

The Symptomatology of Infertility

by
Mr. T. H. Lean, MB, FRACS, FRCS (G), MRCOG.
KANDANG KERBAU HOSPITAL, SINGAPORE.

Introduction

In opening this Symposium on the subject of Infertility this afternoon, I am confining my attention to an analysis of problems which we see in the State of Singapore.

The problem of Infertility at large is still an important problem to many people despite the whipping up of public interests on the problems of population, population explosion and family planning. Considerable interest has been emphasized on the question of avoiding conception, but this must not deviate one from the more important problem from an academic point of view of conception and Infertility.

The Symptomatology presented this afternoon is based entirely on the total of 310 Gynaecological cases which had been seen and assessed on the Infertility Clinic of the Professorial Unit at the Kandang Kerbau Hospital, Singapore, and covered the years 1953 to 1956. If one used the total number of Gynaecological patients who attended at the clinic under the Unit—about 16,000, the incidents of infertile cases would be in the region of 1.9%. But this does not represent the true incidence of infertility as an entity amongst the population at large and it is the contention that the question is probably 4 or 5 times higher than this survey showed; for it is to be remembered that the Gynaecological outpatients of the Kandang Kerbau Hospital are open too, to the many cases who had anything else but a Gynaecological ill.

Terminology

Before discussing the problems to be presented it is necessary to standardize some of the

Nomenclature employed. The Terminologies used in this analysis are those recommended by Lane-Roberts et al, viz as follows:

- Primary Sterility — Sterility or Infertility occurring in a marriage of 2 years in which there has been no known conception.
- Secondary Sterility — Marriage in which there has not, for 3 years or more, been born a viable child but in which one or more conception has occurred.
- Absolute Sterility — Implies the presence of an absolute bar to conception in either partner.
- Relative Sterility — Implies the presence of NO absolute bar to conception but that there are one or more responsible factors.

It is to be stressed that absolute sterility and relative sterility are not classified for these definitions are open to criticism as so much depends on the interpretations of the individual observers.

The breakdown of the types Infertility and race amongst the 310 patients assessed are as follows:—

	Type	Chinese	Malays	Others	Total	%
Primary	177	32	6	1	216	69.6
Secondary	72	9	7	6	94	30.4
	249	41	13	7	310	100.0

The breakdown of the duration of years that each type of Infertility involved is seen in the following table:—

Type	Under 5 years	6 to 10 years	Over 10 years
Primary	102	65	49
Secondary	19	20	55
	121 (39%)	85 (27%)	104 (34%)

Although a great number of Gynaecologists advocate that an infertile couple needs no investigation unless they have been well and truly married for two years, I think it would appear judicious under the present circumstances to examine all couples and all patients who voluntarily come forward for assessment even though recently married. This would seem to be more desirable as there is no premarital clinic as such in Singapore that can advise couples contemplating marriage. It can thus be seen too, that the establishment of such a pre-marital clinic would seem to be long overdue and certainly should find an immediate place in Gynaecology and family planning practice in the State today.

Symptomatology As Assessed On Historical Data

Assessment of the individual patients on a historical format alone revealed some interesting information:—

- Menarche:** The average Singapore girl of any race may be said to experience menarche at an average age of 13.5 years. Malays and Tamils commenced probably a year earlier and of the 310 patients assessed, six could not remember the age of their menarche. The remaining patients gave the history of menarche as follows:—

	10-13 Yrs.	14-17 Yrs.	Over 17 Yrs.
Primary	34	153	26
Secondary	21	62	8
	55	215	34

It can be seen that 249 cases or 82% of these cases had delayed menarche.

- Cycle:** The normal menstrual cycle has a range from 21 to 25 days. The duration of flow is approximately 5 days and 2 to 3 Vulval Pads are used per day. Discomfort may be experienced but the pain or Dysmenorrhoea should be absent.

The abnormal variations amongst the 310 patients assessed are as follows:—

	Primary	Secondary	Total
Less than 21 days	12	2	14
More than 35 days	15	6	21
	27	8	35
Primary Amenorrhoea	—	—	6 cases
Oligomenorrhoea	—	—	15
Cycle more than 35 days	—	—	21
			42 (13.6%)
Meno-Metrorrhaxis & Polymenorrhoea	—	—	14 (4.4%) cases

It would thus appear that infertile women have a greater tendency towards a lowered menstrual function such as Amenorrhoea and Oligomenorrhoea as compared to excessive function such as Polymenorrhoea and Meno-Metrorrhaxis. A total of 42 patients (13.6%) seen showed this tendency to hypo-function and 14 cases (4.4%) with an excessive function — a 3-times greater amount.

- Dysmenorrhoea:** A chart representing this complaint is featured as follows:—

Main Complaint in	84 cases	= 27%
Primary Group	121 cases	= 39%
Secondary Group	22 cases	= 7.1%
	227 cases	= 46.1%

A total of 143 cases (46.1%) complained of Dysmenorrhoea but 122 cases were seen amongst the primary infertility group as compared to the secondary infertility group, viz. 22 cases. This history of Dysmenorrhoea was volunteered and in 84 cases (27%) it was the main complaint which brought the patient to the Gynaecological clinic and not infertility per se.

4. **Dyspareunia:** The complaint of painful intercourse did not figure prominently in this series under review, but it is accepted that modesty and shyness on the part of the patients make this complaint a difficult one for presentation. The common feature is for the husband to make the complaint on behalf of the wife. Only 7 cases (2.2%) figured under this complaint and all of them were in the primary infertile group.

5. **Anxiety Neurosis:** Psychological factors in infertility have received considerable attention in available American and European literature. They are, however, insignificant in West and East African series. In Singapore a total of 119 patients (38.4%) attended the clinic with the primary complaint of "anxious to have a child," only 23 patients in the secondary infertile group presented with this complaint and the remaining 96 patients were in the primary infertile group and they had been prompted to seek attention in the clinic either coerced to do so by anxious mothers-in-law, or because there had been commencing strain in the relationship between husband and wife. Amongst the Chinese population at large in Singapore, the infertile State in a woman may provide an excuse for the husband to procure a secondary wife, but since the event of the Woman's Charter in Singapore, the legal aspects of secondary wives may not provide such an easy access for men:—

6. **Leucorrhoea & Vaginal Discharge:** "Whites" may be a common complaint among the patients but in the series under review a total of 28 patients (9%) had pathological vaginal discharge which were caused by conditions as follows:—

Anxiety Neurosis:	"Anxious to have a child"	
Primary Group	— 96 cases	= 30.9%
Secondary Group	— 23 cases	= 7.5%
	<hr/>	<hr/>
	119 cases	= 38.4%

Gross Cervical Erosion - -	6 cases
Vaginal Trichomoniasis - -	16 cases
Vaginal Moniliasis - -	4 cases
Monilia & Trichomonas - -	2 cases
	<hr/>
Total:	28 = 9.0%

These conditions provide a inimical environment for the Spermatozoa and, therefore, are factors of great importance in management.

7. **Previous Abortions:** The total of 50 cases ((16.1%) in the secondary infertility group gave a history of episodes of previous abortions and the significant aspects of this history are as follows:—

Septic abortions - -	6 cases
Criminal abortions - -	12 cases
Habitual abortions - -	8 cases
Associated with Curettage	16 cases
Spontaneous - -	18 cases
	<hr/>
Total	50 cases = 16.1%

It can be seen that the pitiful cases involved are those with Sepsis and especially in those who have for one reason or another had to resort to deliberate removal of a previous pregnancy. A Total of 36% of cases as such were involved and prognosis is very unfavourable for them, for it can be appreciated that even surgical correction of tubal anatomy may not bring on fruitful results simply because tubal physiology remains disturbed. A Dilatation and Curettage was associated in 32% of a post-abortals infertiles and it was difficult to ascertain the cause of the disturbing factor. In the case of habitual abortions authorities have shown that an incompetent cervical os induced by vigorous Dilatation of the cervix can give rise to an incompetent cervical os syndrome. This is akin to the Q. P. C. (syndrome) of Green-Armytage in which the abortion occurs is described as one that is Quick Painless and Complete.

In recent years, following the work of Shir-odkar of Bombay, favourable reports about a cervical circum-suture operation for such cases had been widely reported. An incompetent cervical os, may, of course, undergo a complete plastic repair such as a Last and Last procedure. But, here again, caution must be enjoined in the sense that restoration of cervical competency may bring on disturbed cervical function so as to interfere with subsequent chances of conception.

SYMPTOMATOLOGY AS ASSESSED ON CLINICAL DATA

1. **Uterine Factors:** The uterus is, of course, the important end-all organ in the whole complex of conception. In the series under review the uterine factors which had significance were as follows:—

(a) **Genital Hypoplasia:** This series is based on the findings of Genital Hypoplasia of standards, viz:—

- (1) Stigmata of Hypoplasia—33 cases. (Based on Green-Armytage standard)
- (2) The Helicoid Uterus—(Sheares) 26 cases, giving a total of 59 cases (19%) which were implicated under this factor and when compared with other series the relative incidence are as follows:—

Genital Hypoplasia

Singapore K. K. Hospital — 59 cases (19.0%)

Feiner - - 1942 - - -	5.2%
Stein - - 1938 - - -	12.8%
Suggs - - 1943 - - -	32.0%
Meaker - - 1934 - - -	42.0%

(b) **Other Uterine Factors:** Other uterine

factors which were involved in the series under review and which had significance were as follows:—

Utero-Vaginal Prolapse - - -	6 cases
Proven TB Endometritis - - -	1 case
Uterine Fibromyomata - - -	4 cases
Adenomyosis - - -	8 cases

Total 19 cases (6.0%)

The incidence of TB Endometritis does not appear to be consistent with figures by other authorities but it can be anticipated that Laboratory and Bacteriological handicaps may account for the much lower figure.

II. **Tubal Factors:** Investigations on the question of Tubal patency were carried out in this series both by tubal insufflation in the first place and subsequently by Hystero-Salpingograms on cases that were found to be not patent by insufflation. A chart representing the instance of blocked tubes by both Insufflation and Hysterograms is represented as follows, as well as the relative incidence when compared with other series.

Blocked tubes by Insufflation - 155 cases (50.0%)

Blocked Tubes by Hysterograms - 37 cases (11.9%)

Comparing with other series

Stein - - - - 1938 - - -	10.0%
Meaker - - - - 1934 - - -	14.0%
Green-Armytage - 1934 - - -	14.0%
Feiner - - - - 1942 - - -	35.0%
Sharman - - - - 1944 - - -	38.0%
Rubin - - - - 1942 - - -	29.1%

III. **Ovarian Factors:** Studies of this factor were limited in this series to Endometrial Biopsy carried out preferably in the third week of the menstrual cycle. There are, of course, many other described methods of determining ovulation. A total of 21 cases (6.6%) showed Anovulation features and when compared with other series the figures are as follows:—

Anovulatory Menstruation

(by Biopsy) — 21 cases (6.6%)

Other Series

Novak - - - 1934 —	6.6%
Tietze - - - 1933 —	5 to 10%
Green-Armytage 1943	
Rock, Bartlett and Matson 1939 —	4%
Effkemann - - 1940 —	14.0%
Williams - - - 1940 —	17.0%

IV. **Male Infertility Factors:** A total of 304 male patients attended for assessment in this series under review, but 44 patients subsequently dropped out for one reason or another and could not be included in the findings. On the basis of Seminal Assays, taking only the totally infertiles in consideration, 80 patients (30%) were considered to be responsible for the infertile state. When compared with other authorities this figure would appear to be almost identical, thus confirming the universal opinion that the male partner is responsible for 30% to 40% of cases in infertility:—

K.K. Hospital - - -	Av. 30.0%
Whitehouse - - -	25.0%
Meaker 1934 - - -	30.0%
Crossen & Crossen 1941 - - -	39.0%
Sharman 1944 - - -	31.6%
Gardner 1943 - - -	40.0%
Joel & Kenyon 1942 - - -	41.6%
Williams 1943 - - -	30.0%

The racial and age breakdown of the cases investigated gave results in the following 2 tables:—

(a) **Racial Breakdown**

Chinese - - - -	209 cases
Malaysians - - - -	12 cases
Indians - - - -	38 cases
Others - - - -	1 case

Total: 260 cases

(b) **Age Distribution:**

20 to 30 years -	143 cases	=	55.0%
31 to 35 years -	86 cases	=	33.1%
36 to 40 years -	16 cases	=	6.1%
Over 40 years -	15 cases	=	5.8%
Total	260 cases		100.0%

(c) **Historical Data of Importance:** History amongst male patients elicited information of importance as follows:—

Coincident Pulmonary	
TB - - - -	5 cases
Malaria with Quinine	
Therapy - - - -	53 cases
Veneral Exposure	63 cases
Veneral Disease & positive Serology - - - -	
Alcoholics - - - -	24 cases
Alcoholics - - - -	12 cases

The cases with Pulmonary Tuberculosis had suppressed seminal counts and intercourse had been infrequent and haphazard. 63 cases (24.2%) admitted to a history of venereal exposure and 24 cases (9.2%) had definite venereal disease with positive serology. 9 cases in turn cross-infected their wives.

CLINICAL DATA OF IMPORTANCE

Examination of the genitalia of the male patient disclosed varying abnormal conditions:—

Phimosis - - - -	9 cases
Undersized Phallus - - - -	10 cases
Atrophic Testes - - - -	9 cases
Inguinal Herniae - - - -	7 cases

Total 35 cases (13.7%)

It is difficult to make any conclusion from the above findings but certainly an undersized phallus goes hand in hand with impotence. With these cases, artificial insemination appears to be a way out for these patients. The 9 cases with Atrophic testes had showed Aspermia on seminal assays and 7 cases of inguinal Herniae had sub-fertile counts, as had also those with Phimosis.

On the question of seminal assays the standard employed to assess fertility was as follows:—

Normal: Volume: Range 3 to 7 ml Av. 4 ml

Sperm count: Average 40 millions per ml: At Least 60% should show normal shape and motility at the time of Examination.

Of the 260 patients assessed, results obtained are give in the Chart, as follows:—

Total Infertiles	
(ASPERMIA) - - - -	84 cases = 30.0%
Sub-Fertiles - - - -	32 cases = 12.0%
Fertiles - - - -	144 cases = 58.0%

The Aspermic Group had no Testicular Biopsies done in this series under review, but it would appear to be a desirable procedure in order to complete investigations required.

REFERENCES

Crossen, H.S. and Crossen, R.J. (1941): Diseases of Women. 9th Ed., H. Kimpton, London, p. 793.

DeLee, J.B. (1938): Principles and Practice of Obstetrics. 7th Ed. W.B. Saunders Co., Philadelphia & London.

DeLee, J.B. and Greenhill, J.P. (1936): Year Book of Obstetrics and Gynaecology, Year Book Publisher, Chicago.

Feiner, D. (1942). Male and Female Responsibility in Sterility. Amer. J. Obstet. Gynae., 43, 639.

Green-Armytage, V.B. (1943): Discussion on New Developments in the investigation and Treatment of Sterility. Proc. R. Soc. Med., 36, 106.

Green-Armytage, V.B. (1959): Lecture on Problems of Sterility Post-Graduate Medical School. Hammersmith Hospital, London.

Jeffcoate, T.N.A. (1946): Male Infertility. Brit. Med. J., 2, 185.

Kurzrok, R. (1928): The Combination of a short Menstrual Cycle and delayed Coitus as a Factor in Sterility. Amer. J. Obstet. Gynae., 15, 546.

Lane-Roberts C., Sharman, A., Walker, K. and Wiesner, B.P. (1939): Sterility and Impaired Fertility. H. Hamilton Medical Books, London.

- Lawrence, C.H. and Rowe, A.W. (1928): Internal Secretions. Studies of the Endocrine Glands III. The Thyroid. *Endocrinology*, 12, 377.
- Meaker, S. (1934): Human Sterility Causation, Diagnosis and Treatment.
- Moench, G.L. (1939): The Longevity of the Human Spermatozoa. *Amer. J. Obstet. Gynec.*, 15, 546.
- Novak, E. (1926): Menstruation and its Disorders.
- Novak, E. (1934): Two Important Biologic Factors in Fertility and Sterility. *J. Amer. Med. Assn.*, 102, 452.
- Rock, J., Bartlett, M.K. and Matson, D.D. (1939): The Incidence of Anovulatory Menstruation amongst patients of Low Fertility. *Amer. J. Obstet. Gynec.*, 37, 3.
- Rowe, A.W. (1930): Endocrine Studies: An Endocrine Influence on Menstruation. *Endocrinology*, 12, 377.
- Schleyer, E. (1943): Hypoplasia; Gonorrhoea Constipation; Abortion. *Proc. R. Soc. Med.*, 36, 377.
- Schroeder, R. (1928): Menstruation and Pseudo-Menstruation. *Amer. J. Obstet. Gynec.*, 155.
- Sharman, A. (1944): Some Factors in Human Sterility. *J. Obstet. Gynec. Br. Emp.*, 32, 579.
- Shaw, W. (1925): The Fate of the Graafian Follicle in the human Ovary. *J. Obstet. Gynec. Br. Emp.*, 32, 679.
- Shaw, W. (1956): *Text-Book of Gynaecology*. 7th Ed., J. & A. Churchill, London.
- Sheares, B.H. (1953): The Helicoid Uterus. *J. Obstet. Gynec. Br. Emp.*, 62, 175.
- Van de Velde. T.H. (1934): *Fertility and Sterility in Marriage*, London.
- Walker, K. (1946): Male Infertility. *J. Obstet. Gynec. Br. Emp.*, 53, 154.
- Whitehouse, B. (1935): Cited by Eden and Lockyer's *Gynaecology*. 4th Ed., London.
- Wiesner, E.C. and Crew, F.A.E. (1929): The Gonadotrophic Actions of the Anterior Lobe of the Pituitary. *Proc. Roy. Soc. Edin.*, 50, 79.