HYSTEROSALPINGOGRAM IN EVALUATION OF PRIMARY INFERTILITY- A RETROSPECTIVE STUDY

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ABSTRACT

BACKGROUND

Infertility is one of the commonest problems encountered in gynaecology. Improved familiarity with and access to infertility services among the affluent and better educated patients probably accounts for their greater use of the medical resources. Hysterosalpingography is one of the most important diagnostic procedures used for evaluation of infertility. Around 15% of Indian population, both male and female is becoming infertile with no chance of becoming parents in the future.

Objective- To evaluate uterine and tubal disease detected on hysterosalpingography in female partner, in couples who have come for evaluation of primary infertility.

MATERIALS AND METHODS

84 patients of primary infertility who have undergone hysterosalpingography as a primary evaluation tool has been studied. The patients in the study group were evaluated in relation to the method of entry into the uterine cavity, by Paediatric Foley's catheter, uterine cavity diseases and tubal diseases. The results are tabulated and correlated with the primary infertility and other related factors.

RESULTS

Total 84 cases of hysterosalpingography examinations were included in the study. In all cases procedure was done through the paediatric Foley's catheter. Two patients were diagnosed to have uterine cavity problems and three patients had bilateral tubal block and nine patients had unilateral tubal block. In the study 41% of patients were belonging to age group of 26-30 years.

CONCLUSION

HSG is still a relevant gynaecological imaging modality irrespective of available resources.in infertility evaluation. Tubal diseases was the most common abnormality detected by this study.

KEYWORDS

Primary Infertility, Hysterosalpingography, Hydrosalpinx, Peritoneal Spillage, Tubal block.

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BACKGROUND

Infertility is one of the common problem encountered in gynaecology. World Health Organisation defines Infertility as failure to achieve a clinical pregnancy after 12 months or more of unprotected sexual intercourse (and there is no such reason, such as breastfeeding or postpartum amenorrhea). Primary infertility is infertility in a couple who never had a child. Secondary infertility is a failure to conceive following a previous pregnancy.[1]

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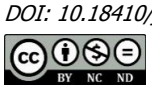

It is widely accepted that a complete infertility workup should include an evaluation of the uterine cavity, uterine abnormalities, congenital or acquired, are implicated as one of the causes of infertility. In fact, infertility related to uterine cavity abnormalities has been estimated to be the causal factor in as many as 10% to 15% of couples seeking treatment. Moreover, abnormal uterine findings have been found in 34% to 62% of infertile women.[2]

The World Health Organization (WHO) recommends hysterosalpingography (HSG) alone for management of infertile women.[3]

Hysterosalpingography (HSG) is a radiological procedure that involves the use of contrast media to outline the female reproductive tract. Despite advancements in gynaecological imaging in the western world, the ready availability and cost effectiveness of HSG still makes it a key investigation in evaluation of the female genital tract, particularly in the initial diagnostic workup of female

infertility in most developing countries. The primary role of HSG is to evaluate the morphology and the patency of the fallopian tubes.[4]

HSG is the initial diagnostic test used to assess tubal patency because it has a sensitivity of 85 to 100% in identifying tubal occlusion. It is performed between cycle; days 7 and 10 in the postmenstrual phase at least 2-3 days after cessation of menstrual bleeding by using contrast fluoroscopic mediums (oil based or water soluble).[5]

HSG also has a role in evaluating the uterine cavity and cervix. Abnormal uterine findings are reported in as many as 50 % of women with recurrent implantation failure. These findings include endometrial polyps or fibroids, which are observed as filling defects or uterine wall irregularities on HSG. Intrauterine adhesions and congenital abnormalities can also be demonstrated on HSG.[4]

Need for the Study – Primary infertility is one of the common problem affecting married couple with incidence of about 15% -20%. The reasons could be social causes like increased age of marriage and postponing the pregnancy and other socio-economic issues. Primary infertility is evaluated in primary, secondary and tertiary levels depending on the age and severity of the problem. As far as the primary level of evaluation is considered, the female partner is evaluated for the continuity and integrity of the genital tract.

HSG is done as a common outpatient procedure done in infertility couple for tubal and uterine cavity evaluation within 10 days of menstruation. The procedure is cost effective done on day care basis with less economic burden to the couple. The study reviewed 84 cases of primary infertility with the aim of detecting uterine cavity diseases, tubal diseases and peritoneal problems in accordance with the age, menstrual and marital history of the patients

Aims and Objectives- To determine the uterine cavity diseases and tubal diseases on Hysterosalpingography done for evaluation of primary infertility. The study also evaluates bilateral or unilateral tubal patency and common mode of access to the uterine cavity.

MATERIAL AND METHODS

This was a retrospective study done in the Department of Obstetrics and Gynaecology of AJ Institute of Medical Sciences, where the HSG was done as a primary investigation of female partner in evaluation of primary infertility. A total of 84 patients was included in the study, comprising of different age groups less than 40 years.
Selection of cases was based on the following criteria-

1. Primary infertility
2. Age between 20-40
3. No history of having undergone previous surgeries on uterus cervix or fallopian tubes.

Cases were diagnosed with uterine cavity diseases, tubal diseases, and normal peritoneal spillage.

The following patients underwent hysteron-salpingography either as an out-patient or in-patient after obtaining preliminary informed consent in the department of radio diagnosis in AJIMS & RC. In all the cases oil-based contrast media was used for the contrast, with or without anaesthesia depending on patient requirement. After placing the patient in dorsal position with leg flexed, under vision, paediatric Foley's catheter introduced into the uterine cavity. Oil based contrast is injected into the uterine cavity under fluoroscopic visualization. Contrast entry into the uterine cavity, tubes, and peritoneal spillage is observed and reported.

Age Group	Number of Patients
20-25	14 (16%)
26-30	35 (41%)
31-35	25 (29.7%)
36-40	10 (8.4%)
Total no. of patients	84

Table 1. Age-wise Incidence of Primary Infertility Patients for HSG

A total of 84 primary infertility patients were included in the study group. The most common age group of patients were in the group of 26 to 30 years. The least number of patients belong to 36-40 years. In all 84 patients, the access to uterine cavity was got through paediatric Foley's catheter. As per the uterine cavity is concerned, out of 84 patients, 82 have a well delineated normal imaging. In 2 patients uterine filling defects, was noticed, out of which one could be probably submucous myoma. Another one patient had both uterine cavity pathology as well as tubal pathology documented.

Method of Introduction of Medium	Number of Patients
Paediatric Foley's catheter	84
HSG Cannula	None
Total	**84**

Table 2. Method of access to Uterine Cavity

Pathology	Number of Patients
Well delineated	82
Filling defect	2
Myoma	1
Polyp	None
Adhesions	None
Undefined pathology	1
Total	**84**

Table 3. Uterine Cavity Imaging

Out of 84 patients, 12 patients were reported to have unilateral tubal block, and 3 patients were reported of having bilateral tubal block. Hydrosalpinx, one of the notable findings in tubal disease was subdivided into minimal-moderate type, and gross type. 4 patients had gross hydrosalpinx, and 9 had mild-moderate hydrosalpinx. Out of these patients 6 had unilateral hydrosalpinx, 3 of which were gross hydrosalpinx, and 4 had bilateral hydrosalpinx, with 1 of them being gross hydrosalpinx.

Pathology	Number of Patients	
Tubal Block	**Unilateral**	**Bilateral**
	12 (14.2%)	3 (3.5%)
Hydrosalpinx	9 (10.7%)	4 (4.7%)
Minimal-moderate	6	3
Gross	3	1

Table 4. Incidence of Tubal Diseases

Age	No. of Uterine Cavity Defects	Tubal Diseases	
		Unilateral	**Bilateral**
20-25	-	2	-
26-30	-	2	2
31-35	1	5	1
36-40	1	3	-

Table 5. Age wise Incidence of Tubal and Uterine Diseases in the Study

In the study, in the 20-25 years group, 2 patients had unilateral tubal block, 2 patients had a mild-moderate unilateral hydrosalpinx, 1 patient had gross hydrosalpinx.

In the age group of 26-30, 2 patients had unilateral and 2 patients had bilateral tubal block. Unilateral hydrosalpinx was noted in 3 patients, and bilateral hydrosalpinx noted in 3 patients. 2 of the bilateral hydrosalpinx were found to be of min-moderate type and 1 gross type.

In the 31-35 years group, one filling defect in the uterine cavity probably because of submucous fibroid was noted. Tubal block was noted in 6 patients, 5 being unilateral, 1 being bilateral. Hydrosalpinx was noted in a total of 3 patients, 2 of which had minimal-moderate unilateral, and 1 had bilateral minimal-moderate hydrosalpinx.

In the 36-40 years group, one patient had a uterine filling defect. There were 3 patients with unilateral tubal block.

Peritoneal spill	
Unilateral spill	8
Bilateral spill	74
Bilateral absence of spillage	2
Total	**84**

Table 6. Incidence of Tubal Patency

DISCUSSION

Primary infertility is the one problem for which usually couple does not seek treatment in early age. In our study, the majority of patients were in the group of 26-30 yrs. came for evaluation. Similar results are reported by Almeida et al[6] according to which the mean age was 30.6, comparable to our study.

The access to the uterine cavity, one of the important aspect, In our study all 84 patients have undergone HSG by paediatric Foleys catheter primarily inserted after passing the uterine sound without manual dilatation. But the study Tur-Kaspa et al[7] in study half of the patients underwent the procedure by HSG cannula and half by balloon catheter.

Uterine cavity problems especially space occupying lesions is one of the important cause of primary infertility usually evaluated by ultrasound and HSG In our study the incidence of cavity problem was noted in 2.3% of patients. In a study by Adrian et al in 2012 studied 411 patients of primary infertility evaluated by HSG and found that 10% having uterine cavity problems.[8] Another study done by R K Mishra evaluated 140 cases of primary infertility and reported that uterine anomalies were noted in 6.42% of cases and tubal blocks noted in 17.2%.[9] Study by Dr. Manoj Bhattarai, in 2017 reported that uterine abnormalities were common with primary infertility compared to secondary infertility (12.2% v/s 5.0%).[10]

Most of the patients with primary infertility has been proved to have tubal disease which may be problem related to endosalpinx, ectosalpinx or mesosalpinx. In our study out of 84 patients, 14, 2% patients were reported to have unilateral tubal block, and 3.5% patients were reported of having bilateral tubal block. Similar study by Taimuraali and his associates in 2013, reported that tubal obstruction was 19.1% in the primary infertility group and 28.7% in the secondary infertility group. Cornual block was observed in 11 women in the primary infertility group but only one woman with secondary infertility.[11] In a study by Muhammeduzman et al in 2010, Unilateral tubal blockage was present in 15% and bilateral tubal blockage in 10% of patients.[12] Another study by Shrikant Madhukar Khetmala.[13] and associates in 2016 11.40% had bilateral tubal block, 71.05% had bilateral patency and 11.40% had tuboperitoneal factors.[13]

In our study the maximum number of patients were in the age group of 26-30 years. The similar incidence was reported by Jedrzejczak P et al[14] who found mean age of primary infertility 28.5 years. Maximum number of patients (46.67%) presented with less than 6 years of infertility. Tubal blockage was found to be the most common cause of infertility i.e. 42.5% followed by pelvic adhesions

Pelvic inflammatory disease can cause infertility as a consequence of minimal to gross hydrosalpinx either unilateral or bilateral.

In our study, in the 20-25 years group, 2 patients had unilateral tubal block, 2 patients had a mild-moderate unilateral hydrosalpinx, 1 patient had gross hydrosalpinx.

In the age group of 25-30, 2 had a unilateral and 2 had bilateral tubal block. Unilateral hydrosalpinx was noted in 3 patients, and bilateral hydrosalpinx noted in 3 patients; mild-moderate type. 2 of the bilateral hydrosalpinx were found to be of min-moderate type and 1 gross type.

In the 30-35 years group, one filling defect, probably because of submucous fibroid was noted. Tubal block was noted in 6 patients, 5 being unilateral, 1 being bilateral. Hydrosalpinx was noted in a total of 3 patients, 2 of which had minimal-moderate unilateral, and 1 had bilateral minimal-moderate hydrosalpinx.

In the 35-40 years group, one patient had a uterine filling defect. There were 3 patients with unilateral tubal block.

Hydrosalpinx of the whole tube was observed in two women and peritubal adhesions were reported in four women.

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