Treatment of tubal occlusion by hydrotubation*

by

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Fallopian tube occlusion as a cause of infertility accounts for 25 to 30 percent of patients attending an infertility clinic. In the past surgical operative methods have been the line of treatment for fallopian tube occlusion, but the statistical data for surgery have not been reassuring or encouraging. Surgical reconstruction of fimbrial end tubal occulsion offered about 1 to 2 percent chance of conception. But recently treatment of tubal occlusion by hydrotubation gave a 20 percent chance of conception (1,2)

METHOD AND MATERIALS.

The above study was carried out at the Department of Obstetrics and Gynaecology General Hospital, Malacca from August 1973 to May 1974. The patients for the study were selected from the infertility clinic, where the patients were previously investigated for the following.

(a) Examination under anaesthesia for genital tract abnormality.
(b) Uterine size and uterine sound measurent for length of uterine cavity.
(c) Diagnostic curettage for histology regarding ovulation.
(d) Tubal insufflation for tubal patency.
(e) Husbands semen analysis.

In this study only patients with tubal occlusion were selected for hydrotubation.

The technique of hydrotubation was very similar to that of Hysterosalpingogram but here the procedure was carried out as an out-patient in the Gynaecology clinic. The procedure was an outpatient procedure and no preparation was required and no pre or post procedure sedation was used. The patient was placed in the dorsal position and after cleaning the vulva with 5% Dettol or Hibitane solution, a cusco's bivalve speculum was introduced and the cervix visualised, and held by a Vollsellum. A Leech Willkinson cannula was introduced into the cervix and the solution in a 20 cc syringe was slowly injected into the uterine cavity. The solution was a mixture of 20 cc distilled water, 1 gram streptomycin, 25 to 100 mgm Hydrocotisone and 1 mega Crystatline Penicillin. During the procedure, pain, resistance and spill of the solution were noted and recorded. After the hydrotubation the patient immediately went home. The Hydrotubation was carried out at weekly intervals.

STATISTICAL DATA

The data on the above study has been tabulated as follows:

Table I showed that the majority of patients were in the age group 25 to 29 years.

Table II showed for the Malays and Indians the number of cases for Primary and secondary infertility were equal but for the Chinese there were

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Table I. Ethenic Group / Age

Ethenic Group	20–24	25–29	30–34	35–39	40.
Malays	3	5	2	1	1
Chinese	2	17	7	6	0
Indians	2	4	0	0	0
	7	26	9	7	1

Table II. Ethenic Group / Primary or Secondary Infertility.

Ethenic Group	Primary Infertility	Secondary Infertility
Malays	6	6
Chinese	23	9
Indians	3	3
	32	18

Table III. Ethenic group / Number of years married or number of years since last pregnancy.

Ethenic Group	No of years married or number of years since last pregnancy.					
	0 – 2	2 – 4	4 – 6	6 – 8	8 – 10	10 +
Malays	0	4	2	3	3	0
Chinese	0	16	5	4	3	4
Indian	0	2	2	1	1	0
	0	22	9	8	7	4

Table IV. Ethemic group / Diagnostic D & C / Examination under anaesthesia.

Ethenic Group	Endomatral curettage for Histology		Uterine size	
	Secretory	Non-secretory	Normal	Hypoplastic
Malays	11	1	11	1
Chinese	25	7	27	5
Indians	5	1	5	1
	41	9	43	7

more primary infertility cases, and giving a higher number of primary infertility cases in this study, 32 primary infertility and 18 secondary infertility cases.

Table III showed that the majority were in the group 2 to 4 years of marriage or last pregnancy 2 to 4 years before they were investigated for this study.

Table IV showed the results of examination under anaesthesia and Diagnostic currettage and 41 cases showed histological evidence of ovulation and 9 cases showed non ovulatory cycles. At the time of the Diagnostic D & C the uterine cavity was measured and the uterus was classified as hypoplastic if the cavity was less than 2" by the uterine sound.

In table IV, 7 of the cases had small or Hypoplastic uterus. Patients with non ovulation were treated for induction ovulation by Chlomephene Citrate and patients with hypoplastic uterus were given Cyclical hormones.

Table V showed the results of Tubal insufflation and 38 patients had blocked tubes, and 12 with tubal spasm.

Table VI showed that only 2 patients had no sperm motility and another two had 1 to 25 percent motility. Regarding spermatozoa count only 9 patients had sperm count of less than 25 million per ml. It has been shown that if the sperm count is less than 25 millions per ml then the man is likely to be relatively sub-fertile.

Table V. Ethenic Group /Tubal Insufflation.

Ethenic Group	Tubal Insufflation: Spasm Co_2 Passed 100 – 150	150 – 200	Blocked Tubes
Malays	2	2	8
Chinese	6	2	24
Indians	0	0	6
	8	4	38

Table VI. Ethenic Groups / Husbands semen analysis.

Ethenic Group	Motility 0	1–25%	25–50	50–75	75–100	Counts in millions / per ml. Azospermia	1–25	25–50	50–100	100 +
Malays	0	2	2	4	4	0	3	3	3	3
Chinese	2	0	11	12	7	2	3	9	12	6
Indians	0	0	3	2	1	0	1	3	1	1
	2	2	16	18	12	2	7	17	16	10

Table VII. Ethenic Group / Tubal Insufflation / Hydrotubation.

Tubal Insufflation	Number of Hydrotubations. 1	2	3	4	5	6	7	8	9	10	Total
Spasm:											
100–150	0	0	1	1	4	0	0	1	0	1	8 (IP)
150–200	0	0	0	0	1	1	0	1	0	1	4
Blocked Tubes	0	2	3	8	7	3	6	7	1	1	38 (IOP)
Number of Hydrotubation	0	2	4	9	12	4	6	9	1	3	
Number of Pregnancies	0	(1P)	(2P)	(3P)	(3P)	(1P)	(1P)	0	0	0	

Table VIII. Details of patients who became pregnant.

No. Ethenic	Age	Years Married	Last Pregnancy in years	Ovulation	Semen Analysis Motility	Count	Tubal Insufflation	Number of Hydrotubation
1. Malay	29	6	4	Yes	65%	80 million	Block	6
2. Chinese	27	4	2	Yes	80%	70 "	Blocked	7
3. Chinese	27	3	–	Yes	80%	57 "	100	3
4. Chinese	28	5	–	Yes	60%	60 "	Blocked	5
5. Chinese	31	4	–	Yes	60%	60 "	Blocked	5
6. Malay	28	7	5	Yes	80%	200 "	Blocked	4
7. Indian	27	5	4	Yes	80%	180 "	Blocked	2
8. Chinese	20	2	–	Yes	80%	160 "	Blocked	3
9. Chinese	26	3	–	Yes	65%	50 "	Blocked	5
10. Chinese	23	3	–	Yes	35%	65 "	Blocked	4
11. Chinese	31	2	–	Yes	80%	200 "	Blocked	5

Table VII showed the number of Hydrotubation's done and this was compared in the two groups, namely patients with tubal spasm of 100 to 200 and patients with completely blocked tubes and the number of patients who later became pregnant; of the 50 cases, 11 patients became pregnant, giving a success rate of 22 percent. But if the pregnancy rates were worked out for the two groups, in the tubal spasm group there was 1 pregnancy in 12 cases giving a pregnancy success rate of 8.5 percent, but in Blocked tubes group there was 10 pregnancies in 38 cases, giving a pregnancy success rate of 26.3 percent.

Table VIII showed the details of the patients who became pregnant after the hydrotubation.

(a) Ethnic groups, 2 Malays, 8 Chinese, 1 Indian.
(b) Age: the majority were 25 to 29 years.
(c) Duration of marriage, the majority were 2 to 4 years married
(d) Primarity infertility 7 cases, secondary infertility 4 cases.
(e) All cases showed ovulation.
(f) All sperm counts were above 50 million per ml and sperm motility above 80 percent.
(g) The optimum number of Hydrotubation was 4 to 5.

COMMENTS:–

Fallopian tube occlusion as a cause of infertility accounts for 25 to 30 percent in infertility clinics. With a case of tubal occlusion the Gynaecologist is faced with three alternatives.

1. The first alternative is to explain to the patient that her fallopian tubes are blocked and she would require antibiotic therapy and follow up. The patient is reassured and told to wait patiently and hope that the occlusion clears up on its own.

2. The second alternative is surgical operative methods. At laparatomy the Gynaecologist has 3 possible operative procedures to choose namely Salpingolysis, Salpingostomy of tubo-uterine implantation. Salpingolysis involves the separation of peritubal and periovarian adhesions, and is similar to hydrotubation, but in salpingolysis the disadvantage is that the patient would require a laparotomy. The reported subsequent pregnancy rate is about 10 to 40 percent.

In Salpingostomy, the creation of a new stoma in the outer end of a completely closed tube.

(a) the edge of a new stoma can be rolled back to form a culf.
(b) the tube is opened longitudially throughout its length - gutter salpingostomy and suture the edges carefully.

The success rate varies from 1 to 10 percent.

In tubo-uterine implantation, excision of a damaged isthmus with implantation of the remaining healthy part of the tube is followed by pregnancy success rates from 0 to 20 percent.

The low rate of success in tuboplastic surgery is mainly due to damaged tubal epithelium and muscular layer, there is little to be expected from procedures employing artifical or substitute oviducts (3) The main task is still prevention of ascending and post operative inflammation in the pelvis and adhesions in cases requiring pelvic surgery.

3. The third alternative is hydrotubation and hydrotubation may open the occluded fallopian tube (1,2). The procedure is a simple, out patient procedure, readily accepted by the patients as it invloves no anaesthesia or surgery, the equipment and drugs required is readily available in all hospitals, thus minimising the hospital cost for such procedures, and finally it is an effective procedure as repeated hydrotubation reestablishes the patency of the Fallopian tube.

CONCLUSION:

The above prospective study of hydrotubation is cases of fallopian tube occlusion gave a pregnancy success rate of 22 percent, which is consistent with the rates of other studies.

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