pregnant women the treatment is preferably administered for 6 consecutive days.

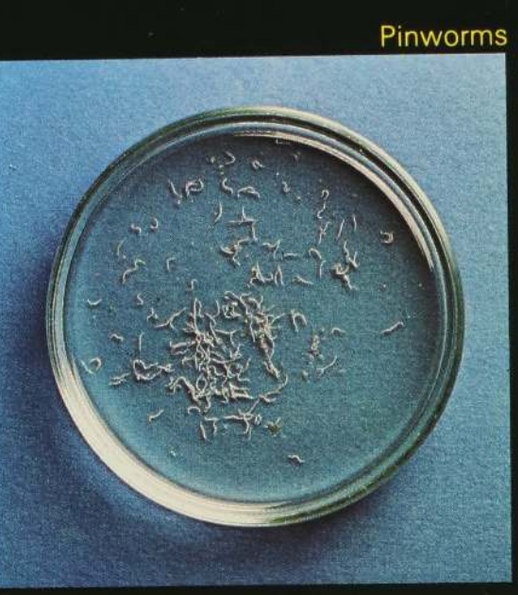
Side-effects
The vaginal treatment with **Gyno-Daktarin** gelatin ovules is usually very well tolerated.

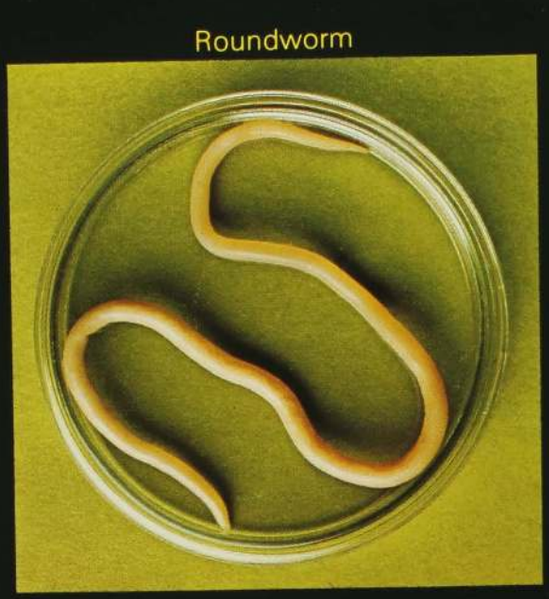
Contra-indications
None known.

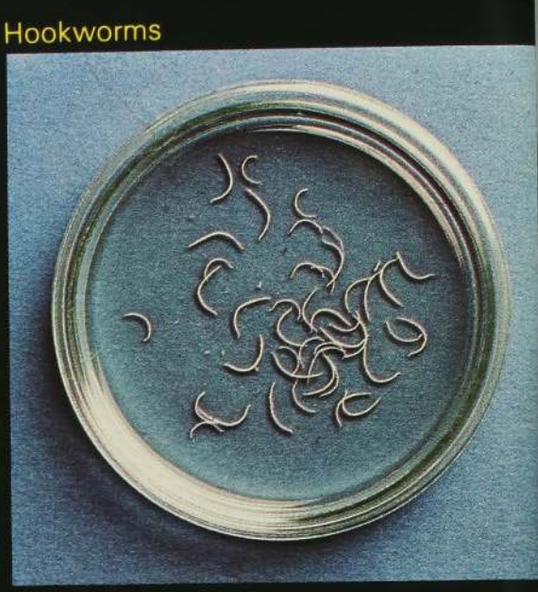
How supplied
Box containing 3 gelatin vaginal ovules at 400 mg.
This preparation can only be kept for a limited period : check the expiry date on the package.

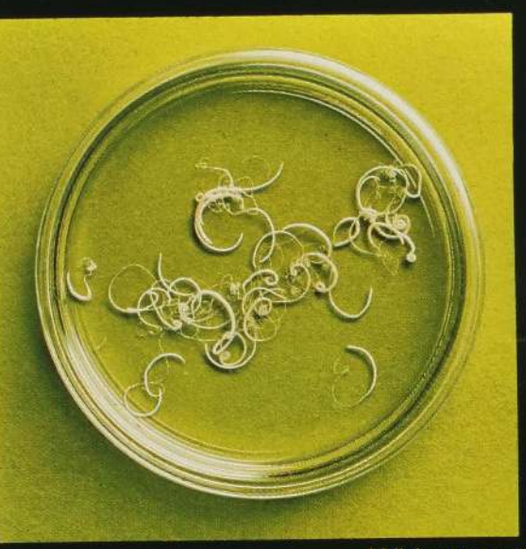
Formula
Miconazoli nitras 400 mg, paraffinum liquidum, vaselinum, gelatina, glycerolum, titanii oxydum, aethylis parahydroxybenzoas, propylis parahydroxybenzoas q.s. pro ovul. un.

one anthelmintic for all worm infections

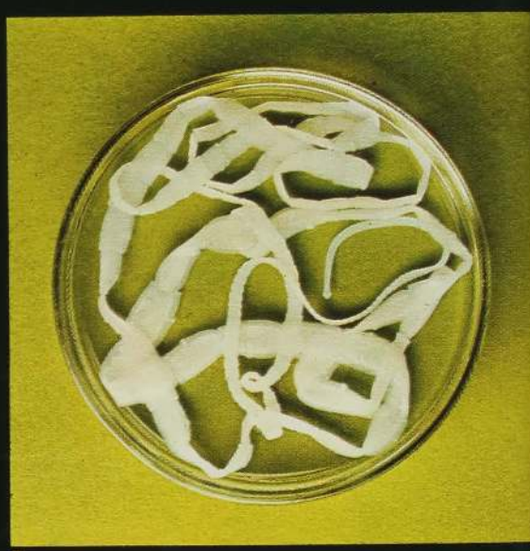

Pinworms


Roundworm


Hookworms


Whipworms


Threadworms


Tapeworm

TRADE MARK

Vermox

JANSSEN

SURE

Vermox replaces all other anthelmintics. Only **Vermox** is active against **whipworms, hookworms, large roundworms, pinworms and threadworms** (up to 100 % effective, even in severe and mixed infections).
Vermox is vermicidal, larvicidal and ovicidal.

SIMPLE

The same oral dose for adults and children. One tablet, twice daily, for 3 days is sufficient. No laxatives or special diets are required.

SAFE

Vermox destroys all common worms without causing discomfort to the patient, whatever his physical condition.

JANSSEN PHARMACEUTICA 2340 Beerse Belgium
Sole Agents: PETTAH PHARMACY LTD.
23, Dam Street - Colombo 12 P. O. Box 875 - Phone 31213/31214

Address by Dr. Dennis J Aloysius, President of the S.L.M.A. at the Inauguration of the 96th Anniversary Sessions*

Ceylon Medical Journal, 1983, **28**, 3–7

Your Excellency, Honourable Minister of Health, distinguished Past Presidents, Members of the Council of the Sri Lanka Medical Association, members of the Sri Lanka Medical Association, distinguished guests, ladies and gentlemen.

We are honoured, Your Excellency, by your presence here this evening and your acceptance of our invitation to inaugurate the 96th Anniversary Scientific Sessions of our Association. On behalf of the Council and the members of the Sri Lanka Medical Association, I thank you for having included this inauguration ceremony in your arduous and important schedule of events.

Your Excellency, we are sure, that of the professional associations in Sri Lanka, the Sri Lanka Medical Association is one that is close to your heart. When you inaugurated our 94th Anniversary Sessions two years ago, you mentioned that one of our past presidents Dr. W. G. Vandort delivered you into this world on the 17th of September, 1906. You added that several of our past presidents have been your friends, some of them your relations and some have treated you — for trivial ailments !

In recent times, your brother Dr. R. P. Jayewardene played an active role in our Association. He was the Editor of our prestigious Ceylon Medical Journal for 7 years. He also held several offices including that of Secretary. Your brother Mr. H. W. Jayewardene, was President of the Organization of Professional Associations (OPA) — of which the Sri Lanka Medical Association is a founder and active member — and to which it has made a significant contribution.

The reason why I am saying all this, Your Excellency, is to induce you to accept our invitation to inaugurate these scientific sessions every year till we are well past our centenary.

The Sri Lanka Medical Association is the oldest national organization of doctors in Australasia. We will be celebrating our centenary in 1987 — in four years time. A centenary committee has already been appointed and this committee is working energetically to ensure that we shall celebrate the occasion in a manner befitting an organization of our stature.

The Sri Lanka Medical Association has made the building programme its main project for the current year. For the first 77 years of our existence we had no headquarters of our own. For 73 years of that period we were guests of the Colonial Medical Library — later called the Ceylon Medical Library. For 4 years we sought temporary refuge in the Consultants' Lounge of the General Hospital, Colombo.

---

* *The 96th Anniversary Session was ceremonially inaugurated on 23rd March, 1983 by His Excellency President J. R. Jayewardene.*

Then in 1964, thanks to the magnanimous gift of the late Dr. E. M. Wijerama, we moved into our present headquarters at No. 6, Wijerama Mawatha. This year, 19 years after that historic event, we have commenced building a sizeable extension to Wijerama House. This will house an auditorium named after the late Professor N. D. W. Lionel who was our President-elect and who would have been on this podium this evening had he not died unexpectedly last August. This auditorium will be used for medical educational activities.

The construction costs of this building have been met by the pharmaceutical trade and industry, several medical associations and the medical profession. We are still short of our budgeted target — but I am sure the donors from the above sectors who see the building in progress will help us to bridge the deficit. If all goes well, as I am sure it would, we will complete this auditorium by August 29, 1983 — the first anniversary of Professor Lionel's death.

We have revived the monthly clinical demonstrations. The clinical cases presented have evoked tremendous interest and the attendance at these meetings, has been beyond our expectations. The Sri Lanka Medical Association records its gratitude to Dr. S. J. Stephen and Dr. Nihal Perera who played an active role in this revival.

In the pursuit of continuing medical education, we arranged several didactic lectures which were delivered by specialists from abroad.

We continue to hold our provincial clinical meetings with great success. This year the venue was Matara and our hosts were the Matara branch of the Independent Medical Practitioners Association and the Ruhuna Clinical Society. This meeting proved to be a great success with over 18 clinical papers being presented. The medical dance was an outstanding success this year with several young doctors attending.

We plan to continue the precedent set last year by Dr. Stella de Silva by holding a health camp in June this year The venue will be the Mahaweli region.

Over two years ago Dr. Wallooppillai handed over to you an expert report on rabies. This year in view of the high incidence of snake bite deaths in our country estimated at over two a day, the Sri Lanka Medical Association has appointed an expert committee on snake bite poisoning. This committee will issue its report in the course of this year.

Your Excellency, the Sri Lanka Medical Association is the national organization of doctors. Our membership is open to every segment of the medical profession. We are prohibited by our constitution from acting as a trade union.

We have from time to time made representations on medical matters of national importance in order to ensure better health care for all our people.

In the current year, we have expressed our views on several issues such as drug regulations, the Medical Council Act, medical education, unqualified practitioners, changes in the health care delivery etc. We must place on record the patient hearing and prompt response to our view by the successive Ministers of Health, Mr. Gamini Jayasuriya and

Dr. Ranjith Atapattu, the Secretaries of Health Mr. B. C. Perera and Mr. Leonard Panambalana, the Director of Health Services and the officials of the Ministry of Health and Department of Health. We are confident that our new Minister of Health Mrs. Sunethra Ranasinghe will be equally responsive to our representations.

Your Excellency, there are three important issues, I would like to touch upon today.

1. **Drugs and pharmaceuticals**

The repeal of the Price Control Act in order to remove restrictions, encourage competition and allow the market forces to determine the price of goods has brought benefits to the consumer. Unfortunately when the Price Control Act was rescinded drug control also was revoked along with it. It was proposed to pass the Cosmetics, Devices and Drugs Act immediately after and the drug regulations were to be framed under this new Act.

Unfortunately, your Excellency, almost five years have passed and still the amendments to the Cosmetics, Devices and Drugs Act, in order to make it effective and the drug regulations that flow from it, have still to reach the statute books. We are reliably informed that the delay has been at the Legal Draughtsman's Department.

In order to expedite action on this issue, we respectfully urge you to issue a directive to the Legal Draughtsman's Department to treat this as a matter of urgent and national importance.

At the present time, the only control we have over the unrestricted import and sale of pharmaceuticals is at the point of registration of imports — beyond that, at the points of distribution and sale, there is an absence of governing regulations. This has resulted in the increasing misuse of potent pharmaceuticals by unqualified practitioners who have no knowledge of, or training in their proper use. With the effective removal of drug control a new abuse has crept in — the arbitrary substitution of low priced pharmaceuticals for the higher priced ones by unscrupulous persons who are only in search of unconscionable profits.

When a doctor prescribes a product it is based upon his knowledge, experience and confidence in the product which can be negated by substitution at the retail level by unprincipled persons. Substitution is something the average patient cannot detect. One of the places where substitution does **not** take place is the Osu Sala, which adheres strictly to the prescription of the doctor. Therefore we request the State Pharmaceuticals Corporation to open up several Osu Salas around the country, or if this is not feasible, to appoint accredited agents around the country, who adhere to the drug dispensing policies of the Osu Salas, so that the public in the periphery will be assured of safe and effective drugs at the correct prices without substitution. The Osu Salas will also result in a stabilizing effect on prices to the consumer.

2. **Returning Professionals**

Your Excellency, with the policies followed by your Government, we of the medical profession, are experiencing a new phenomenon. Sri Lankan medical professionals who sought employment in greener pastures are returning to Sri Lanka, now that under your administration our pastures have turned green.

The Sri Lanka Medical Association welcomes this reversal in the direction of the wind. The experience and expertise of these persons will prove useful to our country. We request, Your Excellency, to ensure that in the absorption of the returning professionals, that those doctors who stayed behind and served the country in leaner times are not placed at any disadvantage. If these professionals from abroad make proposals to change the health care delivery system in our country, we respectfully request you to have discussions with the Sri Lanka Medical Association which is the national organization, whose membership comprises experts from every segment of the medical profession.

3. **English**

The Sri Lanka Medical Association is of the view that a working knowledge of an international language is absolutely necessary for proper undergraduate, continuing and post graduate medical education. Since we have been using English for over a century, we welcome your Government's proposal to declare English as a national language. In point of fact, Your Excellency, the Sri Lanka Medical Association nearly three years ago, proposed that the medium of education in the Medical Faculties in Sri Lanka be English. At that time, you in your capacity as Minister of Higher Education while considering our proposal favourably, were kind enough to communicate to us the problems involved in the implementation of such a proposal. It has been brought to our notice, Your Excellency that the standard of English of a fair percentage of medical undergraduates is poor and that they have difficulty in coping with their studies.

The Sri Lanka Medical Association therefore suggests that an intensive course in English of 6 months duration be conducted for all those chosen to enter the Faculties of Medicine.

The key to the rich medical literature of the world is English and therefore a working knowledge of English is the sine qua non of a **good** medical student and a **good** doctor.

Your Excellency, these scientific sessions of the Sri Lanka Medical Association have been held every year without a break, since our Golden Jubilee in 1937 — when Sir Nicholas Attygalle was our President and Dr. E. M. Wijerama the Secretary. These annual sessions bring together the medical men and women from all parts of the island for four days of intensive activity — academic and social. The impact of these sessions cannot be overestimated.

This year we have a record number of scientific papers being read — over

sixty in number. This augurs well for the centenary year and certainly disproves the wrong notion that the doctors of today are too busy with their private practice and private pursuits to devote time to writing of scientific papers, doing research and transfering knowledge.

In addition we have had ten applications for orations of which we have chosen two for these sessions. The prestigious Sri Lanka Medical Association oration will be delivered today after this inauguration ceremony by Dr. S. J. Stephen who was also the orator 2 years ago when Your Excellency declared open the 1981 Scientific Sessions.

The S. C. Paul oration will be delivered by Dr. S. Ramachandran on the final day of the sessions. On Friday the 25th, we will be having a seminar on chronic liver diseases. This year we have broken new ground by inviting one of our own members Dr. Hudson Silva, to speak on his special field of interest "Eye banks in Sri Lanka." He has achieved international recognition in this field — he is undoubtedly the world's best eye collector — so our Association has decided to honour him.

The enjoyable annual "Musical Evening" presented by doctors and their families will be held tonight — and the traditional medical dinner will be held on Saturday the 26th at Pegasus Reef Hotel.

I thank all those who worked very hard to ensure that we will have a magnificient 96th Annual Sessions.

I must make special mention of Drs. Stella de Silva, Lalith Perera, Satkurunathan, S. J. Stephen, Lakshman Ranasinghe, D. W. Jayasinghe, Joe Wijayanayagam, Gamini Karunaratne, Chris Uragoda, Upul Wijayawardhana, Nihal Perera — and most of all the Convenor Secretary Dr. D. N. Atukorala.

Your Excellency, I recall when you addressed the medical students last year, you said "one must work hard; one cannot always command success but one can at least deserve it". Considering the volume of work Dr. D. N. Atukorala and this team of doctors have put in, they deserve success — I am sure that success will be their lot.

I must also thank the office staff of the Sri Lanka Medical Association — Miss Rani Abeysekera, Miss Malsiri Perera, Mr Walter Perera and Mr Gregory Joseph.

Your Excellency, once again, on behalf of the Sri Lanka Medical Association I thank you for gracing this occasion and I request you to inaugurate these sessions by lighting the traditional oil lamp.

Thank you very much.

Surgical Management of Mitral Stenosis in Pregnancy*

S J STEPHEN[1]

Ceylon Medical Journal, 1983, **28**, 8–15

Mr. President, Members of the Council, distinguished guests, ladies and gentlemen. First let me thank you, and the council for this great honour in inviting me to deliver the fifth S. L. M. A. oration. I look upon this oration as a forum for the members of the profession to express their scientific thoughts and ideas, in the hope it will stimulate the interests of the younger members of the profession. My talk this evening is "surgical mangement of mitral stenosis in pregnancy". Majority of patients in this study were referred by the late Prof. D. E. Gunatilaike. This idea for this study was born when Prof. Gunatilaike chaired the symposium on the managemeut of heart disease in pregnancy in Colombo in 1976. I have had a close liaison with Dr. Gunatilaike from the time we were at Ratnapura in 1957, and was introduced to gynaecological surgery by him. I wish to record my gratitude to him on this occasion.

Heart disease is the commonest non–obstetric cause of maternal death during pregnancy and is responsible for 7% of these deaths.[1] Most patients with pregnancy complicating heart disease do well. In a few, surgical correction of the defect may have to be done to increase the cardiac capacity when medical measures fail and there is threat of maternal death.

Most reports of heart disease in pregnancy are dominated by rheumatic heart disease.[2] Unlike in the west, the incidence and severity of rheumatic heart disease in Sri Lanka are not on the decline.[3] In our experience there has been no decline in the number of patients requiring surgical treatment for rheumatic mitral stenosis. Further, the number of new cases of mitral stenosis in young women being referred from maternal clinics is on the increase and so is the number of first valvotomies in young persons with uncomplicated mitral stenosis.

During recent times there have been conflicting reports on the role of mitral valvotomy in pregnancy.[4] The purpose of this study is to evaluate whether mitral valvotomy can be safely performed during pregnancy and whether such a procedure will improve the chances of survival of the mother and infant through pregnancy and the years subsequent to pregnancy.

MATERIALS AND METHODS

The material consists of 110 patients who had closed transventricular valvotomy for mitral stenosis in pregnancy during a eleven year period from May 1971 in one of the thoracic units in the General Hospital, Colombo. During this period 1360 valvotomies were performed for uncomplicated mitral stenosis.

Patients were referred for surgery from the obstetric, cardiac and medical units for various reasons, namely recurrent pulmonary oedema, haemoptysis, failure to respond to conservertive therapy rapidly and adequately,

---

* *Sri Lanka Medical Association Oration, 1983.*

[1] *Cardiothoracic Surgeon, General Hospital, Colombo.*

progressive symptomatolology during the first half of pregnancy and for classification of patients according to New York Heart Association criteria[5] functional class 3–4 early in pregnancy.

Incidence

The incidence and type of heart disease in pregnancy varies markedly in different countries and in differet hospitals, being 2% in the United States of America[6], 0.9% Scandinavia,[7] 0.5% Australia[8] and 0.9% Sri Lanka.[9] In 1962 Amerasinghe[10] reported 88(0.5%) cases of heart disease among 14,410 deliveries at the De Soysa Maternity Hospital, Colombo and there were 9 (10%) maternal deaths. During the period January 1974 to June 1977, 6,119 patients were admitted to the University Obstetric Unit at the De Soysa Maternity Hospital and 51 (0.83%) had heart disease of which 74.3% were rheumatic and 18% congenital. Of the 39 with rheumatic heart disease 25 (64%) had mitral stenosis and 14 (56%) had valvotomy in pregnancy.[11] In our surgical series during pregnancy 110 had valvotomy for mitral stenosis, 3 for closure of atrioseptal defect and one for ligation of patent ductus arteriosus.

Age at operation

The age at the time of valvotomy is shown in Table 1. The maximum age incidence was between 25 and 30 years. The mean age at operation was 26.9 years. There were only 8 patients above 35 years at the time of valvotomy.

Parity

The parity of the patients is depicted in Table 2. Majority of the patients (37.8%) were in their first pregnancy.

Month of operation

Three (2.7%) had the valvotomy during first three months of pregnancy, 61 (55.4%) between the fourth and sixth months and 46 (41.8%) during the last three months (Table 3). Twelve (10.9%) had valvotomy during the ninth month of pregnancy. The mean month of valvotomy was 6.2.

Table 1

Age of patients at time of valvotomy

Age (years)	No.	%
15 – 19	2	1.8
20 – 24	29	26.3
25 – 29	43	39.3
30 – 34	28	25.4
35 – 39	8	7.2
	110	100.0

Table 2

Parity of patients

Pregnancy	No.	%
P1	41	37.3
P2	23	20.9
P3	21	19.1
P4	17	15.5
P5	1	7.2
	110	100.0

Table 3

Month of pregnancy

Month	No.	%
2	1	0.9
3	2	1.8
4	10	9.0
5	31	19.0
6	30	27.6
7	21	19.0
8	13	11.8
9	12	10.9
	110	100.0

Clinical features

The clinical features of the patients are depicted in Table 4.

Table 4

Clinical features

	No.	%
Progressive dyspnoea	54	50.0
Haemoptysis	27	24.5
Pulmonary oedema	20	18.0
Nocturnal dyspnoea	14	12.7
Congestive cardiac failure	11	10.0
Atrial fibrillation	5	4.5

Haemoptysis

Haemoptysis is frequent in mitral valve disease[1,2] and in early stages results from rupture of a bronchial vein. Haemoptysis is relatively common in pregnancy, and occured in 27 (24.5%), while in the valvotomies done in a comparable group apart from pregnancy, the incidence was 16%.

Pulmonary oedema

The danger to patients with mitral stenosis is pulmonary congestion and oedema. British authors have emphasised the occurence of acute pulmonary oedema often unanticipated and frequently fatal, which may occur in relatively young women with only slight cardiac enlargement.[4] Pulmonary oedema occurred in 20 (18%) in pregnancy while the incidence in the valvotomies done apart from pregnancy was 9%. [3]

Details of the influence of age, parity, and the stage of pregnancy on pulmonary oedema are shown in Table 5. The highest incidence was among the young (20 to 30 years), first pregnancy (60%), and during the early months of pregnancy (75%).

Congestive cardiac failure

Congestive cardiac failure is not present unless some complication such as high pulmonary vascular resistance or uncontrollable atrial fibrillation occurs. A history suggestive of congestive cardiac failure was obtained in 11 (10%), while the incidence in the non–pregnant group was 20%. This low incidence of congestive cardiac failure is due to the early stage of the disease in pregnancy and, may be, reduced incidence of pregnancy in advanced heart disea se.

Atrial fibrillation

The incidence of atrial fibrillation in our series in low. There were 5 (4.5%) in atrial fibrillation, while the incidence in the non–pregnant group was 11%. Thismay account for the absence of thromboembolic complications in our patients.

Table 5

Distribution of pulmonary oedema according to age, parity and stage of pregnancy

Age		Parity		Stage of pregnancy	
Years	No.	Scale of preg.	No.	Month of preg.	No.
20 – 24	9 (45%)	P 1	12 (60%)	4	4 (20%)
25 – 29	8 (40%)	P 2	5 (25%)	5	3 (15%)
30 – 34	2 (10%)	P 3	1 (5%)	6	8 (40%)
35 – 39	1 (5%)	P 4	0	7	1 (5%)
		P 5	2 (10%)	8	2 (10%)
				9	2 (10%)
Total	20 (100%)		20 (100%)		20 (100%)

Auscultation

The hyperkinetic circulation during pregnancy causes heart sounds to be accentuated. A third of the patients who were diagnosed preoperatively as having tight mitral stenosis were found to have moderate stenosis during surgery. The increased flow during pregnancy may in itself call forth otherwise inaudible murmurs, such as in mitral stenosis[13]. This partly explains why many rheumatic valve lesions are found for the first time during the early part of pregnancy.

Radiology

Teleradiograms were available in only 42 (38%) as routine radiological examinations are avoided during pregnancy. They were normal in 6 (14.2%). 14 (33%) showed cardiomegaly and in 22 (52%) the only radiological abnormality was left atrial enlargement, suggestive of early disease in pregnancy.

Electrocardiography

Electrocardiograms were available in 80 patients. They were normal in 16 (20%), no ventricular hypertrophy was seen in 52 (65%) and in 42 (53%) the only abnormality was left atrial hypertrophy.

Echocardiography

Echocardiograms were done in 38 (34.5%) and the findings in 31 (81.5%) correlated well with the operative findings. Four (10. 5%) in whom the diagnosis of tight mitral stenosis was made on echocardiography were found to have moderate stenosis of the mitral valve during surgery. Echocardiography is the most reliable non-invasive technique to diagnose mitral stenosis in pregnancy. However, this needs further evaluation.

Results of mitral valvotomy

Brock[14], Cooley and Chapman[15], Logan and Turner,[16] and Mason[17] were the first to report on surgical treatment of mitral stenosis during pregnancy. In 1961, Harken and Taylor[18] collected 394 cases in which the maternal mortality was 1.8% and the foetal mortality 9%.

The present personel series of 110 mitral valvotomies were performed during pregnancy without any mortality. Twelve were performed during the ninth month of pregnancy, and 2 during the immediate postpartum period. There were 3 (2.7%) foetal deaths. Of the 12 patients who had valvotomy during the ninth month of pregnancy, 7 (58.3%) went into labour within 24 hours of valvotomy without any infant mortality.

Operative finding in the mitral valve

The anatomy of the mitral valve found during surgery is compared with the findings in 466 mitral valvotomies in non-pregnant women of the same age group. This is shown in Table 6.

Table 6

A comparison of mitral valves seen at valvotomy in pregnant and non-pregnant women

Valve		Pregnant women (No. = 110) %	Non-pregnant women (No. = 466) %
1. Orifice			
	Tight	67	82
	Moderate	33	18
2. Mobile cusp		98	84
3. Classification		2.7	9

Degree of stenosis

The incidence of tight mitral stenosis in pregnancy was 67%, while in the non-pregnant group was 82%. One third of the patients who had valvotomies during pregnancy had moderate stenosis. This correlates

well with the findings in 42% of patients who had symptoms for the first time in pregnancy.

Mobility of the anterior cusp of the mitral valve

The most important factor which determines the result of closed mitral valvotomy is the mobility of the anterior cusp of the mitral valve. The high degree of cusp mobility (98%) in pregnancy assures excellent results with closed mitral valvotomy.

Calcification of the valve cusp

The low incidence of calcification of the mitral valve in mitral stenosis in Sri Lanka has been documented earlier.[3] The incidence in the valvotomies performed during pregnancy was 2.7%, being one third of the incidence among the 1360 valvotomies for uncomplicated mitral stenosis.

Size of the pulmonary artery

The size of the pulmonary artery is an indirect measure of pulmonary hypertension. The size of the pulmonary artery was graded from 0 to 6, 0 being normal and grade 6 corresponds to the maximum size encountered during surgery. The size of the pulmonery artery seen during surgery was graded in the 110 patients and is shown in Table 7, and is compared with the findings in 466 valvotomies performed in the non-pregnant group.

In the pregnant group in 83 (75.4%) the grading of the pulmonary artery was between 0 to 3, while in the non-pregnant group with the identical grading the incidence was 13.5%. These findings suggest that the incidence of vascular pulmonary hypertension in the valvotomies done during pregnancy is very minimal.

Pregnancies after valvotomy

The incidence of future pregnancies in women after mitral valvotomy is shown in Table 8. The combined series of 260 patients after mitral valvotomy were followed up for a minimum period of five years. This includes the 60 women delivered at term following valvotomy during pregnancy. The results of the number of pregnancies experienced by the 60 women who had valvotomies during pregnancy was compared with 200 women who had valvotomies apart from pregnancy, after a five year period of follow up. The first group of 60 women experienced 72 pregnancies, an incidence of 1.2 pregnancy per head, while the second group of 200 experienced 148 pregnancies, an incidence of 0.7. Sixty six women were over thirty years

Table 7

Size of pulmonary artery seen at mitral valvotomy

Grade	Pregnant women		Non-pregnant women	
	No.	%	No.	%
1	5	1.8	7	1.5
2	19	17.2	17	4
3	59	53.6	37	8
4	23	23.6	380	81
5	4	3.8	23	5
6	0	—	2	0.5
Total	110	100	466	100

Table 8

Pregnancies in women after mitral valvotomy

(5 year follow up)

	No.	No. of subsequent pregnancies	Incidence/head %
1. Valvotomy during pregnancy	60	72	1.2
2. Valvotomy in non-pregnant women	200	148	0.7
3. Age over 30 years	66	10	0.15

at the time of volvotomy and experienced only ten pregnancies, an incidence of 0.15 pregnancy per head. There were eight mitral revalvotomies during pregnancy. The mean time interval after the first operation was 7.3 years. There were 16 pregnancies in the eight patients during the intervals between valvotomies.

Mitral restenosis

The 60 women who delivered at term following valvotomy during pregnancy were followed up for a period of five years, 2 (3.3%) developed restenosis, while in the 284 women who had valvotomy apart from pregnancy 15 (4.2%) had restenosis after a similar period of follow-up. The incidence of restenosis in our series is less than that in the group submitted to valvotomy outside pregnancy. This distinction is contrary to earlier reports[19].

DISCUSSION

Rheumatic mitral stenosis is still the most common form of heart disease in pregnancy. However, there is a relative variation in the geographical incidence. Reports from continental Europe[20] have usually shown less rheumatic and more congenital heart disease, while in Sri Lanka there has been no decline in the incidence of rheumatic mitral stenosis. Mitral stenosis as seen in Sri Lanka is different from that in western countries; it occurs in the young and the results of closed transventricular valvotomy are excellent[3].

Brock[14], Cooley and Chapman[15], and Logan and Turner[16] were the first to report in 1952 on the surgical treatment of mitral stenosis in pregnancy. They treated 11 women with commissurotomy during the middle part of pregnancy and noted one maternal death and one premature delivery (with a viable child). Since then, there has been an increasing number of patients treated with valvotomy during pregnancy with a maternal mortality of 1.8% and foetal mortality of 9%[18]. In 1977, Szekely and Snaith[21] reported from Newcastle, one maternal death in 29 valvotomies performed during pregnancy.

In the present series of 110 valvotomies performed during pregnancy there were no maternal deaths, while the foetal mortality was 0.9%. The good surgical results are attributed to the young age of the patients, mobile valve cusps free from calcification, good myocardial function and the abscence of thromboembolic complications.

The favourable outcome of pregnancy for both mother and child signifies clear cut improvement in cardiac performance following surgical treatment. According to earlier published reports[18,22], the incidence of restenosis at the end of five years after surgery was 5%, and within nine years 60%. We noticed a lower rate at the end of five years (3.3%) in women who had volvotomy during pregnancy, compared to the incidence of 4.2% in the non-pregnant group after a similar period of follow-up.

The incidence of future pregnancies in 60 (after valvotomy in pregnancy at) the end of a five year period was 1.2 pregnancy per head, while in the 200 who had valvotomy apart from pregnancy, the incidence was 0.7 pregnancy per head. In the combined series of 260 patients after mitral valvotomy 66 (25%) were over thirty years at the time of surgery, they experienced only ten pregnancies, while the 194 under 30 years had 138 pregnancies. Women with mitral stenosis should have early valvotomies, and pregnancies before they are in their thirties.

Although mitral valvotomy is a safe operation during pregnancy, it is best avoided during the last month of pregnancy, as half the patients who had valvotomies during this period experienced premature labour. Further, postoperative oedema of the breast is a common complication in the valvotomies performed during the last month of pregnancy. This is avoided by a posterolateral thorocotomy for access instead of the usual anterolateral one.

The incidence of pulmonary oedema was high in our series and one fifth of the valvotomies were for pulmonary oedema in previously asymptomatic patients. Majority of patients in this group were in their first pregnancy. In 42% symptoms occurred for the first time in pregnancy and the diagnosis of heart disease made for the first time. Mitral stenotic murmur may be heard for the first time during pregnancy due to increased blood flow through the valve[13]. This emphasises the need for thorough physical examination of the heart of all pregnant women regardless of the medical history.

The early stage of the disease at the time of valvotomy is reflected in the absence of significant radiological and elecrocardiographic findings, moderate size of the pulmonary artery observed during surgery and the high incidence of moderate stenosis of the mitral valve.

In 36 patients, the valve stenosis was classified as moderate; the valve orifice just admitted the middle phalanx of the index finger and 28 (55%) of them had repeated atttacks of pulmonary oedema. It is clear from this, and others' experience[23] that the functional degree of stenosis is sometimes greater than anatomical degree as judged by the exploring finger. From our studies it is clear that mitral valvotomy is a safe operation during pregnancy, there is a low incidence of restenosis and chances of future pregnancies are greatly increased.

SUMMARY AND CONCLUSIONS

1. During a eleven year period closed transventricular mitral valvotomy was performed in 110 patients in various stages of pregnancy and the results evaluated as to the safety of the procedure during pregnancy, the chances of future pregnancies and incidence of restenosis.

2. Majority of patients were in the early stages of evolution of mitral stenosis.

3. Maternal mortality nil and foetal mortality of 0.9%.
4. High degree of mobility of valve cusp (98%).
5. Low incidence of restenosis.
6. Incidence of future pregnancies higher than in women in whom valvotomies were done apart from pregnancy.
7. Majority of patients were in their first pregnancy and in half symptoms occurred for the first time.
8. High incidence of premature labour in valvotomies performed during the last month of pregnancy.

ACKNOWLEDGEMENTS

It is with a deep sense of gratitude I acknowledge the part played by my colleagues, Drs. N. J. Wallopillai, U. D. Wijewardena, D. P. Athukorale, S. R. de Silva and P. N. Thenabadu for evaluation of these patients; the obstetricians from the De Soysa Maternity and Castle Street Hospitals for referring their patients; Dr. A. T. W. Jayawardena and his team for the improved results and Dr. C. G. Uragoda and Dr (Mrs) B. E. Stephen for all the assistance.

REFERENCES

1. Department of Health & Social Security (1969) *Report of confidential inquiries into maternal deaths in England and Wales, 1964-68* London: HMSO.
2. Mendelson, F I, Ewy, G A and O'Rouke (1970) *Circulation*, **41**, 795.
3. Stephen, S J (1979) *Ceylon Medical Journal*, **24**, 13.
4. Metcalfe, J & Ueland, K (1978) *Heart and Pregnancy. The Heart* (4th ed.) p 1721-33. New York, McGraw Hill Book Company.
5. The Criteria Committee of the New York Heart Association (1964) *Diseases of the Heart and Blood vessels : Nomenclature and Criteria for Diagnosis*, ed. 6 p 112, Boston, Little Brown and Company.
6. Adams, J Q (1968) *Clinical Obstetrics Gynecology*, **11**, 910.
7. Buemann, B and Krogelund, S (1962) *Acta Obstetrics Gynaecology Scandinavia*, **41**, 57.
8. Etheridge, M J (1968) *Medical Journal of Australia*, **2**, 1172.
9. Ranasinghe, D A (1953) *Ceylon Medical Journal*, **2**, 35.
10. Amarasinghe, P H (1962) *Ceylon Medical Journal*, **7**, 161.
11. Manoharan, V and Thavarasa, I S (1980) *Journal of Obstetrics and Gynaecology (Sri Lanka)* **9**, 36.
12. Wood, P (1954) *British Medical Journal*, **1**, 105.
13. Marcus, F I, Ewy, G A and O'Rourke, R A (1970) *Circulation*, **41**, 795.
14. Brock, R C (1953) *Proceedings of Royal Society of Medicine*, **45**, 538.
15. Cooley, D A and Chapman D W (1952) *Journal of American Medical Association*, **150**, 1113.
16. Logan, A, Lowther, C P and Turner, R W D (1952) *Lancet*, **1**, 128.
17. Masaon, J (1952) *Journal of Obstetrics Gynaecology British Empire*, **59**, 569.
18. Harken, D E and Tailor, W J (1961) *Clinical Obstetrics Gynecology*, **4**, 697.
19. Ueland, K (1965) *American Journal of Obstetrics Gynecology*, **92**, 148,
20. Auinger, W (1967) Pregnancy in aquired and congenital heart valve diseases (in German) *Wien Z Inn Medicine*, **48**, 353,
21. Szekely, P and Snaith, L (1977) *Clinical Obstetrics Gynecology*, **4**, 276.
22. Logan, A, Lowther, C P and Turner, R W D (1963) *American Heart Journal*, **65**, 135.

Eye-Banks*

HUDSON SILVA[1]

Ceylon Medical Journal, 1983, **28**, 16–21

Mr. President, Members of the Council of the Sri Lanka Medical Association, ladies and gentlemen.

I do most sincerely thank the President, Council of the Sri Lanka Medical Association and the honourable members for the great and unique honour conferred on me and through me to the Sri Lanka Eye Donation Society, by inviting me to deliver this Guest Lecture. At the very outset, I confess that I am not a specialist as this term is understood in the medical circles. I simply cannot stand shoulder to shoulder with the renowned men and women who have hallowed this rostrum, delivering lectures on profound scientific and medical subjects.

The only claim I have to this special position is that I have been successful in obtaining thousands and thousands of gift human donor eyes for research and keratoplasty, while throughout the world persons with many academic qualifications and access to unlimited resources in men, money and materials have not been successful.

The august assembley here will surely pardon me for referring to "I" and "me" while referring to the movement, and the work that has resulted in international recognition for the work I have pioneered. I shall also refrain from referring to persons by name except when paying compliments; but some unpleasant situations and incidents have been mentioned here merely to illustrate the odds against which this movement had to be built up and sustained.

The narrative is in two stages — one where Lord Buddha 25 centuries ago referred to the donation of eyes mentioned in Sivi Jataka. A careful scrutiny of the story makes it clear that the restoration of vision to a blind man with the aid of the eyes donated by the Bodhisatva was not a miracle but a surgical operation performed by the royal physician. When King Sivi offered to have his eyes removed to restore vision to a blind man at one stage the physician said halfway through the operation, that if the king wished to withdraw the offer, it was the last chance; if he went a step further there was no chance of regaining vision. This obviously was the stage at which the optic nerve was to be severed. Therefore it is abundantly clear that the operation was not a mythical case of 'eye grafting'. If that were possible the physician would be able to graft an eye to the king later if requested.

There is a tendency in western literature to refer to Erasmus Darvin in 1796 as the first person ever to mention the possibility of making a hole in an opaque cornea so that the tissue that will grow into it will eventually produce a clear corneal area. It was more than 90 years later that the German ophthalmologist Arthur von Hippel achieved the first

---

* *Guest Lecture delivered at the 96th Anniversary Session.*

[1] *Medical Director, Sri Lanka Eye Donation Society.*

successful cornea graft from one human to another.

Eye banks of the world

There are hundreds of eye banks in the world today, because every large eye unit and even many small ones start an eye bank to collect, process and utilise human donor eyes. Thus in U. S. A. there are at least 680 eye banks, in Japan 46 and many more in the USSR, England, Germany and France. Many other countries have eye banks of various descriptions, most of which serve only the institute to which each one is attached.

The world's oldest and still the largest is the Eye Bank for Sight Restoration in New York, established in 1948. Over the years they have collected many thousands of eyes for keratoplasty and research. They do not send any eyes outside the United States.

The eye banks at Moorfields Eye Hospital and at East Grindstead in England are also well known for the large number of donor eyes received and utilised. They do send donor eyes to some foreign destinations particularly on special projects where their doctors go to foreign countries to teach and demonstrate keratoplasty techniques. As patients come from under-developed countries to the UK for keratoplasty, this service too is international.

Washington International Eye Foundation is an institute that started sending eyes to foreign countries in significantly large numbers. They used a method of dehydration of corneas in glycerol. Excess eyes from numerous eye banks in USA were sent out to distant places by them starting an international donor service. But dehydrated corneas have very limited uses and therefore have not become popular even in remote areas in spite of the keeping qualities claimed up to 3 or more years.

Eye banks in Australia and New Zealand have sent out some eyes to countries in the neighbourhood but the supply has proved to be irregular, meagre and therefore undependable.

In the USSR there are eye banks in all major eye institutions and the supply is reported to be adequate. The supply of eyes in the Peoples Republic of China is inadequate; keratoplasty is done only in large cities.

Out of all the countries I had an opportunity of visiting and getting information, Sweden appears to be the country with the greatest potential for donor corneas. As an autopsy is done on every cadaver in every hospital, and the doctors are free to remove any tissue deemed necessary, there seems to be a potential for 3000 or more corneas annually. But they obtain only about 50 corneas out of this vast pool to meet their own requirements. In a medical world starved for donor corneas, the greatest anomaly is thus sadly witnessed in Sweden — a country famous for its welfare work.

In countries with huge populations such as India and Indonesia with much corneal blindness caused by malnutrition, trachoma and also mal-treatment of eye diseases, the supply is pathetically low. Even in countries such as Japan and Taiwan with well developed medical services, the supply is tragically low. It is with this background in mind that we now look at our own Eye Bank in Sri Lanka. We have managed to develop an eye donor service which has helped 115 cities in 44 countries to receive 11,995 eyes within 18 years, in addition to

supplying the total known needs of Sri Lanka. In the first year (1964) we sent out only 6 eyes to Singapore as an experiment and also to meet a challange by an ophthalmologist published in a newspaper that eyes cannot be sent abroad. In the next year, we sent 27 eyes to Addis Ababa and some to Bombay, Hongkong, Bangkok, Delhi and Singapore making a total of about 60 eyes.

The service expanded much beyond our expectations and resources until now, when the average number of eyes and corneas sent abroad annually is over 1500. The time interval between the 1st eye and the 100th was 996 days; this improved to 69 days for the 100 eyes between 1401 and 1500. The interval has been shortened further to 17 days for the 100 eyes completing 11,900.

Taking in groups of 1000 eyes, first thousand eyes took 3163 days (nearly 9 years), while the interval between the 10,000th and 11,000th was 201 days. The next 1000 is expected to cut the time to 170 days. When these figures for international donation of eyes are announced, there is a fallacious tendency to believe that we disregard the needs of our local doctors.

Figures for Sri Lanka are not accurately known to us because some eyes are collected by the local institutions and utilised independant of the eye bank. The demand by our doctors (both public and private sectors) is only about 200 eyes a year which is a mere 10% of the total supply. Local demand is supplied on a priority basis, and a patient has to wait more than 2 or 3 days for a cornea only if the surgeon prefers to use the eye of a young donor.

But it is known to us that sometimes patients are kept waiting for a cornea graft due to reasons unconnected to the supply of eyes. Some of these are the dearth of anaesthetists, lack of water, failure of electricity, lack of sutures and sometimes the refusal of patients to be operated on a particular day owing to the wrong position of the stars in the heavens. A very rare occasion is the case of a doctor who keeps patients in hospital for months and months at government expense without requesting corneas either from the eye bank or from the health administration; and discharges them later saying "no eyes for Sri Lankans, but no shortage for Japanese, Taiwanese and Saudis".

Methods of collection, preservation and transport

Donor eyes are collected in the shortest possible time, but preferably within 4 hours of death. The longest period on record is 26 hours for a young person who committed suicide. His body went into refrigeration at the Police Morgue within 2 hours, and the eyes removed after the autopsy on the following day. The permissible time interval between death and enucleation is shorter for an elderly person and for a patient who dies of a prolonged illness. An unconscious patient can have his corneas spoilt by exposure keratitis even before death, unless the eyes are kept closed or moistened frequently. This is done only in intensive care units as a routine.

We use three different methods of preservation at our International Eye Bank depending on the final destination to which eyes are to be sent. For Sri Lanka, India Pakistan Indonesia and many other countries the **moist chamber method** is used. Here, the eye is fixed to a metal frame with the cornea looking upwards and the frame placed inside a bottle which has a

little moisture (sterile water or saline) but not to immerse or touch the eye. When preserved at 4° C such eyes can last 3 days and sometimes even 4 days. Such eyes can be used for penetrating grafts as well as lamellar grafts.

EPK fluid : Eye Preservative Kyoto is a fluid developed at Kyoto Medical University to preserve the whole eye for up to 6 days. The main constituents of this fluid are the tissue culture medium TC 199 an chondroitin sulphate giving it protection against oedema by osmosis. Eyes preserved by this method at 4° C have been sent to Japan, Taiwan Switzerland and Ecuador for many successful penetrating grafts. Quito in Ecuador is the most distant place in the world for gift eyes from Sri Lanka, and eyes reached it via 3 flights through Bombay and Frankfurt within 28 hours.

MK fluid : This fluid developed by Mc Carey and Kaufmann in USA also contains TC 199 (in dextran). It is used for the preservation of a corneo-scleral button (the cornea with a 2–3 mm rim of sclera) cut out from the donor eye The cornea is immersed in this fluid and preserved at 4°. These corneas have been used up to 5 days, but only for penetrating grafts.

Organ culture medium : A new method of organ culture for corneas has been developed very recently at the Minnesota State University giving a life-span of up to 30 days to donor corneas (buttons) at room temperatnre. Experimental work has been successfully completed, and some clinical trials too have been successful. We too had an opportunity of contributing to the final clinical trials through Project Orbis which brought this method to Sri Lanka for the first time.

Having the double advantage of a phenomenally long life span for donor corneas, and doing away with the need for refrigeration at 4° or any other specific temperature the remotest corners of the world now become accessible to our eyes. All these years we were limited by a time interval of about 30 hours between despatch and utilisation.

Transport : Transport is done in an expanded polysterene (rigifoam) box developed at Westminister Eye Hospital, London. They claimed a life span of 18–22 hours for transport at 4° with the original methods. We modified it by inserting a new type of bottle from Buffalo Eye Bank, and using a solid block of ice instead of the original cubes, thus increasing the life span to 34 hours — adequate to send eyes to Quito, San Francisco and Rio de Jeneiro from Colombo. We will have to continue using this method for a long time because the new organ culture method of preservation is extremely expensive at present. It is essential to take cultures for pathogens from the medium at specified intervals, because any contaminant will multiply fast in the tissue culture medium at room temperature.

Now let us take a brief look at the beginnings, troubles, tribulation and the triumph :

It was way back in early 1957 when I happened to be a member of a group of medical students who watched a keratoplasty operation done by Dr. P. Sivasubramaniam FRCS. While describing and demonstrating the operation he alluded to the shortage of donor eyes. Earlier there was a steady but meagre supply from prisoners hanged in the gallows. From 1956 when the death penalty was suspended that supply dried up leaving a long

waiting list — some patients had waited as long as 9 years for a graft.

Then I decided to give my own eyes after death, and when I mentioned this to my mother, she said "son, before you die I will be dead; start this campaign by taking my eyes". I prepared a newspaper article "Life to a Dead Eye" explaining how eyes can be given after death and gave it to a newspaper which was not inclined to publish it thinking it might be a publicity stunt; and also as the author was a mere unknown medical student. After 3 months of waiting, the article was withdrawn from that paper and given to Sunday Lankadipa which published it on 19th January 1958 giving a start to a massive publicity campaign which resulted in the enrolment of 514,000 persons including social and religious leaders of all descriptions.

Even if all the required facilities had been provided these achievements would stand out; but when it has been achieved in the face of powerful, organised and consistent opposition, I am really gratified to recall the struggle. For nearly 18 years, I was not only the doctor to the eye bank, but also driver, messenger, typist, duplicating machine operator, fund raiser, public relations officer, telephone receptionist etc, assisted by my wife and a few volunteers.

I now refer to a few incidents to illustrate the odds against which we had to work :

I had been discontinued from the Department of Health for criticising it with regard to the large scale wastage of donor eyes, and it was the Medical Superintendant of the Eye Hospital who had to bear the brunt of the criticism. He issued instructions to all government hospitals that I was not to be permitted to remove eyes inside the institutions as I was a discontinued officer.

To overcome this, I got the donors bodies out of the hospitals and brought them home to my garage at Ward Place during the day; and removed eyes on the roadside with the aid of street lamps in the night. Some minor employees in the hospital mortuary risked punishment by permitting me to remove eyes in the morgue when taking the body out was impractical. I carried the bottles in my pockets to prevent being detected from far.

Then instructions went out to all the eye units in hospitals that eyes were not to be received from voluntary organisations unless they had been affiliated to the Eye Hospital eye bank (a mere name). At the same time a request went out to the Principal Collector of Customs that eyes should not be permitted to be exported, unless cleared by the Eye Hospital as "not needed for use in Sri Lanka". During the period it took us to wriggle out of this situation about 120 good human eyes rotted away. To spot-light this cruel situation, I sent a package of rotten human eyes to the Permanent Secretary of the Ministry of Health with a note that the stench in the package depicts the state of affairs in the Department of Health. With the front-page publicity this episode brought, some of the obstacles were reluctantly removed.

The other incident illustrates the effort it takes to have a pair of eyes delivered to a destination in spite of having the facilities now. On 25th November 1981, Dr. S. Anandarajan FRCS wanted a pair of eyes to take to Male with him to perform the first-ever keratoplasty operations in the Maldives. He left Colombo

at 12.00 noon as we had no eyes to give him. But we received eyes at 12.35 p.m. I realised that I could still catch the plane if I rushed to Katunayake at highspeed.

I drove the car myself with the driver by my side to be on the look-out for speed traps. If we noticed one in time, we were to slow down; but if we went through one without noticing it, the decision was to proceed regardless, and explain or take the punishment later.

Having had no time to obtain a permit to enter the airport, I rushed inside, mentioning to the Air Force guards that I had to get this package into the plane immediately. Customs officers and security staff inside had been informed already by Dr. Anandarajan personally, and by my wife by telephone.

To my great dismay, the ladder to the plane had been removed, and the doors closed; but with a radio-telephone message we managed to get the door re-opened: but the Air Lanka ground hostess was not tall enough to hand over the package. Ultimately a tall man came to the scene, and managed to get the package into the plane, and on to Dr. Anandarajan's lap. thus bringing relief to all, including two patients at Male.

Over the years such instances have been many. The invitation by the Council of the Sri Lanka Medical Association to me give this Guest Lecture has given me an opportunity of looking back over the years and feel happy for what has been achieved.

Thank you for listening, ladies and gentlemen.

Contaminated Opium as a Source of Chronic Arsenic Poisoning in Sri Lanka*

K S A JAYASINGHE,[1] S A MISBAH,[2] S SOOSAINATHAN,[2]
A CANAGASUNDARAM,[2] D DE SILVA,[2] M H R SHERIFF[3] and K DHARMADASA[4]

Ceylon Medical Journal, 1983, **28**, 22–27

SUMMARY

Sixteen adult opium dependents were studied. Thirteen had a diffuse, generalized hyperpigmentation involving the palms, soles and dorsum of the hands and feet. Nine (56.3%) had strong biochemical evidence of arsenic poisoning. A sample of opium had arsenic in a concentration of 60 mg/100g.

Opium as a source of arsenic poisoning has been previously described in India and Sri Lanka. A large number of opium dependents may be thus suffering from chronic arsenic poisoning.

INTRODUCTION

Chronic arsenic poisoning occurring in opium dependents due to ingestion of opium contaminated with arsenic was initially recognised in Sri Lanka in 1982.[1]

The present study consisted of clinical and biochemical evaluation of male opium dependents who were admitted to the University Medical Unit from January to December 1982.

MATERIALS AND METHODS

Sixteen patients admitted during this period were included in this prospective study. Their ages ranged from 29 to 69 years (mean of 41.5 years). A detailed clinical examination and certain laboratory investigations were done. Analysis of urine, hair and nails was done for arsenic using the Gurzeit test — semiquantitatively whenever possible.[2] Samples of opium obtained by the patients were also analysed for arsenic content.

RESULTS

The initial admissions were in January 1982 for intercurrent illnesses such as acute bronchitis, bronchial asthma and bacillary dysentery, but others complained of symptoms which could be considered more specific for chronic arsenic poisoning such as nausea, abdominal colic, peripheral paraesthesia and pigmentation. All the patients confessed to addiction to opium and had ingested it almost daily for the past 2 to 30 years (mean of 13.6 years).

On examination, 13 of them had a diffuse, generalized hyperpigmentation predominantly involving the palms, soles and dorsum of the hands and feet. One had involvement of the palms only. Seven patients had a superadded spotty hypopigmentation which is considered to be quite characteristic of chronic arsenic

---

* *Paper presented at the 96th Anniversary Session of the SLMA. Joint winner of the Dr. E. M. Wijerama Award.*

[1] *Lecturer in Medicine.*
[2] *House Physician.*
[3] *Senior Lecturer in Medicine.*
[4] *Professor of Medicine,*
University Medical Unit, General Hospital, Colombo.

poisoning. Five of the patients had hyperkeratosis of the palmar — plantar surfaces. The other clinical features are shown in Table 1.

The details of the laboratory investigations are presented in Table 2.

Thus, 9 patients (56.3%) had strong biochemical evidence of arsenic poisoning. A sample of opium showed arsenic in a concentration of 60 mg/100 g. This is nearly 170 times the tolerance limit used for fruits and vegetables in the U.S.A.[3] Other striking laboratory features were the evidence of liver cell dysfunction with elevated serum glutamic oxalacetic transaminase (SGOT) in 9 patients and elevated serum glutamic pyruvic transaminase in 1 patient, anaemia (2 patients) neutropenia (3 patients), and thrombocytopenia (2 patients).

DISCUSSION

In the presence of a high arsenic content in the opium consumed by these patients, it is reasonable to conclude that the vehicle for their poisoning was opium. The commonest clinical feature encountered was hyperpigmentation. Unlike the classical description of a diffuse hyperpigmentation involving the areas exposed to light[4] our patients had predominant involvement of the palms and soles. The black-foot disease occuring in Taiwan where well water contained a high level of arsenic differs by the presence of a proliferative and degenerative arterial change leading to ischemic necrosis of tissues.[5] Muscular pain, weakness and sensory motor peripheral neuropathy are common with chronic exposure while abdominal colics and anorexia are well known features of acute arsenic poisoning.[6] We were unable to find any patients with Mee's lines or skin malignancy in our series. Liver cell damage with fatty infiltration and central necrosis occurs in acute arsenic poisoning[7] but usually the organic arsenic compounds cause a cholestatic jaundice, with slight parenchymal damage.[8] In India chronic arsenic poisoning has been implicated in the causation of portal hypertension.[9] Bone marrow depression is also a well known haematological complication of arsenic poisoning which would explain the anaemia, neutropenia and thrombocytopenia observed in some of the patients.[10] Thus the presence of certain symptoms of acute poisoning may have been due to the high dose of arsenic ingested by these patients.

Adultration of opium with arsenic leading to chronic arsenic poisoning in opium dependents has been reported in India by Datta in 1978.[11] It was suggested that the arsenic was added in the belief that it had aphrodesiac properties. In Sri Lanka too, it is possible that the arsenic is deliberately introduced for this purpose or to add bulk to the opium. With this increase in bulk the illicit pedlar can increase his profit margin. There is an estimated 37,000 to 58,000 opium dependents in Sri Lanka.[12] Thus it is possible that a large number of our opium dependents are having chronic arsenic poisoning. The latent cases can be detected only by biochemical screening. The medical profession in Sri Lanka should bear in mind the possibility of chronic arsenic poisoning in every patient who is addicted to opium particularly if he shows evidence of hyperpigmentation.

ACKNOWLEDGEMENTS

We would like to thank the nursing staff and the members of the University Medical Unit for helping us in the research project, and Mr. P. J. Amarasekera, Mr. G. M. Premaratne, Mrs. Nelum Mendis

Table 1

Clinical Features

Case No:	Age (Yrs)	Other symptoms/diseases	Pigmentation (intensity varies)			
			Generalised	Perineum	Palm	Sole
1	45	Anorexia, nausea	D	D	D,Hk	D,Hk
2	40	Anorexia	D	D	D,HM	D
3	35	Oedema of the scalp, Abd. colics	D	D	D,HM, Hk	D,Hk
4	25	Abd. colics	D	D	D	D
5	33	Acute bronchitis	D	D	D	D
6	63	Dryness of throat	—	—	P	—
7	31	Br. pneumonia, SMPN	D	D	D,HM	D,HM
8	33	Epigastric pain	D	D	D,HM	D,HM
9	48	Bacillary dysentery	—	—	D	—
10	42	Acute br. SMPN	D	D	D,HM,Hk	D,Hk
11	47	Bronchial asthma	—	D	D	D
12	42	Acute bronchitis	—	D	D	D
13	69	Rhinorrhea, body aches	—	—	P	P
14	35	Constipation, abd. dist.	D	D	D,HM,Hk	D,Hk
15	29	Body aches	—	D	D	D
16	47	Angular stomatitis Lower limb swelling	D	D,HM	D,Hk	D,Hk

P — Patchy, D — Diffuse, HM — Hypomelanosis, Hk — Hyperkeratosis
SMPN — Sensory motor peripheral neuropathy

Table 2

Biochemical investigations in the 16 cases

Biochemical parameter (normal values within brackets)	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
Blood urea (20–40 mg/100ml)	12	12	34	24	14	—	22	18
Serum creatinine (1–1.5 mg/100ml)	0.75	0.75	1.75	—	0.6	—	—	0.9
SGOT (6–8 iu/l)	14	20	39	27	29	—	44	29
SGPT (3–26 iu/l)	8	9	8	13	13	—	9	23
Alkaline phosphatase (3–13 KA/l)	25	10	10	—	9.5	—	12	10.5
Serum bilirubin (0.3–1.0mg/100ml)	1.3	1.1	0.7	1.5	0.6	—	—	1.2
Hb (14–18 g/100ml)	11.6	10.0	12.3	—	—	—	6.5	16.5
Total white cell count in cells/per cu.mm	6400	9400	5000	—	—	—	500	1600
Neutrophils %	61	39	47	—	—	—	—	72
Lymphocytes %	34	38	29	—	—	—	—	20
Eosinophils %	05	23	24	—	—	—	—	08
Monocytes %	—	—	—	—	—	—	—	—
Platelet count per/cu.mm	83000	200000	—	—	—	—	82000	175000
Urinary arsenic (<0.2 mg/l)	+	+	3.5	Nil	Nil	Nil	1.1	Nil
Arsenic content in hair (<0.01 mg/100g)	2.5	—	2.0	—	1.4	—	—	—
Arsenic content in nails (<0.01 mg/100g)								

(Contd.)

Biochemical parameters (normal values within brackets)	Case 9	Case 10	Case 11	Case 12	Case 13	Case 14	Case 15	Case 16
Blood urea (20–40 mg/100ml)	—	18	22	15	36	—	24	18
Serum creatinine (1–1.5 mg/100ml)	—	1.1	—	0.7	—	—	—	0.4
SGOT (6–18 iu/l)	—	44	10	14	24	—	24	18
SGPT (3–26 iu/l)	—	11	7	9	8	—	9	55
Alkaline phosphatase (3–13 KA/l)	—	21	5.3	13.5	5.0	—	11.0	15.5
Serum bilirubin (0.3–1.0mg/100ml)	—	1.3	0.2	0.5	0.8	—	0.9	1.0
Hb (14–18 g/100ml)	—	—	11.7	13.7	12.8	—	11.9	7.8
Total white cell count in cells/per cu.mm	22400	10200	9600	10400	10400	—	9800	3000
Neutrophils %	78	46	60	37	65	—	52	72
Lymphocytes %	15	31	33	25	26	—	39	21
Eosinophils %	7	14	—	24	2	—	6	—
Monocytes %	—	9	7	4	7	—	3	7
Platelet count per/cu.mm	—	—	214000	—	—	—	—	100000
Urinary arsenic (< 0.2) mg/l)	nil	+	+	nil	nil	nil	nil	+
Arsenic content in hair (< .01) mg/100g)	—	+	—	—	—	+	—	—
Arsenic content in nails (< .01 mg/100g)	—	—	—	weakly+	—	+	—	—

for the laboratory investigations. Our grateful thanks also go to the members of the Government Analyst's Department and the CISIR for helping us with the analysis.

REFERENCES

1. Dharmadasa, K, Jayasinghe, K S A, Misbah, S A, Sherif, M H R and Wijesiriwardene, B C. Chronic arsenic poisoning in opium dependents of Sri Lanka. (in press)
2. Beckett, A M and Stenlake J B (1968). *Practical Pharmaceutical Chemistry*, p. 23, London. The Athone Press.
3. Jelinek, R B and Corneliussen, P E (1977). *Environmental Health Perspective* **19**, 83.
4. Birmingham, D J (1979). *Dermatology in General Medicine*, 2nd ed. Fitzpatrick, T B, Eisen, A Z, Wolff, K. Freedberg, I M, Austen, K F p. 997, New York, McGraw-Hill Book Co.
5. Hopps, H C (1977), *Pathology*, (Vol **1**). 7th ed. Anderson, W A D p. 707. St. Louis The CV Mosby Co.
6. Poskanzer, D C (1980). *Harrison's Principles of Internal Medicine*, 9th ed. Isselbacher, K J, Adams, R D, Braunwald, E, Petersdorf, R G Wilson, J D p. 966. New York. McGraw Hill Kogakush Ltd.
7. Harvey, S C (1975). *The Pharmacological Basis of Therapeutics*, 5th ed. Goodman, L S, Gilman, A, p. 929. New York. McMillan Publishing Co. Inc.
8. Weinbren, K (1978). *Systemic Pathology* (Vol. 3) 2nd ed., ed. Symmers, W St C, Edinburgh Churchil Livingston.
9. Datta, D V, Mitra, S K, Chhuttani, P N and Chakravasti, R N (1979). *Gut*, **20**, 378.
10. Wintrobe, M M, Lee, G R, Boggs, D R, Bithell, T C, Athens, J W, Foerster, J (1974). *Clinical Haematology*, 7th ed. Philadelphia, Lee and Febiger.
11. Datta, D V (1978) *Journal of the Association of Physicians, India* **26(4)**, 223.
12. Navaratnam, V (1978). A preliminary assessment of the extent and nature of the drug abuse problems and an evaluation of current activities relating to its control. Colombo, Drug advisory programme of Colombo Plan Bureau.

Chronic Arsenic Poisoning in Opium Addicts in Sri Lanka*

A T BALACHANDRA[1], B A W BALASOORIYA[2], D N ATHUKORALE[3], C SELVIE PERERA[4], K D HENRY[5]

Ceylon Medical Journal, 1983, **28**, 29–34

SUMMARY

A patient who was admitted to Colombo South General Hospital with alcoholic liver disease was found to have chronic arsenic poisoning. As he was an opium addict a field study of opium addicts from his area was undertaken. Further six cases of arsenicosis were detected among opium addicts and none among non-addicts. Contamination of opium with arsenic is discussed.

INTRODUCTION

Arsenic poisoning may be accidental, suicidal or homicidal. Of these, chronic arsenic poisoning is a feature either of accidental or homicidal poisoning. In cases of chronic poisoning, the arsenic has to be ingested in small doses for a considerable period in order to produce classical arsenicosis.

Accidental arsenicosis is documented in Sri Lanka[1]. In other countries, accidental poisoning from coloured wall paper, artificial flowers, wax candles, confectionary etc. has been documented[2]. Contamination of beer caused an epidemic of arsenicosis in England, while that of food and drink has also been reported[3]. Analysis of ilicit opium has revealed arsenic contamination in India[4], but arsenicosis resulting from ingestion of contaminated opium is a novel feature.

MATERIALS AND METHODS

A patient admitted to a medical ward of Colombo South General Hospital with alcoholic liver disease showed skin and other manifestations not attributable to hepatic failure and was referred to the Judicial Medical Officer for an opinion. A clinical diagnosis of arsenicosis was made and this was subsequently confirmed by analytical toxicology. When the patient was discharged he was contacted at his residence and the purpose of this study was explained to him. When he was convinced he gave details of how opium is consumed and revealed the addresses of others taking opium in his area. All these persons and their immediate family members were examined. Six of these persons showed dermatological manifestations of arsenicosis. All these six persons confessed to being opium addicts

---

* *Paper presented at the 96th Anniversary Session of the SLMA. Joint winner of the Dr. E. M. Wijerama Award.*

1 *Assistant Judicial Medical Officer, Colombo South, Kalubowila (present address; Department of Forensic Medicine, Faculty of Medicine, Colombo 8).*

2 *Judicial Medical Officer, Colombo South, Kalubowila.*

3 *Consultant Dermatologist, Colombo South General Hospital, Kalubowila.*

4 *Consultant Physician, Colombo South General Hospital, Kalubowila.*

5 *Assistant Government Analyst, Government Analyst's Department, Colombo.*

and gave details of the amount and frequency of consumption of opium. Further a total of 106 controls who presented at the office of the Judicial Medical Officer Colombo South during this period for various medico-legal purposes from the same area were examined for possible signs of arsenicosis. None of them showed any such signs.

All the cases of suspected arsenicosis were then requested to visit the office of the Judicial Medical Officer, Colombo South, where a careful history was obtained and a physical (including dermatological) examination performed. The following laboratory investigations were done on each of the cases : chest x-ray, ECG, blood urea, serum alkaline phosphatase, serum proteins, serum bilirubin, serum glutamic pyruvate transaminase, thymol turbidity and blood picture.

24 hour 17 — keto — steroid excretion, buccal mucosal biopsy and other relevant investigations were performed as and where indicated.

Samples of hairs and nails were removed from each of the patients; the hairs being head hairs, cut close to the root, and nails being nail scrapings. These were analysed using Gutzeit's technique[5] for elemental arsenic content.

Samples of opium obtained through the patients and elsewhere were analysed for arsenic content.

Following the diagnosis of chronic arsenic poisoning, the patients were admitted to Colombo South General Hospital, where each of them received a course of British Anti-Lewisite (dimercaprol) and any other therapy appropriate to incidental conditions. They were then referred to a psychiatrist for the treatment of addiction.

RESULTS

Non-opium addicts in the area including the members of the families of the patients showed no evidence of arsenic poisoning. Of the seven patients one was an alcoholic. Five non-alcoholics took alcohol on occasion. They were all cigarette smokers smoking the same proprietary brands of cigarettes used by other smokers of the area. All the patients were males 28 - 48 years of age, consuming 5 - 15 g of opium per day for the past 5 - 15 years (Table I). They all obtained their opium from a network run by a single dealer. The local vendor himself was affected. They all noticed untoward effects at or around the same time, about a year prior to examination. Nausea, bitter taste in the mouth, excessive sleepiness and anorexia were the first symptoms experienced ; these were followed at various intervals by skin discoloration which developed gradually and then progressed. Giddiness, vertigo and other neurological manifestations were present in three out of the seven cases (Table 2).

Physical examination showed coffee brown, uniform, bilateral pigmentation of palms and soles in all cases (Fig I). Marked hyperkeratosis of palms and soles was seen in all the cases. In some instances, the palmar pigmentation was 'spotty' but the classical 'raindrop rash' depigmentation was not seen in any of the cases. Four out of the seven cases showed classical 'Mee's lines' on the nails. Pigmentation of buccal mucosa was seen in four of the cases (Table 2).

One of the cases showed clinicial evidence of hepatic failure due to alcoholic liver disease (Table 3).

X-ray of the chest showed an area of pleural thickening in one of the cases,

Table 1

Age distribution, duration of addiction, daily intake of opium and arsenic levels in hairs and nails in the seven cases.

Case No.	Age (years)	Duration of addiction (years)	Daily opium intake (g)	Elemental As in hair (p. p. m.)	Elemental As in nails (p. p. m.)
1	37	15	15	99	116
2	39	15	10	68.5	112
3	36	18	10	28	98
4	28	9	10	47	208
5	48	15	5	45	87
6	48	25	5	58	74
7	28	8	5	11	131
Normal values for Sri Lankans				0.01 to 0.05	0.05 to 0.41

all others being normal. ECG showed no abnormalities. The blood urea levels were within normal limits, there being no evidence of renal involvement. Blood picture only showed evidence of coincident pathology, there being no evidence of bone marrow suppression. Symptoms referable to the central nervous system were present in three of the cases, muscle wasting being demonstrated in each of them. Three of the cases showed some sensory loss below knees.

The analysis of hairs and nails showed very high concentrations of arsenic compared with the normals for Sri-Lankans (Table 1). The samples of opium obtained from the patients gave a negative result for arsenic ; however, some of the samples obtained from elsewhere showed heavy contamination.

DISCUSSION

It has been argued that the concentrations of arsenic found in opium in India are well within permissible limits for food[6]. In a series of cases of arsenicosis with portal hypertension investigated in India the possibility of ingestion of arsenic via opium was considered, but a

Table 2

Distribution of dermatological and nurological signs in the seven cases

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
Hyperkeratoisis of palms and soles	+	+	+	+	+	+	+
Pigmentation of palms and soles	+	+	+	+	+	+	+
Skin pigmentation	+	+	—	—	+	—	—
Rain-drop rash	—	—	—	—	—	—	—
Skin hyperkeratosis	+	+	—	—	—	—	—
Buccal pigmentation	+	+	+	—	+	—	—
Mee's lines	+	+	+	—	—	—	—
Numbness and tingling	+	+	+	—	—	—	—
Muscle weakness	+	+	+	—	—	—	—
Wasting	+	+	+	—	—	—	—
Sensory loss	+	+	—	—	—	—	+
Motor signs	—	—	—	—	—	—	—

history of opium intake was not obtained[7]. Various forms of food, especially shell fish, are said to contain high quantities of arsenic[2].

So far as our study is concerned, only opium addicts in the study area were affected ; none of the non-addicts examined or members of the addicts' families showed signs and symptoms of chronic arsenic intoxication. This rules out the possibility that the arsenic intoxication was due to contaminated food, drink or environmental factors. The only possible

Table 3

Results of the biochemical investigations in the seven cases

Case No.	Blood urea (mg./ 100 ml)	S G P T i. u.	Albumin (g/100 ml)	Globulin (g/100 ml.)	Total proteins (g/100 ml.)	Serum bilirubin (total) (mg./ 100 ml.)	Serum alkaline phosphatase (K.A.U/ 100 ml.)	Thymol turbidity (units)
1	—	30	3.8	3.4	7.2	1.2	18	—
2	20	10	3.8	3.2	7.0	0.9	7	3.0
3	24	6	3.8	2.8	6.6	0.5	6	2.0
4	20	9	3.0	3.6	6.6	0.7	8	3.0
5	17	10	3.3	3.8	7.1	0.7	6	3.0
6	26	9	3.0	2.1	5.1	0.8	7	3.0
7	16	8	3.3	3.9	7.2	0.6	5	2.0

common vehicle for arsenic therefore was the illicit opium to which they were all addicted.

This theory is further supported by the fact that the severity of signs and symptoms bears a distinct relationship to the quantity of opium ingested daily during the preceeding year (Table 1). Our cases showed hyperkeratosis and pigmentation of the palms and soles as the main dermatological features of chronic arsenic poisoning. Although a combination of Mee's lines, raindrop pigmentation and classical toxic neuropathy has been described as the main diagnostic features of the condition[2,8], it is our contention that one should not await the development of the full clinical picture if permanent damage is to be avoided.

The use of British Anti-Lewisite in the treatment of chronic arsenic poisoning is contentious. However, our cases showed a definite improvement following a course of therapy with the drug. It is true that none of our patients showed evidence of permanent neurological damage. It therefore appears that in arsenical poisoning detected before such damage has set in, treatment with chelating agents may prevent further damage and restore normality.

Our patients have been opium addicts for variable lengths of time. However,

the duration of addiction showed no relationship to the severity of disease (Table 1). Moreover, only some, but not all, of the samples of opium analysed contained arsenic. The quantity of opium consumed during the preceeding year bore a definite relationship to the arsenic content of hairs and nails (Table 1). These facts suggest that the opium sold in the preceeding year was contaminated with arsenic. It must also be remembered that the signs of sub-acute poisoning appeared at or about the same time in all our cases, the contention being that the particular consignment was heavily contaminated.

Deliberate contamination to enhance aphrodesiac properties of opium has been suggested[9]. If this is true, the adulterator would be careful to add only sufficient quantity and no more of arsenic. In view of the fact that our series showed a uniform picture of sub-acute poisoning following ingestion, this supposition appears to be unlikely. But errors in proportion of arsenic and opium during deliberate contamination cannot be ruled out.

It is therefore our contention that the contamination was accidental and could have occurred in the poppy fields, the processing plants or in transit. Whichever way it occurred, it is our view that the contamination was limited to a single import consignment and that this had been distributed island-wide. If this be the case, there may be many other cases of chronic arsenic poisoning from this cause scattered throughout the country and we submit that it is incumbent on the profession to seek out the sufferers before permanent damage occurs, in order to treat them. To this end, we suggest that every opium addict and every patient presenting with dermatological conditions that may be consistent with arsenic toxicity be screened for arsenic, either by analysis of hairs and nails or by assay of urinary arsenic excretion, if necessary, following a 24 hour course of dimercaprol.

ACKNOWLEDGEMENTS

We are grateful to Misses H. D. Neranjala Renuka and K. K. Dharma Malini for secretarial assistance; Messrs M. S. Wijeyeratna and M. S. Premaratna, medical laboratory technologists at the Colombo South General Hospital, Mrs. K. S. N. Jayaratne, medical laboratory technologist, Medical Research Institute, Colombo and Mr. H. D. Gamini Siripala, laboratory technician of the Faculty of Medicine, Colombo, for technical assistance.

REFERENCES

1. Senanayake Nimal, De Silva, W A S and Salgado M S L (1972). *Ceylon Medical Journal*, **17**, 195.
2. Camps, Francis E, Robinson Ann E and Lucas, Bernard G B (1976). *Gradwohl's Legal Medicine*, p 625. 3rd ed., Bristol, John Wright.
3. Polson, C J and Tattersall, R N (1959). *Clinical Toxicology* p 184 1st ed., London, English University Press.
4. Datta, D V and Kaul, M K (1977). *Bulletin on Narcotics*, **29**, 41.
5. Curry, Alan, (1960). *Poison detection in human organs* p 159. 2nd ed., Illinois, Charles C. Thomas.
6. Eaton, R D P (1977). *Lancet*, **1**, 903
7. Datta, D V Mitra, S K, Chuttani, P N, and Chakaravarti, R N (1979) *Gut*, **20**, 278
8. Von Oettingen, W F (1959) *Poisoning* p 260. 2nd ed., New York, Paul B Hoeber.
9. Datta, D V (1977). *Lancet*, **1**, 484

Fig. 1
Coffee brown pigmentation of palms

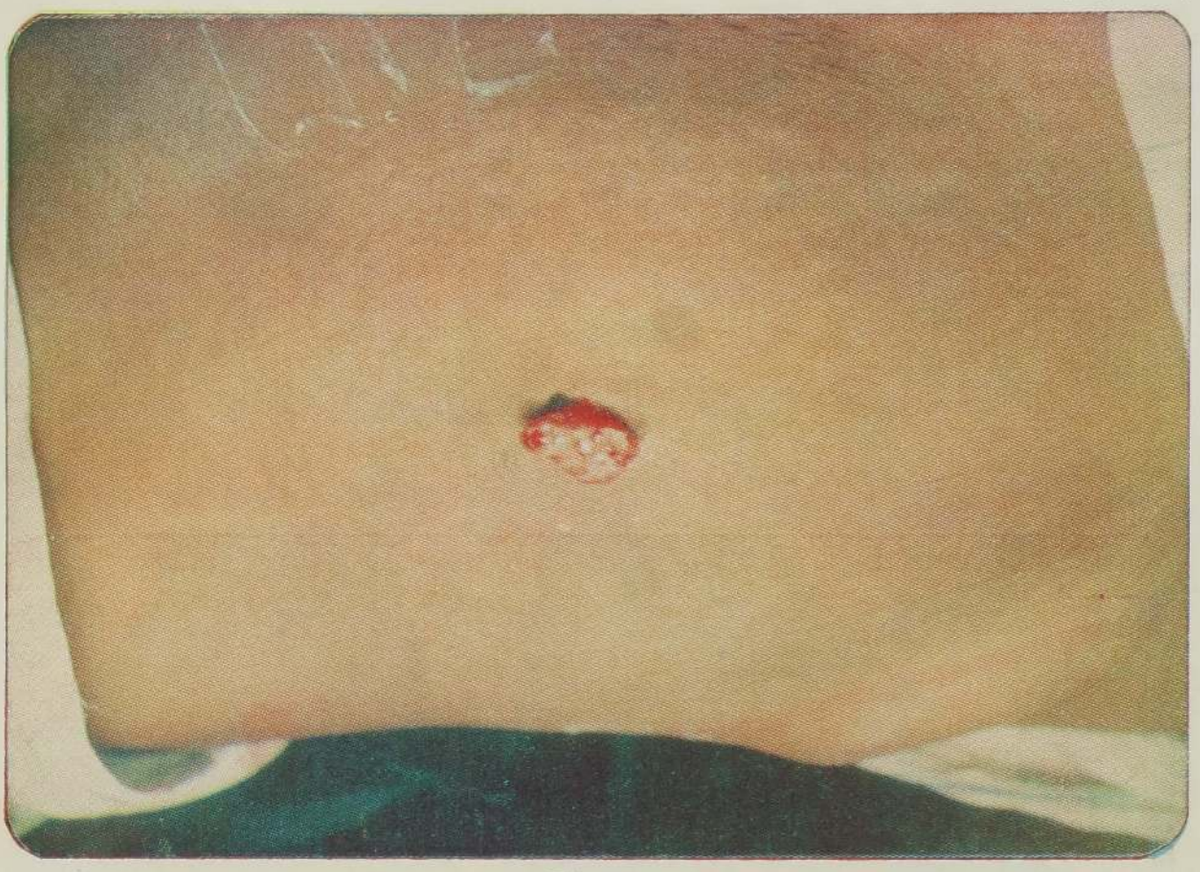


Fig. 1
Herniation of omentum before repair

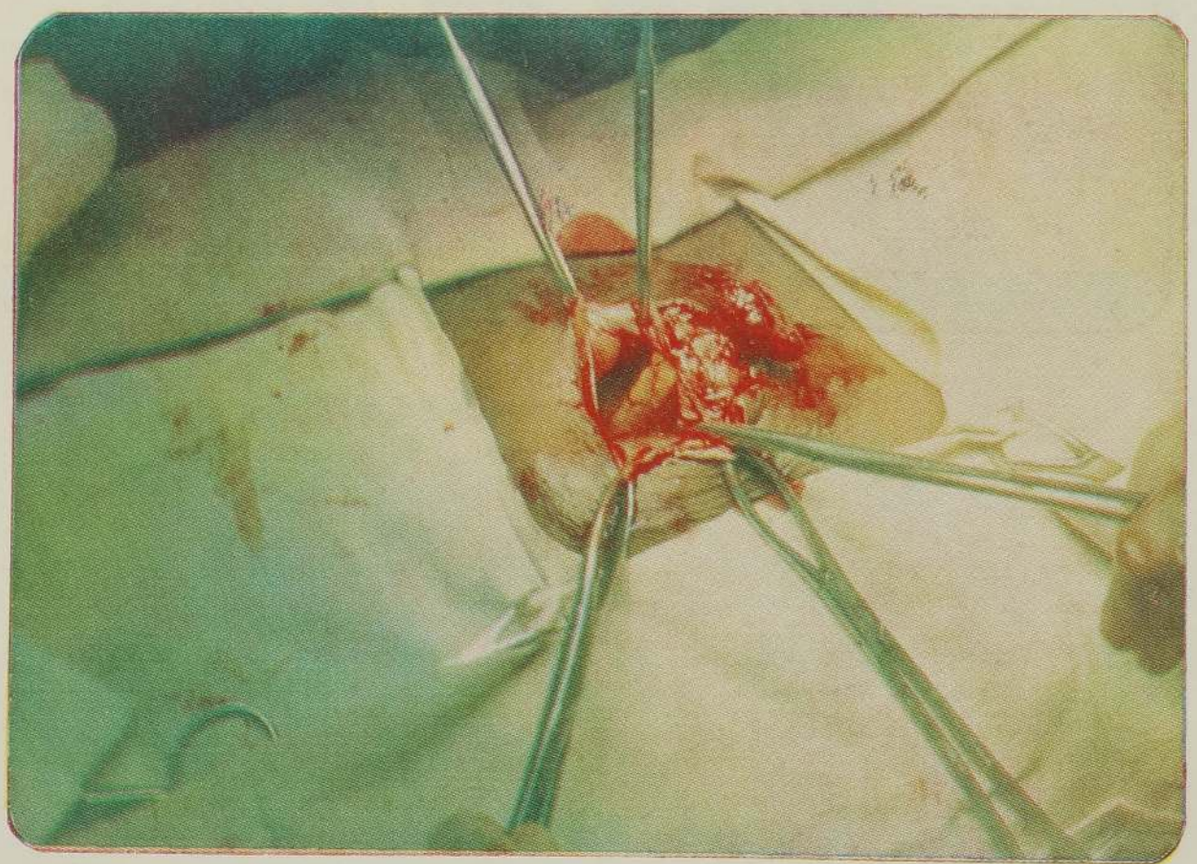


Fig. 2
Demonstration of omental herniation at repair

Asymptomatic Omental Herniation Following Laparoscopic Sterilisation

D S RAJAPAKSA*

Ceylon Medical Journal, 1983, **28**, 35-36

Laparoscopic sterilisation using Falope rings was introduced into Sri Lanka only about six months ago. With the increase in demand for female sterilisation, quicker and less complicated methods requiring shorter post-operative stay are being sought. Day procedures are becoming increasingly popular. Laparoscopic sterilisation under local anaesthesia has all these advantages. However, it is not a procedure without complications. A case of asymptomatic omental protrusion through the laparoscopic incision is described below.

A 28 year old mother of four living children, the youngest of whom was 3 years old, was a thin woman who had not had any previous surgery. Under local anaesthesia a 10 mm skin incision was made on the inferior aspect of the umbilicus. A Verres needle was inserted through the incision and the abdominal cavity insufflated with 2 litres of carbon dioxide. The trocar was then inserted at an angle of 45 degrees to the skin. The Falope rings were applied and the laprocater removed. The gas was let out through the cannula without pressing or squeezing the abdomen.

The post-operative period was uneventful and the patient went home after 3 hours. She returned on the 5th day to have the stitch removed. As she had no complaints, preparations were made for removal of the stitch. The nurse then reported the presence of an "unusual growth" at the site of the surgical incision. She had absolutely no symptoms.

Laparotomy was performed on the same day via a mid-line incision just below the laparoscopy scar. The omentum was seen protruding through the track made by the trocar (Figs. 1 & 2). The omentum was pushed back into the peritoneal cavity after resecting the portion that was protruding. The rectus sheath was then repaired and the patient made an uneventful recovery.

DISCUSSION

This is the first reported complication after 350 laparoscopic sterilisations in Sri Lanka. Corson and Bolognese[1] in an overview and results of a series of 1545 cases had omental hernia only in 3. Keith *et al*[2] have reported one case after having reviewed 172 patients undergoing puerperal laparoscopic sterilisations. Bishop and Halpin[3] reported a case of omental protrusion following dehiscence of the laparoscopy wound. Loffer and Pent[4] in their review of 56,106 cases have reported omental hernia only in 6. It is obvious from these papers that the incidence of omental hernia following laparoscopy is rather low. This problem occurs exclusively with the larger trocars. Patients with chronic coughs and umbilical hernias may be at increased risk. It has also been suggested that a Z track should be used for insertion of the trocars. However, the

* *Obstetrican and Gynaecologist, De Soyza Maternity Hospital, Colombo.*

abdominal wall of most Sri Lankan women is less than 3cm in thickness and therefore there is little room for any kind of manoeuvering with the trocar. Every care must therefore be taken during the removal of the canula and when letting the air out. The wound inspection at the time of removal of the stitch is equally important.

ACKNOWLEDGEMENTS

I would like to thank Drs. P. Kumarasinghe and S. Weerakkody of the Family Health Bureau for refering this case. I thank Dr. W. H. Fernando, Consultant, De Soyza Maternity. Hospital for permission to publish this case.

REFERENCES

1. Corson S N and Bolooneese R J (1972). *Journal of Reproductive Medicine*, **9**, 145.
2. Keith K, Webster A, Houser K, Lash A and Barton J (1972). *Obstetrics and Gynaecology*, **116**, 585.
3. Bishop L and Halpin T F (1975). *American Journal Obstetrics and Gynaecology*, **116**, 585.
4. Loffer F D and Pent D (1975). *Obstetrics and Gynaecological and Survey*, **30**, 193.
5. Whitelaw J M and Nala V F (1973). "Z" procedure for laparoscopy, *American Journal of Obstetrics and Gynaecology*, **115**, 864.

A Study on the Incidence of Bronchial Carcinoma in Sri Lanka

C G URAGODA*

Ceylon Medical Journal, 1983, **28**, 37–41

SUMMARY

16 cases of bronchial carcinoma were diagnosed at the Central Chest Clinic, Colombo in 1978–79, an incidence of 47.25 per 100,000 symptomatic patients. This represents a significant increase in incidence over the figure at a comparable chest clinic in the country more than a decade earlier. During the past 19 years the consumption of tobacco in the country has progressively increased. Exposure to asbestos was also a factor in two cases in the series. The increasing incidence of the tumour shown by this study is probably relevant to other developing countries with similar economic progress and industrialization.

INTRODUCTION

The incidence of bronchial carcinoma has increased sharply in many countries during the recent past, almost reaching epidemic proportions in some of those in the west. Sri Lanka is one of the countries that has been spared such a steep rise, but of late clinicians have felt that there is a slow but upward trend in its incidence. The present study was undertaken to determine whether there was tangible evidence to support this impression, and to identify the factors influencing this trend. The results of this study may be of more than local interest, for the findings may be relevant to other developing countries with similar economic progress and industrialisation.

The first study pertaining to bronchial carcinoma in Sri Lanka was carried out by Cooray and Leslie[1]. During the period 1954–56 they found only 22 cases among 1149 admissions to the only thoracic unit in the country at the time. They also reported that there were only 5 cases among 2462 consecutive autopsies performed during the 5-year period 1952–56. A decade later, at a survey conducted at the chest clinic, Kandy only 13 cases were diagnosed during the 5-year period 1962–66[2]. More recently, Stephen and Uragoda[3] reported 84 histologically proven cases seen at three thoracic units in the country during the 10-year period 1963–72. These studies testify to the infrequency of the tumour during the two decades from 1952–72. However, these were not designed to demonstrate a time trend.

MATERIALS AND METHODS

Central Chest Clinic where the present study was conducted is the only such institution in Colombo which has a population of 800,000. It attracts patients not only from Colombo and its environs but also from other parts of the country.

The number of cases of bronchial carcinoma diagnosed at this clinic out of the patients seen personally during the period 1978–79 form the material for this study. The advantage of selecting this clinic for the study was to enable a valid

* *Physician in charge, Central Chest Clinic, Deans Road, Colombo, Sri Lanka.*

comparison to be made with an earlier study[2] which too was carried out at a chest clinic.

All the suspected cases of bronchial carcinoma were referred to any of the three thoracic units at the General Hospital, Colombo for investigation and treatment. Only those cases where the diagnosis was thus confirmed were admitted to the study. It may be mentioned that the diagnosis of bronchial carcinoma in Sri Lanka is difficult as the majority of the tumours are peripheral. Only 29.7% of the 84 cases reported by Stephen and Uragoda[3] were bronchoscopically visible.

RESULTS

During the period under review a total of 66933 persons were radiographed at the chest clinic. A large proportion of them, namely 33068 attended the clinic for pre-employment radiography. The majority of them were in their early twenties and were asymptomatic. As expected there were no cases of bronchial carcinoma in this group. The remainder were symptomatic patients and among these 33865 patients 16 cases of bronchial carcinoma were diagnosed, an incidence of 47.25 per 100,000.

7 cases were histologically proven on bronchoscopic or scalene node biopsy, and in another two the diagnosis was confirmed at thoracotomy. In the remainder the subsequent course of the disease and the development of secondaries left little doubt about the diagnosis.

Incidence

The previous study in a chest clinic in Sri Lanka was carried out at Kandy which is only second to Colombo in size. The categories of patients who attended the clinics at Colombo and Kandy were similar in that they consisted of patients with respiratory symptoms as well as new recruits for pre-employment radiography. In the Kandy study 13 cases were detected among 53032 symptomatic patients, while in Colombo 16 were diagnosed out of 33865 over a decade later. This difference is statistically significant ($X^2 = 3.18$).

The only available figures for bronchial carcinoma which are representative for the whole country are those compiled by the Registrar General from causes of death entered in death certificates. In 1967 there were 83 deaths (0.71 per 100,000) while in 1977 the figure was 118 (0.85 per 100,000). This data however suffers from infirmities inherent in this type of material. There may have been a lack of uniformity in reporting the cause of death. In some cases death may have been incorrectly attributed to bronchial carcinoma, while on the other hand many cases may have escaped detection, especially when the pattern of the tumour in Sri Lanka makes diagnosis difficult.[3] However, these figures serve to indicate a slight upward trend in incidence during the course of a decade. For purposes of comparison, the number of deaths from pulmonary tuberculosis in 1977 from the Registrar General's figures was 1461, being 12.4 time more common than deaths from bronchial carcinoma for that year.

Sex ratio

In the present series there were 14 males, a sex ratio of 7:1. In the previous studies, the ratios were 2.7:1[1] 2.25:1[2], and 3.9:1[3] respectively. These figures show a progressive increase in the proportion of males affected. This trend is also shown in the Registrar General's statistics. In the 3 years 1970–72, there were 223 male and 105 female deaths,

a ratio of 2.1:1. More recently during the period 1975–77 the figures were 281 males and 77 females, a ratio of 3.7:1.

The proportion of affected males seems to be low in Sri Lanka, at least till recently. Ashhey and Davies[4] cite several western studies where the proportion ranged from 6:1 to 22:1. The Sri Lanka situation appears to be a playback of the British scene half a century ago when smoking was much less than it is today. In the United Kingdom the increase in the incidence of bronchial carcinoma did not begin until 1921[5]. In a series covering the period 1908–28 the ratio was 2.4:1[6] a figure far removed from the current proportion in the United Kingdom and one that approximates to the Sri Lanka ratio of the 1960's. As the smoking habit spread first among the males in the United Kingdom, there was an initial rise in the male component of the ratio, but Dick expects it to revert back to pre-rise proportions as more and more females take up to smoking. If these considerations are applied to the Sri Lanka situation, it appears that the recent rise in the male component is associated with increasing consumption of tobacco by them. It may be mentioned that the vast majority of women in Sri Lanka are non-smokers. A survey has shown that only 1.6% of females of 15 years of age and above smoked[7]. Even if the smoking habit were to get a foothold in women in Sri Lanka, it would be many years before it reaches significant proportions, and it would take a further decade or more before this is reflected in a rise in female cancers.

Smoking

In Sri Lanka tobacco is consumed mainly in the form of cigarettes, beedi, cheroots and chewing tobacco. The beedi is made of a special grade of tobacco wrapped in the dried leaf of Diospyros Melanoxylon. It weighs one fifth that of a cigarette. A cheroot is similar to a cigar but both ends are open. It weighs thrice as such as a cigarette. Chewing tobacco is used along with betel leaves in the popular practice of betel chewing.

Table 1 shows the annual consumption of smoking tobacco in the country from 1961 to 1979. It was compiled from data provided by the Department of Agriculture, Sri Lanka. The per capita consumption of cigarettes has gone up from 0.16 to 0.41 kg during the past 19 years, an increase of 0.25 kg. On the other hand the total consumption of all forms of smoking tobacco has gone up by only 0.17 kg. While cigarettes have become increasingly popular the beedi and the cheroot have lagged behind. The cheroot has a disagreeable odour which the rising generation does not favour. Beedis are a cheap substitute for cigarettes and therefore are associated with a lower social status.

The increase in cigarette consumption has taken place against a backdrop of repeated and frequent rises in taxation. The inference is that with progressive economic development of the country and higher incomes the people are able to afford the more expensive cigarette in preference to the beedi and the cheroot. This preference for the cigarette with its known carcinogenic properties, is a disturbing trend which is probably valid for other similarly placed developing countries as well. In such countries an increasing incidence of bronchial carcinoma could well be expected.

In the present series 4 smoked more than 15 cigarettes a day and another smoked 15 beedi and 2 cigarettes a day.

Table 1

Annual tobacco consumption in Sri Lanka 1961–79

Year	Cigarette (metric tons)	Beedi (metric tons)	Cheroot and cigar (metric tons)	Total (metric tons)	Per capita consumption (kg)	Per capita consumption of cigarette (kg)
1961	1600	1300	700	3600	0.35	0.16
1962	1600	1600	700	3900	0.37	0.15
1963	1800	1600	700	4100	0.39	0.17
1964	2000	1600	700	4300	0.39	0.18
1965	2000	700	800	3500	0.31	0.18
1966	2200	1800	800	4800	0.42	0.19
1967	2300	2200	800	5300	0.45	0.20
1968	2300	2200	800	5300	0.44	0.19
1969	2600	1100	1100	4800	0.39	0.21
1970	2700	900	1100	4700	0.38	0.21
1971	3000	2000	1100	6100	0.48	0.24
1972	3500	900	1100	5500	0.42	0.27
1973	3700	*	1100	*	*	0.28
1974	3800	*	1100	*	*	0.27
1975	3500	1100	1100	5700	0.42	0.26
1976	3900	1100	800	5800	0.42	0.28
1977	5400	1100	800	7300	0.52	0.39
1978	5500	900	1100	7500	0.52	0.39
1979	5900	*	1300	*	*	0.41

* Figures not available.

There were 4 non-smokers including the 2 females. The remainder smoked less than 15 cigarettes a day.

In the context of local incomes only people from the higher income groups could afford to be heavy smokers. The 4 men who smoked more than 15 cigarettes a day belonged to this group. In contrast to bronchial carcinoma where a fair proportion of those affected could be expected to come from the better income groups, patients with buccal and esophageal carcinoma are generally from the lower income groups. Buccal carcinoma is the commonest malignancy in the country, while esophageal carcinoma ranks fourth. There is a well documented etiological relationship between betel chewing and buccal carcinoma. There is evidence to suggest such a relationship in the case of esophageal carcinoma too[8]. Betel chewing is an alternative habit to tobacco smoking and is generally indulged in by the lower income groups[9]. This probably explains the socio-economic pattern of these tumours.

Occupation

Two of the patients in the present series were asbestos workers. One of them had been an engineer for 17 years in

an asbestos factory manufacturing roofing and ceiling sheets. He did not smoke except for an occasional cigar. He had an adenocarcinoma. The other man had been fixing asbestos roofing and ceiling sheets for 16 years. He had smoked 1 to 2 cigarettes and 15 beedi a day for 37 years.

These two cases underline a new trend in the development of bronchial carcinoma in Sri Lanka. In none of the previous reports on bronchial carcinoma was there a mention of an occupational association. However, such a development is not surprising in the context of industrial development which has progressively converted an entirely agricultural economy into a mixed one.

The manufacture of asbestos roofing and ceiling sheets was introduced into the country a couple of decades ago and several factories have now been established in order to meet an ever growing demand for these items. In a country where the tumour is still uncommon, the occurrence of even a few cases of occupational origin is significant.

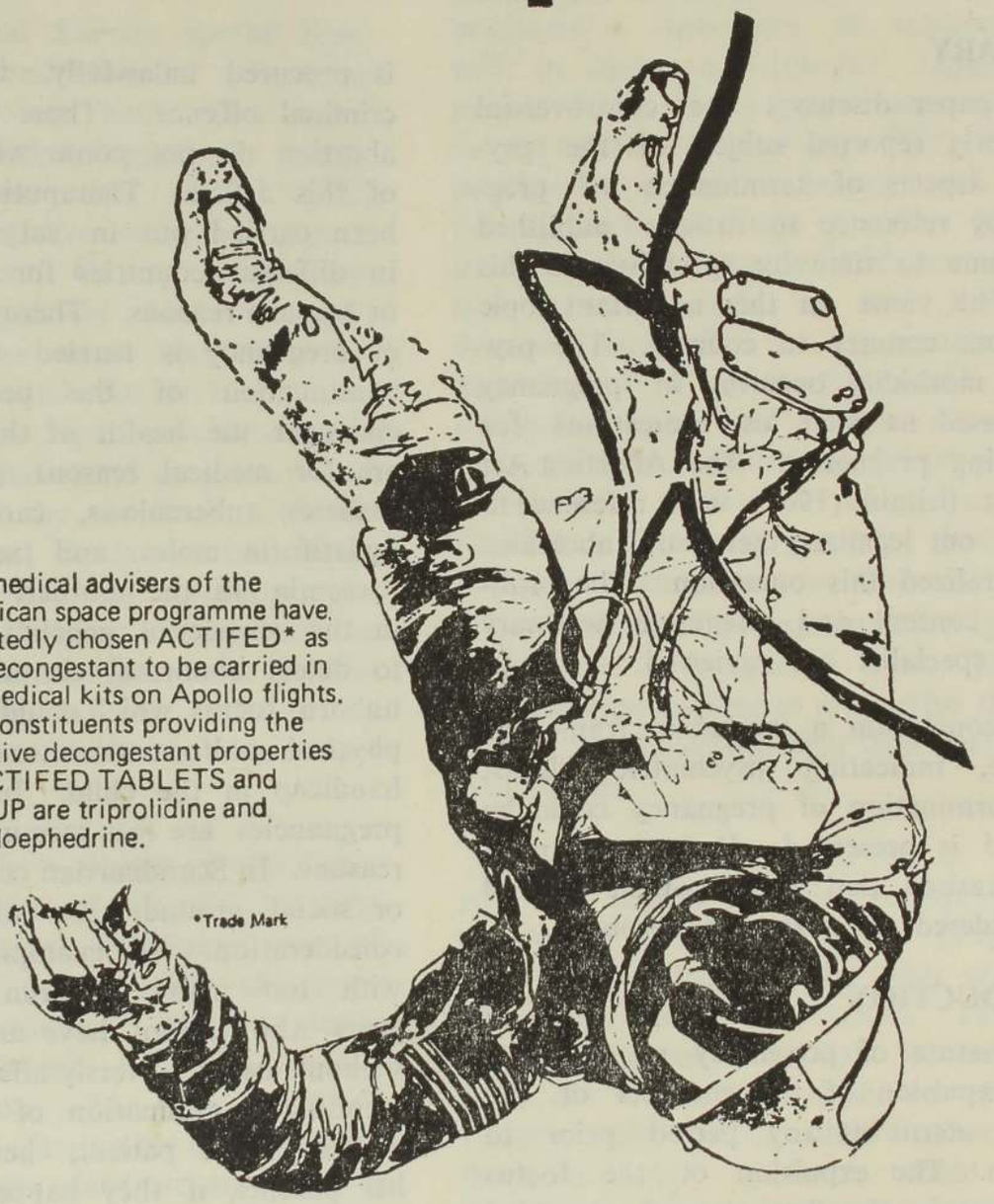
ACKNOWLEDGEMENTS

I wish to thank Dr. S. J. Stephen, Dr. R. Natkunam and Dr. H. S. Perera, Thoracic Surgeons, General Hospital, Colombo and Dr. S. Sivayoham, Director, Cancer Control Programme Department of Health for their assistance.

REFERENCES

1. Cooray, G H and Leslie, N D G (1958). Bronchial neoplasms among the Ceylonese. *British Journal of Cancer*, **12**, 1.
2. Uragoda, C G (1967). Incidence of bronchial carcinoma in a Ceylon chest clinic. *British Journal of Diseases of the Chest*, **61**, 154.
3. Stephen, S J and Uragoda, C G (1976). An evaluation of factors relevant to the diagnosis of bronchial carcinoma in Sri Lanka. *Journal of Tropical Medicine and Hygiene*, **79**, 46.
4. Ashley, D J B and Davies, H D (1969). Lung cancer in women, *Thorax*, **24**, 446.
5. Dick, J C (1965). Carcinoma of bronchus, *Lancet*, **2**, 592.
6. Faulds, J S (1930). Quoted by Dick, J C (1965), *Lancet*, **2**, 592.
7. Uragoda, C G and Senewiratne, B (1971). Tobacco smoking in Ceylon, *Journal of Tropical Medicine and Hygiene*, **74**, 145.
8. Stephen, S J and Uragoda, C G (1970). Some observations on oesophageal carcinoma in Ceylon, including its relationship to betel chewing, *British Journal of Cancer*, **24**, 11.
9. Senewiratne, B and Uragoda, C G (1973). Betel chewing in Ceylon, *American Journal of Tropical Medicine and Hygiene*, **22**, 418.

Actifed in Space



The medical advisers of the American space programme have repeatedly chosen ACTIFED* as the decongestant to be carried in the medical kits on Apollo flights. The constituents providing the effective decongestant properties of ACTIFED TABLETS and SYRUP are triprolidine and pseudoephedrine.

*Trade Mark

ACTIFED TABLETS and SYRUP for Congestion

Wellcome

A Review of Psychiatric Aspects for Termination of Pregnancy

H V PERERA*

Ceylon Medical Journal, 1983, **28**, 42–47

SUMMARY

This paper discusses the controversial and poorly reported subject of the psychiatric aspects of termination of pregnancy by reference to articles published from time to time by specialists in this field. The views on this important topic vary from country to country. The psychiatric morbidity occuring in pregnancy is discussed as well as indications for terminating pregnancy. The Abortion Act of Great Britain (1967) with reference to carrying out legalized therapeutic abortions has liberalized this operation. The problems of consent and safeguards necessary for the specialist are reviewed.

In conclusion a workable frame of reference, indicating psychiatric illness, where termination of pregnancy could be instituted is presented. However it must be emphasised that each patient should be considered as a separate problem.

INTRODUCTION

Termination of pregnancy or abortion is the expulsion of the contents of the pregnant uterus at any period prior to full term. The expulsion of the foetus may occur in the first, second or third trimesters. Abortions may be classified into three separate groups: therapeutic, spontaneous or criminal. Spontaneous abortions may be caused by diseases of the mother or disease of the foetus itself. If the expulsion of the uterine contents is procured unlawfully, it constitutes a criminal offence. These two classes of abortion do not come within the purview of this article. Theraputic abortions have been carried out in varying proportions in different countries for medical, eugenic or humane reasons. Theraputic termination of pregnancy is carried out where the continuation of the pregnancy would endanger the health of the mother. These are for medical reasons such as severe diabetes, tuberculosis, cardiac conditions, hydatiform moles and severe states of toxaemia in the mother. With advances in the science of genetics it is possible to detect abnormal chromosomes in an unborn foetus which could lead to multiple physical malformations and severe mental handicap in the child. In some countries pregnancies are thus terminated for eugenic reasons. In Scandinavian countries humane or social grounds are also taken into consideration. An example is a woman with too many children of advancing years who cannot have any more children without being adversly affected. In recommending terminination of pregnancy the wishes of the patient, her husband and her parents, if they happen to be conscientious objectors, and religious considerations should be taken into account. Certain medico-legal implications which could follow an abortion should also be considered. A frame of reference which a psychiatrist could follow when recommending termination of pregnancy on psychiatric grounds is not readily available as the subject is controversial, differs

* *Consultant Psychiatrist, Colombo.*

from country to country and varies from one consultant to another. This paper attempts to formulate a frame of reference, after reviewing the work of specialists in this controversial field.

Psychiatric aspects

In Denmark and Sweden special laws, liberalizing the termination of pregnancy on psychiatric grounds have been introduced. These include psychotic states, reactive depressions with suicidal risks, psychasthenic conditions as well as eugenic and social reasons.[1] On the other hand, as puerperal psychoses have a good prognosis, Sim has stated that there are no psychiatric grounds for the termination of pregnancy.[2] In Japan psychiatric indications for termination of pregnancy need not be supported by medical evidence, whilst in Italy and Spain such indications however urgent are not permitted. In Britain the new abortion act passed in 1967 and which came into force in 1968 has liberalized the law in relation to the psychiatric grounds for the termination of pregnancy.

Schizophrenia is a serious mental illness associated with thought disorder, blunting of emotions, primary delusions, loss of volition, lack of insight and at times hallucinatory phenomena. The prevalence rate for schizophrenia is 0.9% in the general population. The first attack of the illness has a favourable outcome with modern neuroleptic medication. Martin following up 43 schizophrenic patients for a mean period of four and a half years showed that only 3 developed a further puerperal illness.[3] With relapses the personality shows deterioration and may terminate in a schizophrenic defect state where the patient's thinking becomes so disorganised that she would be incapable of looking after children. Therefore in a patient who has had a number of pregnancies each of which had precipitated exacerbations of the schizophrenic illness, termination of pregnancy could be recommended.[4] Protheroe has stated that in this type of relapsing schizophrenia, therapeutic abortion could well have prevented a recurrence of schizophrenia with its long term defects.[5] Manic depressive illness has a good outcome with antidepressant medication, ECT, lithium prophylaxis, supportive therapy, and would not by itself constitute grounds for the termination of pregnancy. However, suicide is a very real threat in this group of diseases especially in the presence of agitation. If a patient has made serious suicidal attempts due to severe depressions with agitation precipitated by pregnancies earlier, then termination of pregnancy is justified on psychiatric grounds. In reactive depressions and neuroses where a suicidal attempt is only a manipulative gesture, termination of pregnancy is not justified. The neuroses respond to supportive therapy, environmental adjustments and mild anxiolytic drugs.

Another problem would be a mother who has shown an agressive psychopathic personality deviation. These people are usually unmarried, associate with criminals and show violent propensities. The pregnancy is unwanted and the future mother talks of violence directed towards the unborn child. If the child is born, the 'battered baby' syndrome could result. The mother's environment is usually totally unsuited for child rearing. In such a situation if a suitable foster home for the baby cannot be found, terminating the pregnancy is justified, as the child would be at risk. Another instance where a mother is totally unsuited for child rearing is the problem of a pregnancy in a woman with a severe degree of

mental handicap. The IQ would be below 50 and the degree of severity should be such that the woman does not realize what a pregnancy would entail. These mothers are usually not married and the pregnancy is a result of a man taking advantage of the woman's low intelligence and seducing her. In such cases if a suitable foster home cannot be found for the baby the pregnancy should be terminated. Complications may arise in obtaining consent. The mother is usually incapable of giving consent and therefore the consent of her parents should be obtained.

A pregnancy following rape or incest constitutes a special problem. After these offences, the victims show hysterical behaviour patterns, anxiety and depression. In the majority of cases these symptoms remit with psychotherapy and anxiety-relieving drugs. Thus rape or incest and the psychiatric sequelae following these criminal offences are not grounds for terminating the pregnancy.

More recently eugenic grounds for terminating pregnancies are coming into vogue. The diagnosis of heriditary foetal abnormalities associated with severe mental handicap is now possible in the prenatal stage. The diagnostic procedures include amniocentesis, foetoscopy with or without sampling of foetal blood or tissue and foetal ultrasound scanning.[6] Neural tube defects usually associated with mental handicap have been detected by amniotic fluid alfafetoprotien assay.[7] Other multiple birth defects associated with severe mental handicap are seen in the Smith-Lemli-Opitz syndrome.[8] Prenatal diagnosis of this dysmorphic syndrome is possible and is important, as this condition carries a risk of recurrence within families. Mongolism or Down's syndrome with brachycephaly is the most common cause of mental handicap. Down's syndrome is due to nondisjunction of chromosomes during gametogenesis in one or other parent. Prenatal diagnosis is offered in Britain to high risk pregnancies where one parent has a translocation of chromosome 21 or is mosaic for normal and 21 trisomic cells. In Britain and the U. S. A. a screening programme for mongolism is offered to all older pregnant women. The other common chromosomal cause of mental handicap is X-linked mental retardation with a fragile X chromosome. This could now be detected in the prenatal stage.[9] If the foetal abnormalities in these cases could be detected, termination of pregnancy is advocated for eugenic reasons as the child would show a severe mental handicap.

Suicide

Patients who have had a psychotic or other obvious psychiatric illness constitute only a proportion of cases where a decision about therapeutic abortion may have to be considered. Very often a psychiatrist would be called upon to express an opinion regarding therapeutic abortion in an unwed, neurotic, anxiety ridden mother, threatening suicide. The psychiatrist would then have to assess the seriousness of the suicidal threat. Often it is a blackmail attempt. There may be a history of instability, irritability and impulsiveness with no definite depressive symptoms in these patients. In the majority of such cases early hospitalisation, psychiatric advice, environmental adjustments and supportive therapy would be sufficient. There are some patients who cannot be brought to face pregnancy due to their neurotic temperament, associated shame and the disruption of family ties. In these cases the risk of suicide will have to be assessed. Suicidal acts are not rare in

pregnancy. According to Whitlock and Edwards 5% of all female suicides have been associated with pregnancy.[10] In their own study 7.2% of 483 women who had attempted suicide were pregnant. Boxall and Chauvel in another Australian study obtained similar figures.[11] Harrington and Cross obtained identical figures in Great Britain.[12] These studies indicate that risks of this order are grave and cannot be ignored. Furthermore, an unwanted pregnancy is a threat to the future welfare of the mother and child. In a Swedish study children born to mothers who have been refused termination on psychiatric grounds were followed up till the age of 21; 60% born out of wedlock were subjected to delinquency, psycopathy, educational retardation, alcoholism and insecurity as compared with a matched group.[13] It is more difficult to assess the suicidal threat in an unwed mother. It may only be a sort of blackmail attempt or it may have to be treated as a grave hazard. Serious prognostic indicators are an unstable neurotic personality, depressive symptoms, severe associated guilt and shame, unsympathetic parental attitudes, persistent threats of self destruction by violence, lack of hysterical outbursts and a previous history of a depressive reaction to stress or failure. It is useful to obtain confirmation of serious suicidal inclinations from a close relative in these patients when assessing their mental state.

Psychiatric sequelae

Ekblad following up 479 cases of terminated pregnancy found that 11% expressed serious self-reproach and 24% showed a mild form of guilt reaction.[14] But these reactions are easily amenable to psychotherapy; in fact the great majority of patients after therapeutic abortion are "well, cooperative and grateful".[15]

Medico-legal considerations

The legal considerations could be briefly summarized as follows; two registered medical practitioners must form in good faith the opinions set out. The opinion must be to one or more of the following effects. (a) the continuance of the pregnancy would involve risk to the life of the pregnant woman greater than if it were terminated. (b) it would involve risk of injury to the physical or mental health of the pregnant woman greater than if the pregnancy was terminated. (c) There would be a substantial risk that if the child were born it would suffer from such physical or mental abnormalitles as to be seriously handicapped. In Great Britain these considerations were incorporated into the abortion act of 1967.

In the opinions set out above, termination of pregnancy does not pose a hazard, provided the operation is performed by specialists, in suitably registered hospitals. Therefore the operation itself as described in (a), (b), and (c), constitutes only a neglible risk to the mother. Furthermore, the psychiatric sequelae following termination of pregnancy are not serious and easily amenable to therapy.

Psychiatrists need only concern themselves with opinion, (b) and (c) as set out earlier. If there is a grave risk to the mental health of the mother, if serious physical harm or death should ensue in an attempted suicide or if there is a substantial risk that the child would develop a serious mental or physical handicap, then therapeutic abortion is justified.

Another important legal consideration is the question of consent. Written consent of the patient should always be

obtained. If the woman is married it is advisable to discuss matters with the husband and obtain his written consent too. If the husband objects due to religious convictions, it is wise to consult the opinion of another colleague. However, the doctor will have to finally make the decision to terminate pregnancy and if he acts in good faith, it is most unlikely that he would get into serious trouble in courts. If the patient is single no consent is required from the alleged father. If the unmarried mother is under 21 years of age, it is wise to get parental consent after obtaining the girl's authority to do so. If the girl is under sixteen years of age, parental consent should always be obtained even if the girl forbids it. Parental consent should also be obtained in writing. If the girl consents, but the parents refuse, lawful termination should be carried out if clinically justifiable. However termination should not be carried out if the patient herself objects.

In giving an opinion for termination of pregnancy on psyciatric grounds, obtaining a second opinion of another psychiatrist is prudent.

In Sri-Lanka the legal position is quite different. The penal code with its archaic laws specifically states that therapeutic abortion could only be carried out if there is danger to the mother's life. Therefore in this country the only psychiatric grounds for terminating a pregnancy would be (1) a severe agitated type of endogenous depression with suicidal intentions precipitated by pregnancy where the sucidal risk is grave. (2) A serious suicidal threat in an agitated unwed mother with an impulsive and neurotic personality, attendent shame, critical parental attitudes and who cannot be brought on to face a pregnancy with supportive therapy or environmental adjustments.

The laws in this country do not recognise dangers to the mother's mental health or foetal deformities as indications for therapeutic abortion. In the U. K. these are incorporated into the mental health act. In that country further indications for the operation are for humane or social reasons. Therefore in the U. K. additional indications are (a) a chronic schizophrenic illness where earlier pregnancies had precipitated progressively severe recurrences of the illness with deterioration of the mother's personality. (b) A prenatal diagnosis of multiple birth defects usually associated with severe mental handicap. (c) Pregnancy in a woman with a severe degree of mental handicap where a suitable foster home cannot be found for the baby. (d) A psychopathic, unwed mother with violent propensities and criminal tendencies where the environment is totally unsuited for child rearing and where a suitable foster home cannot be found.

Recently, there have been moves in Sri-Lanka to incorporate some of these indications for therapeutic abortion into new legal reforms. Such changes in the legislature should take into consideration the religious attitudes prevalent in this country.

REFERENCES

1. Mayer-Gross, W, Slater, E and Roth M (1972). *Clinical Psychiatry*, p. 759, London. Bailliere, Tindall and Cassell.
2. Sim, M (1963) Abortion and the Psychiatrist. *British Medical Journal*, **2**, 145.
3. Martin, M E (1958). Puerperal mental illness. A follow up study up of 75 cases. *British Medical Journal*, **2**, 773.

4. Stafford-Clark, D (1966) *Short Textbook of Medicine*, p 40. London, Houston, Joiner and Trounce. English Universities Press.

5. Protheroe, C (1969). Puerperal psychoses : a long term study 1927–1961, *British Journal of Psychiatry*, **115**, 9.

6. Crawford, M D A (1982). *British Medical Journal*, **285**, 764.

7. UK Collaborative Study on alpha-fetoprotien in relation to neural tube defects (1979). Second Report. Amniotic fluid alpha fetoprotien measurement in antenatal diagnosis of anencephaly and open spina bifida in early pregnancy. *Lancet*, **2**, 651.

8. Opitz, J M, Kaveggia, E G, Durkin-Stamm, M V and Pendleton, E (1978) Diagnostic genetic studies in severe mental retardation. *Birth Defects*, **14**, 1.

9. Shapiro, L R, Wilmot, P L, Brenholz, P (1982). Prenatal diagnosis of fragile X chromosome. *Lancet*, **1**, 99.

10. Whitlock, F A and Edwards, J E (1968). Pregnancy and attempted suicide. *Comprehensive Psychiatry*, **9**, 1.

11. Boxall, J S, and Chauvel, P J (1966). Attempted suicide. A review of 100 codsequtive cases at a district hospital. *Medical Journal of Australia*, **1**, 264.

12. Harrington, J A and Cross, K W (1959). Cases of attempted suicide admitted to a general hospital. *British Medical Journal*, **2**, 463.

13. Forssmann, H and Thuwe, I (1965). 120 children born after application for therapeutic abortion refused. *Acta Psychiatric Scandinavia*, **41**, 71.

14. Ekblad, M (1955). Induced abortion on Psychiatric grounds. *Acta. Psychiatric and Neurologic. Scandinavia*, suppl. **99**, 760.

15. Tredgold, R F (1964). Psychiatric indications for termination of pregnancy. *Lancet*, **2**, 1251.

Surgery and Hospitals: The Sri Lanka Tradition*

S S WIJESINHA[1] and C Y WIJESINHA[2]

Ceylon Medical Journal, 1983, **28**, 48–52

Many years ago, in Oxford, the English philosopher Dr. Samuel Johnson made a profound, if unorthodox assertion. He said . . . . "yet, many additions to our medical knowledge might be got in foreign countries. It is in vain to send our travelling physicians to France, and Italy, and Germany, for all that is known there is known here; I'd send them out of Christendom; I'd send them among barbarous nations."[1] We must presume that Dr. Johnson used the term 'barbarous' here in its original context, meaning 'foreign' — and not with any other connotations !

It is only recently, however, that western medical science has come to acknowledge that there is, perhaps, something to be learned from these nations. We do not propose, in this paper, to describe the whole gamut of the eastern approach to the delivery of health care; rather we shall attempt to briefly tell you about some of the achievements in the field of medicine that were made by our ancestors in Sri Lanka

Our country, known at different periods in its history as Taprobane, Serendib and Ceylon, was the seat of one of the early civilizations of Asia. The Island's history from the third century B. C. onwards has been well documented; the best known of the early chronicles is the *Mahawamsa* which has been periodically updated. To day, English translations of this Pali work are available [2,3].

The material in the historical chronicles is corroborated by an extensive body of stone inscriptions, found all over the country. Some of these inscriptions date as far back as three hundred years before Christ.

From these early times, Sri Lanka's kings maintained systems of medical care for their subjects. As the *Mahawamsa* records, King Dutugemunu (161 to 137 B. C.) maintained several hospitals in his kingdom during the 2nd century B. C. It is pertinent to recall that Saint Bartholomew's, considered to be the oldest hospital in Britain, traces its founding to nearly thousand years later — in fact, to the year 1123 A. D. [4].

Today, hospitals and health authorities are allocated funds from a central budget, supplemented, if lucky, by philanthropists and service organisations — and cut back, when times are bad, by politicians! The method of maintenance of hospitals in early Sri Lanka is rather interesting. Hospitals were assigned lands or whole villages by the king, the revenue from such estates, which at times were located at a considerable distance from the hospital, provided for its up-

---

* *Text of a paper presented at the third overseas meeting of the Royal College of Surgeons of Edinburgh in Colombo 11th February, 1982.*

[1] *Consulant Surgeon, Lady Ridgeway Hospital for Children, Colombo.*

[2] *Senior House Officer, Nuffield Orthopaedic Centre, Oxford, England.*

keep. To quote but one example, the *Culavamsa* records that King Kasyapa V, who reigned from 914 to 923 A. D., built a hospital in the city of Anuradhapura and assigned it villages [2]. In 1963, Lankan archaeologists deciphered the inscriptions on the stone pillars of a tenth century building and found that it delineated "the boundaries of certain lands set apart for the benefit of the hospital built in the inner city of Anuradhapura by Kasyapa V" [5] — thus substantiating the story in the chronicle.

For those interested, there is an informative article in the Ceylon Medical Journal of 1977 by Dr. C. G. Uragoda, about the medical references in the many stone inscriptions found by archaeologists in our country [6].

To mention but one, the inscription of King Udaya II (885 to 896 A. D.) reads: "We have endowed on the hospital at Madirigiri the land enclosed within the boundaries where we have set up sto nes.'

This inscription is from a stone pillar discovered in 1947 in Anuradhapura [7], Not long ago, in the present town of Madirigiriya were discovered the ruins of what appears to be this hospital. An unusual item found at the site was a stone medicine trough. Similar stone structures have been found at other sites where the *Mahawamsa* records hospitals to have existed. These troughs have been carved to accommodate an average human body; they were probably used to treat diseases such as rheumatism, which required the entire body to be immersed for a period of time in a bath of medicinal liquid.

With regard to medical science, our ancestors largely availed themselves of the very comprehensive medical literature of India. The ancient philosophy was known as Ayurveda — from the Sanskrit *'ayuh'* (life) and *"veda'* (knowledge), One of the basic tenets of Ayurveda was the theory of *"tri dosha"*, or the three constituent forces of the body. These three — *vayu*, *pitta* and *kapha* — have been imprecisely translated into English as wind, bile and phlegm. A more accurate interpretation is to describe them as the processes of transmission, metabolism and secretion.

Disease was primarily considered to be due to a derangement in the balance of these three forces. Although the existence of germs, and the infective nature of certain diseases were recognised, Ayurvedic medicine aimed to restore health by correcting the imbalance of the *'tri dosha'*. It relied to a large extent on herbal preparations, and on what is today referred to as physical medicine. In spite of the lack of modern equipment for experimental observation, however, Ayurvedic physicians had a vast body of knowledge to draw upon. Just one example of the precedent nature of this knowledge (compiled long before the Corpus Hippocraticum of western medicine) is evident in the following text in the Susruta Samhita [8].

"Take the fluid of the pock on the udder of the cow . . . upon the point of a lancet, and lance with it the arms between the shoulders and elbows until the blood appears; then, mixing the fluid with the blood, the fever of smallpox will be produced."

Thus is can be surmised that, centuries before Edward Jenner and Sarah Nelmes were born, the cowherds of the Indian sub-continent were practising a kind of vaccination against smallpox.

Advances in surgery often reflect the social customs prevalent at a particular

time. The then common custom of punishing prisoners of war, criminals and even unfaithful wives by mutilation stimulated the advancement of plastic surgeory — and produced surgeons skilled in rhinoplasty, the transplanting of sensible skin flaps and fashioning of artifical ears.

One drawback to the advancement of ayurvedic surgery was the stigma associated with human dissection. For generations in the east, those who worked with the dead (for example, grave diggers and embalmers) were looked on as outcasts. For the Ayurvedic physician, who traditionally belonged to the educated stratum of society, to work with corpses — even in the quest of knowledge — was unthinkable. As a result, in a caste conscious society, cadaver dissection was abandoned, and surgeons had to rely on textbook descriptions without any experience of practical anatomy.

Despite these drawbacks, the surgery performed in those early times is amazing. To a great extent, surgery in Sri Lanka followed the teachings of Susruta, the famed surgeon of Varanasi who compiled the *Susruta Samhita*. This encyclopaedia of surgery includes precise descriptions of operations such as laparotomy, vesical lithotomy and cataract couching. I quote from the Sinhalese version of the *Susruta Samhita*, placing on record my gratitude to Ayurvedic Dr. W. I. Fernando who helped me with the translation into English.

"Now we shall describe the surgical treatment to be employed for curing a case of *linganasa* — that is, obstruction of the pupil with a cataract. In cases where the affected part of the eye does not appear thin in the middle, nor hard nor irregular in shape, nor marked by a large number of lines or a variety of tints, and where it is not painful or red in colour, the patient should be prepared with *sneha* and *sveda* at a suitable time of the year. Then the limbs of the patient should be secured with proper fastenings and he should be made to sit looking with both eyes at the tip of his nose.

Having carefully drawn apart the eyelids fully with his thumb and middle fingers, the surgeon inserts the *yava-vaktra* (needle instrument) at the precise midpoint between the lateral canthus and the outer margin of the iris. Care is taken not to pierce the blood vessels; the left eye should be pierced with the surgeon's right hand, and the right eye with his left. The efficacy of the perforation is indicated by a characteristic sound, and the emission of a drop of clear fluid; if the perforation is not done in the correct place, blood would come out.

At the time of perforation, the eye is sprinkled over with pure breast milk. The needle instrument should be retained in place, and pressure should be exerted from the outside on the cataract; then the internal aspect of the pupil should be scraped from the inside with the end of the needle instrument. The pupil should be regarded as properly cleared when it assumes the glossiness of the cloudless sun, and is free of pain. The mucus accumulated in the affected eye should be removed by asking the patient to snuff it off by closing the nostril on the non-operated side.

The needle instrument should be gently withdrawn and the affected eye sprinkled with pure ghee and bandaged with a piece of linen.

During the next ten days, the patient should be laid on his back in a comfortable chamber, free from dust and

smoke, and be warned to refrain from such bodily functions as coughing, eructation, yawning, spitting, sneezing, etc. The diet should consist of light articles of food, and be given only in small quantities."

These post-operative instructions, given almost 3000 years ago, sound remarkably like those given to present day patients after cataract removal. Susruta gives an accurate description and measurement of the needle-instrument which should be employed, and stresses that it should be made of copper, iron or gold. Susruta also lists the symptoms and signs of disorders resulting from defective surgery — for example, puncturing the eye at the wrong place, unsteadiness of the instrument during the course of the operation, and attempting to remove a cataract before it is mature. For each of these complications, he lists the appropriate measures of treatment.

An English translation, made in 1907 in Calcutta, of the original Sanskrit text of the *Susruta Samhita* [8] is available in more than one library in Britain today.

While Hippocrates and Galen considered intestinal perforations to be invariably fatal, Susruta described with clarity the treatment of penetrating intestinal wounds [9]. The method advocated by him utilised large black insects, a kind of ant, to close tears of the gut wall. An ant was applied to the opposed edges of the wound ; once the edges were bitten in the strong jaws of the insect, the rest of the body was broken off from the head. Unorthodox, unsterile, and unfair perhaps to the ants — but the method appears to have been effective !

Two significant works on Sinhalese medicine which are still extant are the *Sarartha Sangrahaya* composed in the fifth century A. D., and the *Bhesajja Manjusa* from the thirteenth century. The former was composed by King Buddhadasa (341 -370 A. D.) who was himself an eminent surgeon. His situation does not seem at all implausible when one considers that in the recent past, several countries — notably Malawi, Singapore and Malaysia — have had medical men as heads of government ! King Buddhadasa's book, written in Sanskrit, describes various surgical instruments and operations ; diagrams of the human body are given, with directions as to the various points that should be avoided in surgical operations.

The *Bhesajja Manjusa* is a work in the Pali language, written by a learned Buddhist monk whose title is given as 'Principal of the Five Colleges'. Written for the use of Buddhist monks, the book is available in other Buddhist countries of the region such as Burma, Kampuchea and Thailand, where versions of this work in the vernacular are found [10]. A Sinhalese translation, made in the seventeenth century by Rev. Weliwita Saranankara, the head of the order of Buddhist monks at the time, is also in existence. The book has, *inter alia* chapters on fistula, carbuncle, bladder stone, and fractures.

The wide variety of surgical instruments in vogue at the time is remarkable. Even as old a work as the *Susruta Samhita* describes over a hundred different blunt instruments, 20 sharp ones and 28 different catheters, sounds and syringes. The forceps were fashioned in the form of different animals. Diagrams and measurements of each instrument are given, and mention is made of caustics used to clean them. Susruta describes suturing materials of hemp, cotton and plaited

horsehair, — as well as the fumigation of the operating room with the fumes of mustard, butter and salt. Several types of alcoholic drinks administered as anaesthetics before and during operation are mentioned. The soporific effects of henbane and Indian hemp are described, and their use recommended for pre-medication.

We have attempted in this paper to give you a brief glimpse of Sri Lanka's medical heritage. Much might be learned from a study of the ancient works, bearing in mind the possibility of utilising such knowledge in the management of patients in the present context.

ACKNOWLEDGEMENTS

We acknowledge with gratitude the assistance and encouragement received from Mr. Sam Wijesinha and Mr. W. J. Fernando in the preparation of this paper. We also thank Mrs. Yasmin Jayawardena for typing the manuscript.

REFERENCES

1. Boswell J (1971). *The life of Samuel Johnson LL. D.* London, Thomas Nelson & Sons.
2. Turnour, G and Wijesinha, L C (1889). *The Mahawamsa,* (Translated from the original Pali into English) Colombo, G. J. A. Skeen, Government Printer.
3. Geiger, W (1960). *Mahawamsa* or the Great Chronicle of Ceylon. Colombo, Ceylon Government Information Department.
4. Guthrie, D A (1958). *A history of Medicine,* Revised edition Edinburgh, Thomas Nelson & Sons.
5. Godakumbure, C E (1963). *Epigraphia Zeylanica,* **5,** 288.
6. Uragoda, C G (1977). *Ceylon Medical Journal,* **22,** 3.
7. Godakumbure, C E (1965). *Epigraphia Zeylanica,* **5,** 288.
8. Bhishagratna, K K L (1907). An English translation of the *Sushruta Samhita,* based on original Sanskrit text. Culcutta, Wilkins Press.
9. Wijesinha, S and Wickremasinghe, C (1981). *Journal of the Royal College of Surgeons of Edinburgh,* **26,** 245.
10. De Silva, W A (1913). *Journal of the Ceylon Branch of the Royal Asiatic Society,* **23,** 34.

Nutroferol Plus

REG. TRADE MARK

PALATABLE PROPHYLACTIC/THERAPEUTIC FORMULATION SUPPLYING

* Essential iron – to boost or replace depleted iron stores
* Vitamin B Complex and B12 – because nutritional deficiencies are usually multiple.

WELL TOLERATED BY ALL AGE GROUPS

Nutroferol Plus provides iron as ferrous gluconate, which is better absorbed ... better utilized ... better tolerated than most other forms of iron.

* Nausea, abdominal cramps, constipation and diarrhea are rare with Nutroferol Plus
* Palatable orange-flavoured formulation encourages compliance

EXCELLENT HEMATOPOIETIC RESPONSE

* Response to Nutroferol Plus is usually prompt and predictable – symptoms such as fatigue and weakness generally subside as hematopoiesis improves
* Ideal for long-term therapy – "Treatment with iron should be continued for four to six months and even longer in the face of recurrent bleeding."

W

A product from
WINTHROP
Pharmaceuticals of merit for the physician

A Rapid Step Towards Recovery...

Winstrol

Reg. Trade Mark

brand of stanozolol

When natural anabolic processes fail to keep pace, used adjunctively, Winstrol benefits

- postoperative patients – shortens convalescence
- the debilitated elderly and patients with chronic disease – improves muscle tone, increases physical activity
- spinal osteoporosis – helps prevent spinal compression fractures by decreasing bone resorption*
- patients on long-term corticosteroid therapy – counteracts catabolism

*Chesnut, C.H., *et al.*: *J. Nuclear Med.* 20:677-678, June 1979.

How Supplied: Winstrol 2 mg tablets, cartons of 20.

For complete prescribing information, consult package circular.

Developed through research by
WINTHROP
Pharmaceuticals of merit for the physician

5959

Pernicious Anaemia — A Case Report

B C WIJESIRIWARDENA[1], J DE SILVA[2], K S A JAYASINGHE[3], M H R SHERIFF[4] and K DHARMADASA[5]

Ceylon Medical Journal, 1983, **28**, 53–56

SUMMARY

A case of pernicious anaemia is reported. This is probably the first patient to be reported in Sri Lanka.

INTRODUCTION

Pernicious anaemia is a disorder characterized by megaloblastic haemopoiesis and/or a nervous system disorder due to vitamin B_{12} deficiency resulting from severe atrophic gastritis. This condition has its highest frequency among people of Nothern Europe (United Kingdom, Scandinavian countries) and in countries populated by emigrants from these countries, such as North America, Australia and New Zealand.[1] However this condition has been found in many races including Chinese,[2] Japanese,[3] Arabs,[4] Indonesians and Asiatic Indians.[5]

CASE REPORT

A 32 year old man was admitted to the University Medical Unit of General Hospital, Colombo with a history of progressive dyspnoea, generalised weakness and tiredness of five months duration. He did not complain of paraesthesiae, weakness of limbs or unsteadiness. There was no family history of a similar disorder.

On examination, he was found to have marked pallor, mild icterus, vitiligo and greying of hair. The liver was palpable 4 cm. below the right costal margin and the spleen was felt 5 cm. below left costal margin. There was no free fluid in the abdomen. Neurological examination did not reveal any abnormality. Cardiovascular and respiratory systems were normal and there was no glossitis.

Investigations

Results of peripheral blood examination are given in Table 1. Bone marrow aspiration biopsy showed a hypercellular marrow with a large number of megaloblasts, and scanty megakariocytes. Urine did not have any bile, but urobilin was found in increased amounts. Serum bilirubin was raised to 2.1mg/100ml the indirect component being 1.1mg/100ml. Results of histamine stimulation test are given in Table 2. ESR was 90 mm in 1st hour and serum proteins were 6.5mg/100ml; 3.8gm/100ml being albumin and 2.7 mg/100ml globulins. Parietal cell antibodies were detected in the serum. Gastroscopy showed a pale mucosa with a reduction in the number of mucosal folds, but the barium meal screening failed to show any evidence of atrophic gastritis. Finally a therapeutic test using 2/ug of vitamin B_{12}/day intramuscularly was done. Haemoglobin and reticulocyte counts were done daily and WBC and platelet counts once in 3 days. Eight

[1] *Registrar in Medicine.*

[2] *House Physician.*

[3] *Lecturer in Medicine.*

[4] *Senior Lecturer in Medicine.*

[5] *Professor of Medicine.*

University Medical Unit, General Hospital, Colombo.

Table 1

Results of peripheral blood examination

Hb	—	7.2 G / 100 ml.
RBC	—	1.2 million / mm^3
MCV	—	100 cumm
PCV	—	16%
MCHC	—	34%
Reticulocyte count	—	2%
WBC	—	2200 / cumm
Platelet count	—	70,000 / cumm
Peripheral blood film	—	Macrocytosis, hypersegmented polymorphs present.

Table 2

Results of histamine stimulation test
(histamine 2 mg — given at 9.30 a.m.)

Time interval	*Volume of gastric juice (ml.)*	*Free acid*
8.30 — 9.30 a.m.	30	nil
9.30 — 9.45 a.m.	8	nil
9.45 — 10.00 a.m.	18	nil
10.00 — 10.15 a.m.	14	nil
10.15 — 10.30 a.m.	15	nil

days after the reticulocyte count had become normal, following the initial rise, oral folic acid 200/ug were added and the test continued. The results of the therapeutic test are summarized in Fig. 1.

Bone marrow aspiration biopsy was repeated 2 days after the commencement of vitamin B_{12} injections and it was found to be completely normoblastic.

DISCUSSION

Peripheral blood macrocytosis, pancytopenia and elevated serum bilirubin suggested the possibility of a megaboblastic anaemia and it was confirmed by bone marrow aspiration biopsy.

Therapeutic test using vitamin B_{12} 2/ug I. M. daily resulted in bone marrow becoming completely normoblastic in 2 days. Haemoglobin content improved, white cell and platelet counts increased and the characteristic reticulocyte response was seen; reticulocytes increased to a maximum of 45% on the 7th day and became normal on the 16th day. (Fig. 1.) The addition of folic acid, after the reticulocyte count became normal, failed to improve haematological parameters further, excluding a co-existant folic acid deficiency. Though the serum vitamin B_{12} levels were not available, the response to 2/ug of B_{12} seen in the therapeutic test is diagnostic of B_{12} deficiency.[13]

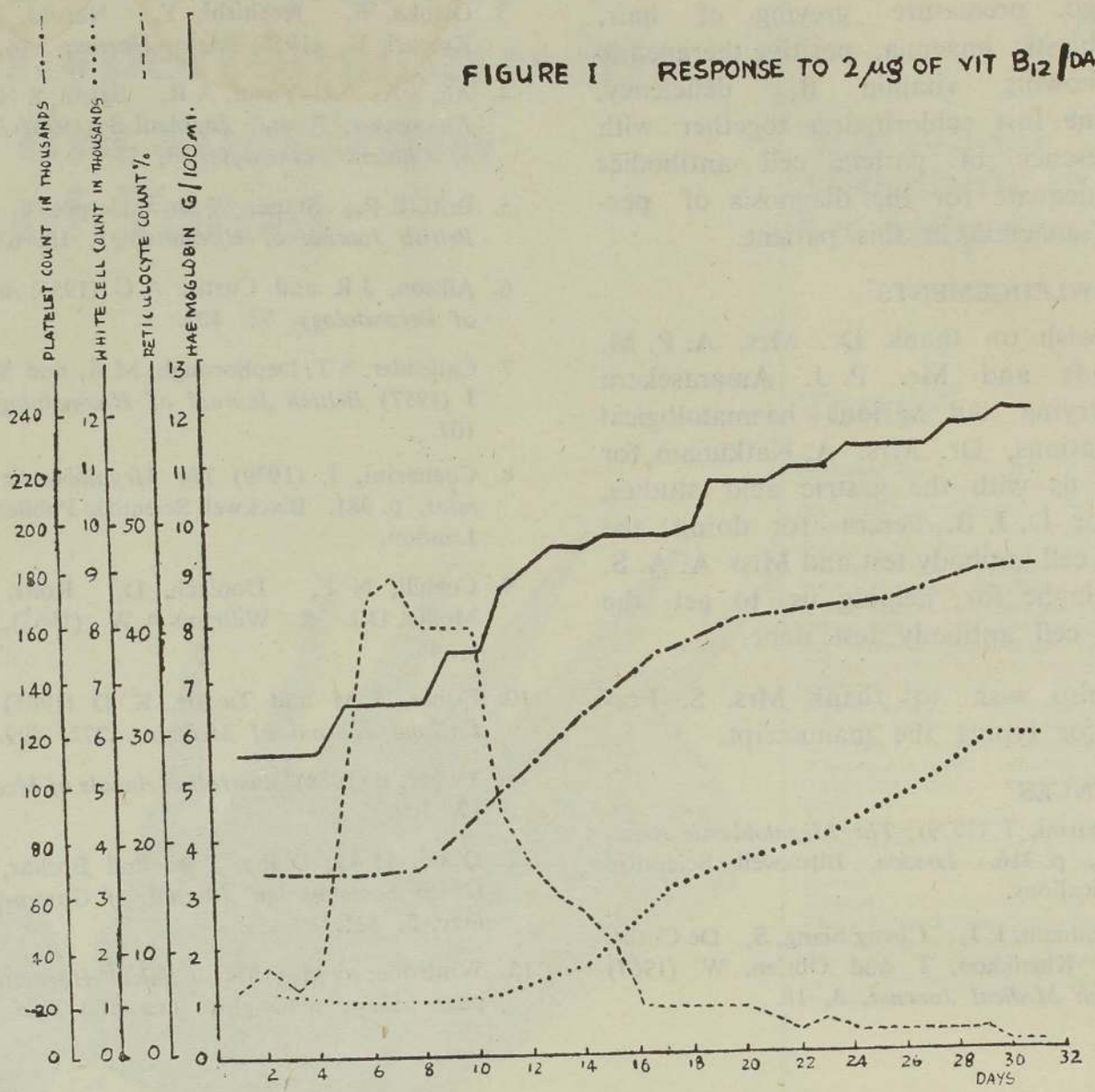


FIGURE I RESPONSE TO 2 µg OF VIT B_{12} / DAY.

Vitiligo[6] and premature greying of hair[7] are well documented associations of pernicious anaemia, and these two features together with a megaloblastic haemopoiesis due to vitamin B_{12} deficiency made this diagnosis a possibility.

After stimulation with histamine the volume of gastric juice rose only up to a maximum of 55ml/hr which is only just above the lower limit of average basal hourly output which ranges from 50–150ml. Free hydrochloric acid was not found. This was good evidence of atrophic gastritis. Furthermore, gastroscopy showed a reduction in the number of mucosal folds though the barium meal was normal. Though atrophic gastritis with achlorhydria is seen in other conditions as well, megaloblastic haemopoiesis with or without a neuropathy in association with atrophic gastritis is seen only in pernicious anaemia.[8]

Parietal cell antibodies were present, but this can be produced by other types of atrophic gastritis as well.[9 10]. Anti-intrinsic factor antibodies are more specific[11,12] but cannot be done in this country.

Vitiligo, premature greying of hair, megaloblastic anaemia, positive therapeutic test showing vitamin B_{12} deficiency, histamine fast achlorhydria together with the presence of parietal cell antibodies were adequate for the diagnosis of pernicious anaemia in this patient.

ACKNOWLEDGEMENTS

We wish to thank Dr. Mrs. A. P. M. Ganegoda and Mr. P. J. Amarasekera for carrying out various haematological investigations, Dr. Mrs. A. Natkunam for helping us with the gastric acid studies, Professor D. J. B. Perera for doing the parietal cell antibody test and Miss A. A. S. Amarasinghe for helping us to get the parietal cell antibody test done.

We also wish to thank Mrs. S. Fernando for typing the manuscript.

REFERENCES

1. Chanarini, I (1979) *The Megaloblastic Anaemias*, p. 316. *London*, Blackwell Scientific Publicalions.
2. Jayaratnam, F J, Cheng Siang, S, De Costa, J L, Khenkhoo, T and Obrien, W (1967) *British Medical Journal*, **3**, 18.
3. Otsuka, S, Koshishi, Y, Naruto, K & Kumari, K (1956) *Acta, Haemat*, **16**, 199.
4. Ali, S A, Al-Yusuf, A R, Salem, S N, El-Ahamrawy, E and Zagulaul S (1970) *Journal of Clinical Pathology*, **23**, 577.
5. Britt, R P, Stane, W and Harper C (1970) *British Journal of Haematology*, **18**, 637.
6. Allison, J R and Curtis, A C (1955) *Archives of Dermatology*, **72**, 407.
7 Callender, S T, Denborough, M A, and Sneath, J (1957) *British Journal of Haematology*, **3**, 107.
8. Chanarini, I, (1979) *The Megaloblastic Anaemias*, p. 381. Blackwell Scientific Publications. London.
9. Coghill, N F, Doniach, D, Roitt, I M, Mollin, D L & Williams A W (1965), *Gut*, **6**, 48.
10. Fisher, J M and Taylor, K D (1965) *New England Journal of Medicine*, **272**, 499.
11. Ungar, B (1968) *Australian Annals of Medicine*, **17**, 107.
12. Desai, H G, Dighe, P K and Borkar, A V (1968) *Scandinavian Journal of Gastroenterology*, **3**, 321.
13. Wintrobe, M M (1974) *Clinical Haematology*, page 553. Philadelphia, Lea and Febiger.

A firm grip on hypertension with the spectrum of Torrat:

The whole spectrum in a 1 x daily dosage

Torrat®

Composition: 1 tablet of Torrat contains: 20 mg metipranolol and 2.5 mg butizide.
Indication: Arterial hypertension.
Contraindications: Uncompensated heart-failure, second and third degree AV block, marked bradycardia, obstructive respiratory tract diseases (e.g. bronchial asthma, spastic bronchitis), cor pulmonale, allergic rhinitis, glottic oedema, cardiogenic shock, sulphonamide-hypersensitivity, hepatic coma, therapy-resistant hypokalaemia and renal failure with anuria.
Side-effects: In every hypotensive therapy, individual instances of dizziness, palpitation, outbreaks of sweating or tiredness can occur. In occasional cases, gastro-intestinal complaints such as nausea and vomiting can occur.
Particularly at the beginning of therapy, a rapid lowering of blood pressure can lead to a deterioration in one's ability to concentrate (drivers!)
Dosage: Initial treatment: 1 tablet per day. If the antihypertensive effect is not sufficient, the dose can be increased after 14 days to 2 tablets daily, which can be taken as a single daily dose at breakfast time once good control is established.

Our representative in Sri Lanka:
J.L. Morison Son&Jones (Ceylon) Ltd.,
P.O. Box 430, Colombo 15,
Sri Lanka

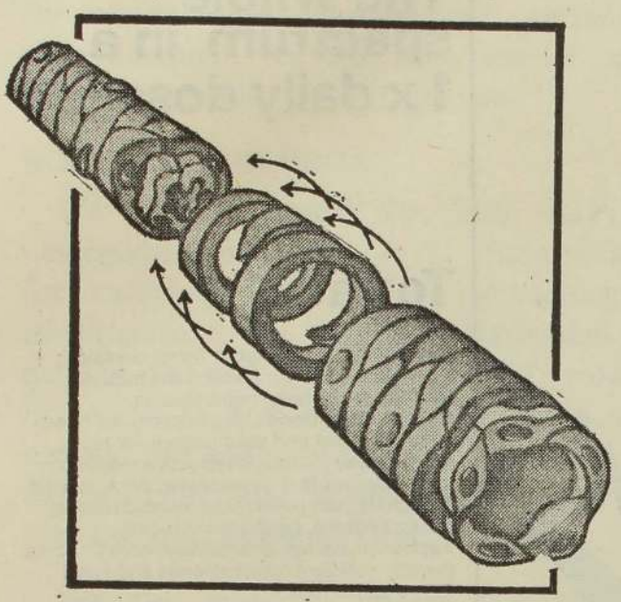
Your partner in diagnosis and therapy

mannheim boehringer

Boehringer Mannheim GmbH
D-6800 Mannheim 31
West Germany

Minipress* (prazosin HCl)

the logical choice



meeting your priorities in antihypertensive therapy

- Effective when used alone
- Effective when used in combination with other agents
- Logical adjunct to beta adrenergic blockers
- Controls blood pressure safely without compromising hemodynamic functions
- Combines long-term antihypertensive efficacy with excellent toleration

Minipress

Convenient Dosage Regimen

Start: 0.5 mg b.i.d. or t.i.d. — Initial dose for all patients †

Progress: 1 mg b.i.d. or t.i.d. — Review and adjust according to response after 4–7 days

Add: thiazide — A thiazide diuretic may be added if the response to dose of 1 mg b.i.d.–t.i.d. is incomplete. It is inadvisable to increase the dose of Minipress beyond 2 mg t.i.d. before adding a thiazide diuretic

2 mg b.i.d. or t.i.d. — Review and adjust according to response after 4–7 days

1-2 weeks††

Final Titration: Usual maintenance dose in most patients will be in the range of 3 to 9 mg daily, given in divided doses b.i.d. or t.i.d.

A few patients will require 12 or 15 mg and in rare instances up to 20 mg daily, divided b.i.d. or t.i.d.

†The doctor is advised to consult full prescribing information.

††Dosage should usually be adjusted at intervals of one to two week. More rapid adjustments can be made when quick reduction of pressure is indicated.

PRECAUTIONS

A very small percentage of patients have responded in an abrupt and exaggerated manner to the initial dose of Minipress (prazosin hydrochloride). Sudden loss of consciousness, lasting for a few minutes or in very rare instances up to one hour, has been reported. This reaction, believed to be due to postural hypotension in abnormally responsive individuals, usually occurs within 30 to 90 minutes of the initial dose and is associated with premonitory symptoms of dizziness, weakness, and sweating. The effect is self-limiting and in most cases does not recur after the initial period of therapy or during subsequent dose titration steps.

This exaggerated response appears to be related to dose but not to severity of hypertension. The clinical experience to date indicates that the incidence and severity of early hypotensive symptoms can be reduced by a low initial dose and cautious increases during the first one to two weeks of treatment.

As when instituting therapy with any effective antihypertensive agent, the patient should be advised how to avoid symptoms resulting from orthostatic hypotension and what measures to take should they develop. The patient should be cautioned to avoid situations where injury could result should dizziness or syncope occur during the initiation of Minipress (prazosin hydrochloride) therapy.

*Trademark

Pfizer

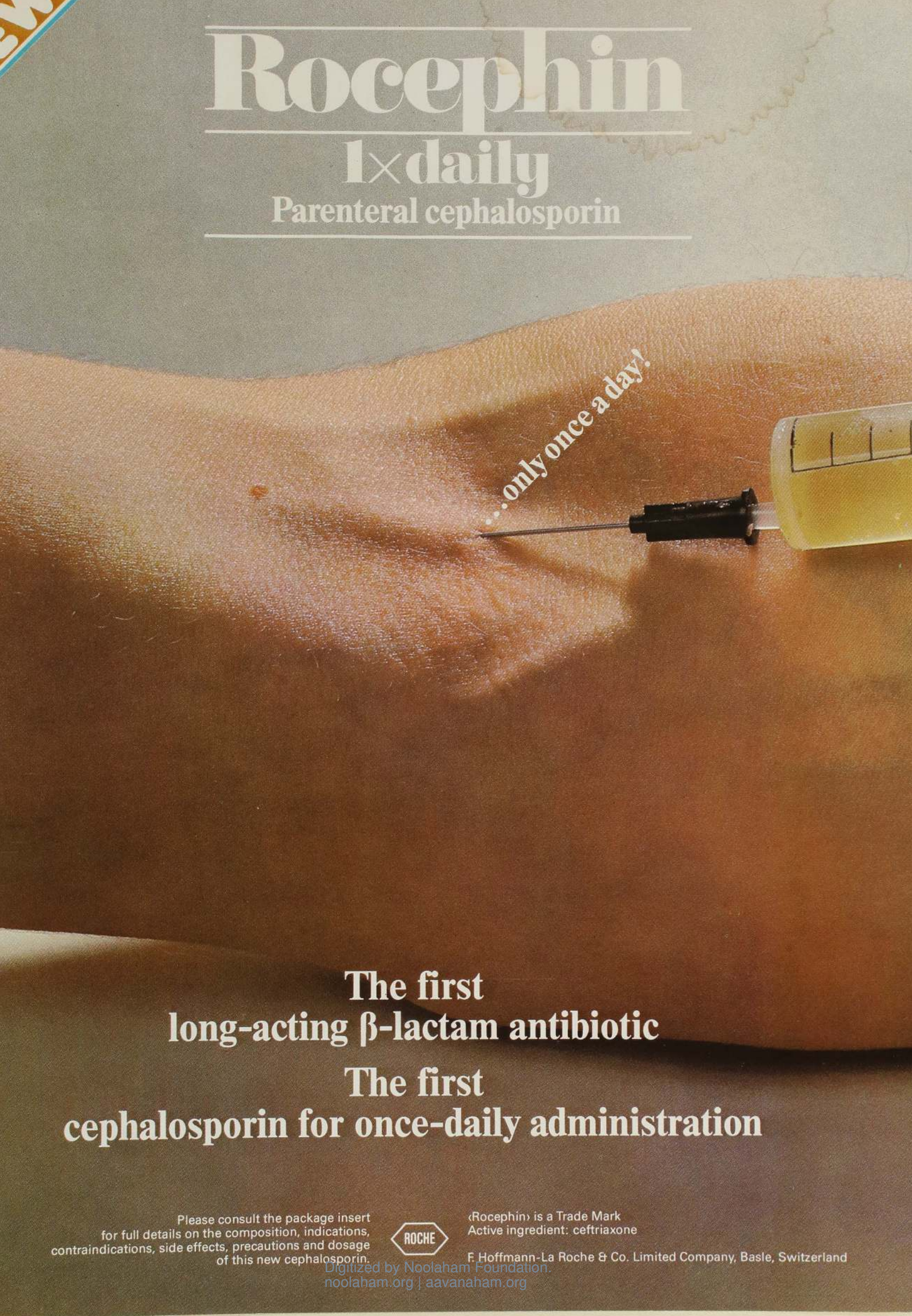
PFIZER LIMITED
688, Galle Road, Ratmalana.
Phone: 6741·6742 'Mt. Lavinia'.

Detailed information available on request.

Rocephin

1×daily

Parenteral cephalosporin



The first long-acting β-lactam antibiotic

The first cephalosporin for once-daily administration

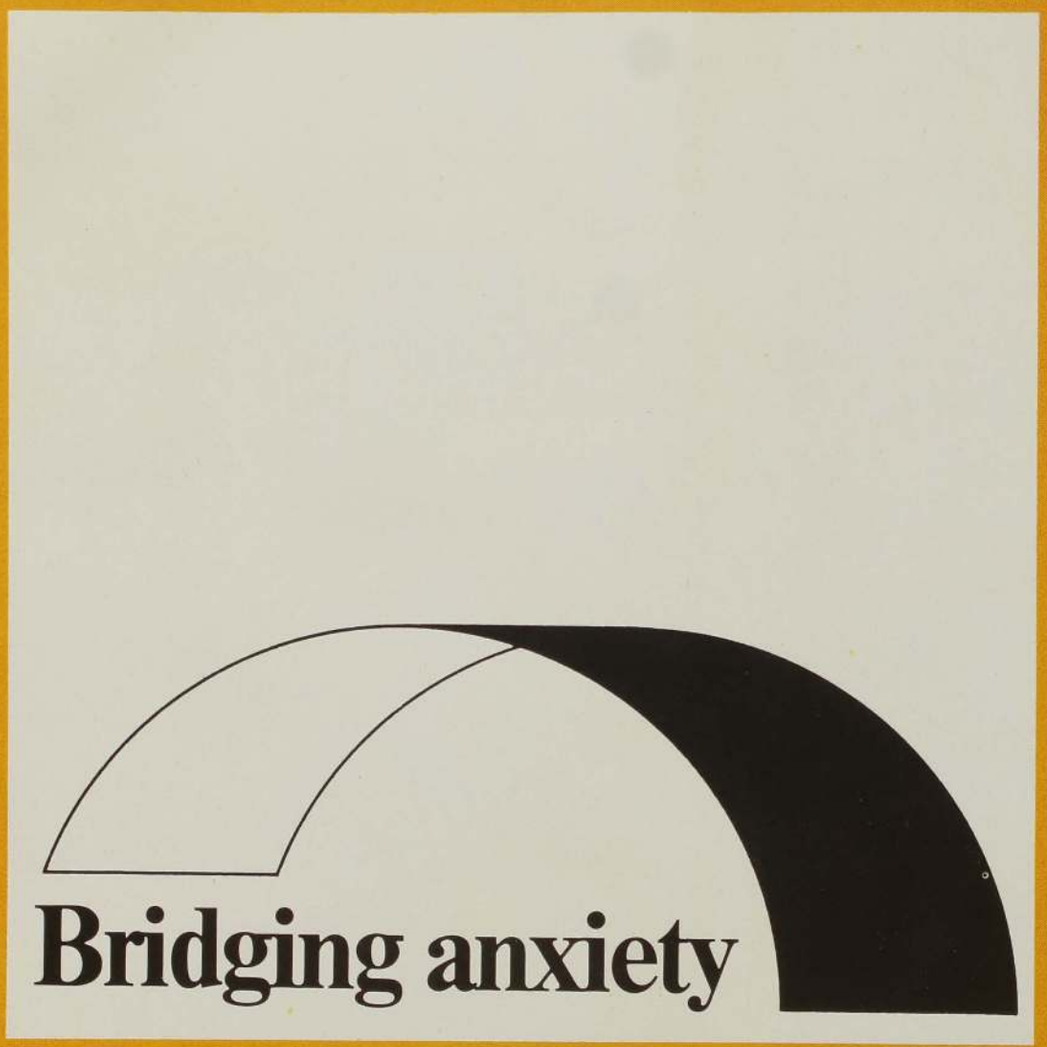
Please consult the package insert for full details on the composition, indications, contraindications, side effects, precautions and dosage of this new cephalosporin.

ROCHE

‹Rocephin› is a Trade Mark
Active ingredient: ceftriaxone

F. Hoffmann-La Roche & Co. Limited Company, Basle, Switzerland

Specific relief of anxiety when needed



Composition
7-Bromo-1,3-dihydro-5-(2-pyridyl)-2 H-1,4 benzodiazepin-2-one (bromazepam).

Indications
Anxiety neurosis as well as tension states and somatic complaints associated with it.

Dosage
Average dose for ambulant patients: 1,5–3 mg up to three times daily. It is often an advantage to give the total daily dose as a single dose in the evening. Severe cases, especially in hospital: 6–12 mg two or three times daily.

Side effects
With high dosage, fatigue, drowsiness and, more rarely, muscular weakness may occur.

Please consult the package insert for fuller details on indications, contraindications and precautions.

‹Lexotan› is a Trade Mark

Lexotan

helps perceive the dimension of anxiety

F. Hoffmann-La Roche & Co. Limited Company, Basle, Switzerland

ROCHE

Sri Lanka Medical Association

Centenary year

1986/87

Your Suggestions to

The Secretary
Centenary Committee
SLMA.

A landmark in the search for a safer strong analgesic

Temgesic®

injection buprenorphine

an important new strong analgesic

The outcome of a 17-year British research programme into the therapeutic potential of compounds with partial agonist action, Temgesic is both a strong analgesic and a morphine antagonist with unique receptor kinetics:

- clinically more effective an analgesic than morphine,[1] pethidine[2] and pentazocine[2]
- duration of action of six to eight hours[1]
- respiratory depression has not been a problem[2]
- wide safety margin
- no constipating effect
- extrapyramidal effects, distortion of sensation or perception seen with other antagonist analgesics are most unlikely to occur with Temgesic

Full prescribing information available from

Reckitt & Colman Pharmaceutical Division
40 4/1, Church Street Colombo 1.

Temgesic® Injection

...one of the most promising parenteral analgesic agents to be introduced in recent years[3]

Temgesic is a strong analgesic for use in the relief of moderate or severe pain such as:

- post-operative pain
- pain following myocardial infarction
- pain while undergoing terminal care for malignancy

De Alwis

References

1. Kay, B (1978) A double-blind comparison of morphine and buprenorphine in the prevention of pain after operation. Br J. Anaesth 50.605
2. Hovell, B C (1977) Comparison of buprenorphine pethidine and pentazocine for the relief of pain after operation. Br J. Anaesth
3. Leading Article Postoperative pain (1978) Brith med J. 2.517

MERCK

Nasivion®

(Oxymetazoline)

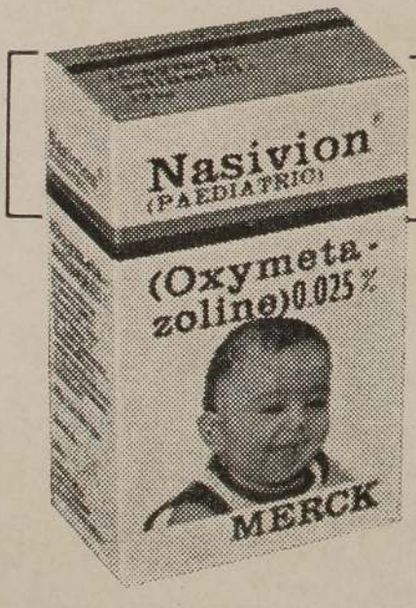
A GENTLE,
LONG LASTING
NASAL DECONGESTANT

PRESENTATION:
Bottle of 10 ml. containing 0.05%
solution (1:2000) of Oxymetazoline

...and for infants too!

Nasivion

(PAEDIATRIC)



PRESENTATION:
Bottle containing 10 ml.
Oxymetazoline hydrochloride (0.025%)

Local Distributors
Emso Ltd.,
278, Union Place
Colombo-2

314 years Pharmaceuticals
155 years Chemicals
Research
Accomplishments
Quality
MERCK
Darmstadt, F.R. Germany

E. Merck (India) Limited

T-PAS/NA (OXY/PAE)/73

SRI LANKA MEDICAL ASSOCIATION

97th ANNIVERSARY SESSIONS

28th – 31st MARCH 1984

S. L. M. A. ORATION

S. C. PAUL ORATION

SHORT PAPERS OF 10 MINUTES DURATION

CLOSING DATE (ABSTRACTS) 15th DECEMBER '83

FULL PAPERS AND ORATIONS TO BE
SUBMITTED BY 30th DECEMBER 1983

4 CASH AWARDS OF Rs. 2000/- EACH

2 Dr. E. M. WIJERAMA &
2 Dr. S. E. SENARATNE Awards

WILL BE GRANTED FOR BEST 4 PAPERS READ AT THESE ANNUAL SESSIONS

Other Orations –

MARCUS FERNANDO
MURUGESAR SINNETAMBY
Sir. NICHOLAS ATTYGALLE

Will not be delivered at Anniversary Sessions.
Closing date for full papers 30th December 1983

SCRIPTS for above Orations & Papers are welcome from S. L. M. A. Members.

NON MEMBERS PLEASE CONTACT S.L.M.A. OFFICE

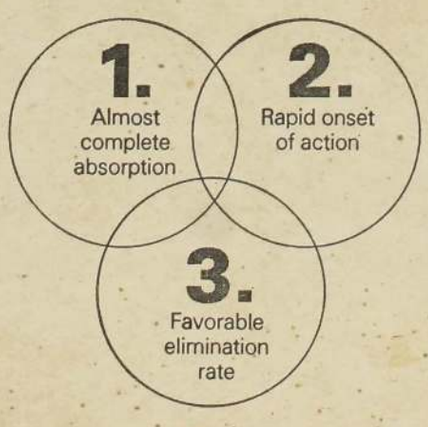
Printed at Ananda Press, 82/5, Wolfendhal Street, Colombo-13.

For more safety in the treatment of the failing heart

Lanitop®

metildigoxin

Lanitop® embodies 3 decisive advantages for your glycoside therapy:



New

from Boehringer Mannheim

Lanitop® metildigoxin

Composition:
1 tablet contains metildigoxin 0.1 mg.

Indications:
All forms and grades of heart failure.

Dosage:
Maintenance therapy:
According to glycoside requirements on average 1–2 tablets of Lanitop daily.
If 2 tablets daily are necessary: 1 tablet of Lanitop 2 times daily.

Contraindications:
All cardiac glycosides are contraindicated in digitalis intoxication, hypercalcaemia and before electrocardioversion. In addition, glycoside treatment may be contraindicated, or additional therapeutic measures be required when there is manifest hypokalaemia, derangement of atrioventricular conduction or pathological bradycardia (according to the severity of the condition). During glycoside therapy, parenteral administration of calcium, particularly simultaneous administration, is inadvisable.

Precautions:
Just as with any other digitalis therapy, side-effects such as nausea, vomiting and gastro-intestinal complaints as well as rhythm and visual disturbances may occur. These side-effects must be particularly expected in patients who are oversensitive to glycosides or have a disturbed electrolyte balance. From the same considerations, care in digitalisation must be exercised in cases of acute cor pulmonale, especially with intravenous treatment. In patients with renal insufficiency, a reduced glycoside requirement may be expected.

Our representative in Sri Lanka:
J. L. Morison, Son & Jones (Ceylon) Ltd., Sri Lanka

Your partner in diagnosis and therapy

mannheim boehringer

Boehringer Mannheim GmbH
D-6800 Mannheim 31
West Germany