Journal of the Institute of Medicine 1999; **21**: 1 –10 Original Article

Prospective study of tubal defect in subfertile women of Nepal

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ABSTRACT

This prospective study has been done to assess the prevalence of tubal defect in subfertile women. Thirty-three women who came for consultation in Sidhartha Apollo Hospital, Kathmandu from March 1997 to October 1998, for sub-fertility were included in the study. Their age, type of infertility, previous obstetrical, medical and surgical history were reviewed. Hysterosalpingogram (HSG) was done to assess their tubal status. The results of 33 cases of HSG were analysed. Incidence of tubal patency were noted. If the tubes were blocked, the site and side and associated uterine abnormalities were also noted. Co-relation of tubal block with previous history was tried to be established.

In this study the incidence of primary and secondary sub-fertility was found to be the same. Out of 33 cases, 10 were found to have tubal defect. In both the sub-fertility group, prevalence of tubal defect was the same (5 in each group). History of surgery and uterine manipulation was found in 80% of cases (8 out of 10). Normal labour and caesarean section were not found to be associated with tubal defect.

Keywords: Hysterosalpingogram (HSG); Sexually Transmitted Disease (STD); Laparoscopy.

INTRODUCTION

An estimated 10-15% of couples who want to have a child are unable to conceive. Although the incidence of infertility seems to be on the rise, it is not clear whether this trend represents an actual increase in infertility or just a greater demand for infertility services. Some social developments appear to have increased the prevalence of factors associated with infertility. The incidence of sexually transmitted diseases that can damage reproductive structure in both men and women has risen significantly. Fertility decreases with age, specially in women,

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therefore, the common practice of delaying child bearing for a variety of economic and social reasons has also added to the number of couples who have troubles in conceiving naturally.

Out of 100 infertile couples, 14% failed to conceive due to defect in fallopian tube. The other causes of infertility and their relative frequency are shown in table I.

Table I: Causes of infertility

Causes of infertility	*Percentage*
Tubal factor	14
Sexual dysfunction	6
Male factor	24
Anovulation	21
Mucus hostility	3
Endometriosis	6
Unexplained	26

This study was done to assess the prevalence of tubal abnormalities in infertile couples by doing a Hysterosalpingograme. Hysterosalpingograme was first done in 1910 by Rindfleish.[2] This test is less expensive and less invasive than Laparoscopy. The primary indications for performing HSG are infertility, abnormal uterine bleeding and repetitive pregnancy loss. By HSG, along with tubal patency and pathology, uterine pathology like submucous fibroid, endometrial polyp, intrauterine synechiae, malformation of uterus and cervical incompetency can also be detected. HSG is contraindicated in the presence of active infection, bleeding and if there is any chance of patient being pregnant.

HSG is done in follicular phase of menstrual cycle before ovulation and after the menstrual flow has ceased (day 7 of the cycle). If done in secretary phase, there is a chance of disruption of pregnancy and thick endometrium may give a false diagnosis of intrauterine filling defect and proximal tubal obstruction.

MATERIALS AND METHODS

This was a prospective study done at Siddhartha Apollo Hospital from March 1997 to October 1998. HSG was done in all women who came for consultation for sub-fertility after having one year of unprotected intercourse, as a part of their infertility investigation.

Before this procedure a proper counseling was done and the procedure was explained to the patient. 10 to 20 ml of Urograffin (76%), which is water soluble, was used as contrast media. Leech Wikinson canula of different sizes were used to introduce the dye in the uterine cavity. No anti-spasmodic drug and prophylactic antibiotics were used before the procedure.

Results of 33 cases of HSG were studied. Their age, type of infertility, previous obstetrical, medical and surgical history were reviewed. The incidence of patency of fallopian tube were noted. If tubes were found blocked, site and side of the block were also noted. Associated abnormalities in uterine contour were also noted.

RESULTS

Table II: Age distribution

Age Group	*Number of Cases*	*Percentage*
16-20	1	3%
21-25	10	30.3%
26-30	12	36.36%
31-35	6	18.18%
36-40	4	12.12%

Total	33	100%

The maximum number of cases were seen between the age group of 21 to 30. The minimum age of the patient was 19 years and maximum 38 years.

Table III: Types of sub-fertility

Type of sub-fertility	*Number*	*Percentage*
Primary Sub-fertility	17	51.5%
Secondary Sub-fertility	16	48.48%

The incidence of primary and secondary sub-fertility was almost the same.

Table IV: Obstetric history of patient with secondary sub-fertility

Spontaneous Abortion	2
Spontaneous Abortion & Evacuation	2
Termination of Pregnancy	4 (3 due to female foetus)
Normal Labour	6
Prolonged Labour	1
Caesarean Section	1

Table V: Relevant medical & surgical history

Tuberculosis	2
Primary ammenorrhoea	1
Poisoning	1
Brain haemorrhage	1
D & C	2
Laparoscopy	2
Tuboplasty	1
Laparotomy	3 a. Left Salpingo-oophrectomy with wedge resection of the right ovary b. Removal of fimbrial cyst on the left side & bilateral wedge resection of the ovary c. Removal of Chocolate cyst

Table VI: HSG Results

Results	*Numbers*
Normal uterine cavity & bilateral spillage of dye	22
Normal uterine cavity & bilateral tubal block	4
Uterus didelphus & bilateral tubal block	1
Enlarged uterine cavity & space occupying lesion & bilateral tubal block	1
Normal uterine cavity & left side tubal block	4
Normal uterine cavity & Rt. cornual polyp & bilateral spillage	1

In both the sub-fertility groups, there were 5 cases of tubal blockage. Only one case of congenital defect of uterus was found out of 33 cases.

Table VII: Site of tubal block & its co-relation with previous history

Site of the Block	*History*
a. **Left side tubal block**	
i. Proximal half of the left tube visualised:2	i. Both had a history of removal of left tube along with removal of ovarian cyst & para ovarian cyst
ii. Fimbrial end block:2	ii. History of MR:1 No significant history:1

b. **Both side tubal block**	
i. Irregular tube with fimbrial end block:2	History of Tuberculosis:1
ii. Fimbrial end block:2	History of D & E:1 No significant history recorded - 1
iii. Uterus didelphus with both tubes blocked:1	History of abortion
iv. Fimbrial end block with enlarged uterine cavity with space occupying lesion:1	History of menorrhagea & spontaneous abortion followed by D & E

Table VIII: Other significant supportive findings

Findings	*Number*
Azoospermia	4
Increase LH & FSH ratio	5
Increase FSH level	1
Increase Prolactin	3

DISCUSSION

Current epidemiological evidence suggests that tubal defects account for 14% infertility. Among female factors only tubal defects are accountable for 30-40% of infertility.[3] In our study 30% (10 out of 33) females had tubal defect.

Tubal defect is usually more prevalent in females with secondary sub-fertility. But in our study equal prevalence of tubal defect was found in both the groups. K Sood *et al* [4] reported tubal defect in 46.66% of primary infertility and 60.53% of secondary subfertility. In a similar study done by T Radha Bhai Prabhu *et al* [5], tubal defect was reported in 28.5% of primary subfertility and 34.6% of secondary subfertility.

Tubal defect can be due to infection, mainly due to tuberculosis and sexually transmitted diseases. Previous surgery especially pelvic surgery and uterine manipulation can also damage fallopian tubes. Salpingitis Isthmica Nodosa and Cornual polyp are rare causes of tubal defect.

In our study, all patients were investigated for tuberculosis. Out of 33 cases, 2 had a history of tuberculosis and had received full treatment. Out of the 2, one had no problem with the patency of the tube. Another had bilateral tubal blockage. Tuberculosis as tuberculous salpingitis has been estimated to account for 1% of infertility in USA as compared to 10% in India.[6]

STD, especially chlamydia infection, has emerged as the leading cause of tubal damage. Gonorrhoea can itself damage the tube and it also paves the way for other organism to infect and damage the tube. Though the facility for checking infection due to chlamydia is available at Apollo, it has not been done in any case. All cases, especially those with tubal damage, should be checked for chlamydial infection.

At present, the policy in Nepal, and most of the developing countries, is to treat PID on syndromic basis which means treatment is given for all possible organisms which can cause PID on clinical grounds only, without lab. diagnosis. In ideal situation a proper lab diagnosis supported by laparoscopy should

be done to prove PID. In our study due to lack of lab investigation and laparoscopy, it is difficult to say the number of tubal damage due to PID.

Previous pelvic surgery, even manipulation of uterine cavity such as D & C or putting an IUCD can damage the tube. In our study, out of 10 cases of tubal damage, 8 had a history of some sort of uterine manipulation. 2 cases had partial tube removal along with the cyst, 6 cases had D & C or D & E prior to the history of sub-fertility. 2 cases of primary sub-fertility who had tubal blockage a fimbrial end, no significant history was recorded. Perhaps they had some pelvic infection which was not detected clinically. Normal labour or even Caesarean section was not found associated with tubal damage.

HSG is a very good method of checking tubal patency and tubal abnormalities. The sensitivity of HSG is 88.9% and specificity is 68%. The positive predictive value of abnormal HSG is 65% and negative predictive value of normal HSG is 90%.[7] It does not require surgical skill and can be done in district hospital where X-rays facilities are available. It does not require anaesthesia. Like most medical procedures, there are a number of potential risks associated with HSG eg, pain abdomen, iodine allergy, pelvic infection (0.3%-3.1%)[2], granuloma formation especially, when oil-based contrast media is used. Intravasation of dye in lymphatics and veins (which may act like emboli) and radiation hazards are rare complications of HSG. In our study, 4 cases complained of severe pain abdomen after the procedure requiring analgesics and rest for 1-2 hours. In 1 case, pain persisted till the second day of the procedure requiring a course of Doxycycline and Metronidazole.

In some cases tubal block can be due to functional spasm of the tube, especially if the block is at cornual end. Tubal blockage found on HSG should be again evaluated by laparoscopy.

HSG cannot replace laparoscopy. Even when HSG demonstrates a patent tube, only laparoscopy can detect external lesions such as adhesions (which may interfere with motility of the tube) or endometriosis (which interferes with conception). Laparoscopy also can't replace HSG as it does not tell about the inside of the uterine cavity and fallopian tubes. Certain disease like Asherman syndrome and salpingitis isthmica nodsa can only be diagnosed by HSG. Laparoscopy, Hysteroscopy and Hysterosalpingography are all complimentary to each other. One cannot replace the other. But it is better to start with a less invasive procedure in the beginning.

The latest method of checking tubal abnormality is Hycosy, which is basically a vaginal ultra sonogram done along with Echo contrast media put inside the uterine cavity. This procedure is under evaluation and is said to cause less radiation.[8]

CONCLUSION

HSG is a very effective and simple way of checking the tubal status, which does not require surgical skill and complicated

instruments. Laparoscopy, as it is more invasive, should be done in those cases where tubes are found blocked; for evaluation of the patient for the surgery, and to those patients who failed to conceive in spite of not having tubal and other problems, to rule out other pelvic abnormality. Hysteroscopy should be done when uterine cavity is found abnormal. All infertile couples should be checked for STD, especially those females who are found to have tubal disease.

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