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ORIGINAL ARTICLE

Comparison of Hysterosalpingographic findings in patients with Primary and Secondary Subfertility

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ABSTRACT
Hysterosalpingography is a commonly used imaging modality to assess the pathology of uterine cavity and fallopian tubes of patient with infertility. Hysterosalpingography has an established role in the assessment of tubal factor in patients with subfertility.
Objective: To compare hysterosalpingographic findings in patients of primary and secondary subfertility.
Materials and methods: A prospective study spanning six months duration was carried out in radiology department of private clinic in Multan. A total of 602 patient both primary and secondary subfertility were included in the study. Clinical notes and x-ray findings were analyzed for demographic data such as age and duration of subfertility and tubal and uterine abnormalities.
Results: Out of 602 patient 66.8% had primary subfertility and 33.2% were in the secondary subfertility group. Tubal blockage was most common abnormalities in both groups i.e. 21.1% of patients with primary subfertility and 27.5% with secondary subfertility had tubal blockage.
Key words: Subfertlity, hysterosalpingography, tubal blockage

INTRODUCTION
Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.[1] Subfertility affects men and women as both report associated psychological distress, depression and low self-esteem.[2] There are no reliable estimates for global prevalence of subfertility.[3] The incidence of female subfertility is rising and varies from 10—20%.[4] The prevalence of infertility worldwide is approximately 15%.[5] Many people think that primary subfertility is more common than secondary subfertility but according to review secondary is more common.[6] The risk factors for subfertility include previous pelvic surgeries, previous chlamydial infection, endometriosis and occasionally mullarian duct abnormalities.[7] Fallopian tubes obstruction is one of the most common cause of subfertility. The different modalities available for assessing the patency of fallopian tubes are hysterosalpingography, saline sono hysteroscopy, laparoscopy and hysteroscopy.

Disorders of fallopian tubes could be the cause of subfertility as much as 35 to 40% of patients.[9] Tubal factor accounts 15-20% of primary subfertility and 40% in secondary subfertility.[14] Patency of fallopian tubes is a requirement for human fertility. Fallopian tubes are easily damaged by infection or surgical insult which can affect the morphology in functions of fimbiral and endosalpinx.[8] Hyseterosalpingography can assess fallopian tube patency and shape of uterine cavity and cervical canal. It is relatively safe and cost effective procedure than other modalities used for the assessment of this structure. The sensitivity and specificity of hysterosalpingography for the detection of tubal blockage is 65% and 83% respectively.[10] However the sensitivity of hysterosalpingography is less than other modalities for the diagnosis of extratubal pathologies. [11,12,13]

Hysterosalpingography is most commonly used technique for the evaluation of subfertility. It is considered gold standard for assessment of patency and morphology of fallopian tubes. It also outlines the uterine abnormalities such as intrauterine adhesion and congenital abnormalities. Hysterosalpingography gives the internal morphologic picture of uterine cavity and fallopian tubes. Endometrial defects are visible as filling defects. It is relatively cost effective and easily available investigation. The disadvantages of the procedure are exposure to radiation, pelvic infection and discomfort to patients.

The aim of the study is to compare the hysterosalpinogographic findings of primary and secondary subfertility.

MATERIAL AND METHODS
This study was conducted at the Radiology Department of private clinic, Seyal Medical Centre Multan. This was a six months prospective study. A structured questionnaire was filled to obtain relevant data like age, type and duration of subfertility, previous allergies, vaginal bleeding or discharge. An informed consent was taken from the patient before procedure. A total of 602 patients with both primary and secondary subfertility fulfilling the inclusion criteria were included in the study. All these patients were referred to our center from different gynaecologists of the town and peripheries of Multan for the evaluation of subfertility.
Inclusion Criteria: Woman with both primary and secondary subfertility between the ages of 21-40 years and duration of subfertility from 1-20 years with regular menstrual cycle were included in the study.
Exclusion criteria: Women less than 21 years and more than 40 years. Duration of subfertility less than 1 year and more than 20 years were excluded from the study. Also women with major uterine and tubal surgery were excluded.

HSG was performed post menstruation between 7th to 10th days of menstrual cycle. Patient was given intramuscular tramadol 15 minutes before the procedure. The patient was positioned in lithotomy position on X-Ray table. Cervix was visualized with the help of sim's speculum and using aseptic technique a cannula was placed in cervical canal maintaining a tight seal. 15-20ml water soluble dye was introduced through cannula into uterine cavity. Four consecutive radiographs were taken to visualize the uterine cavity, fallopian tube and spill of dye in peritoneal cavity and a post drainage radiograph. All the hysterosalpingography procedures were performed by the author herself.

Demographic data and radiological findings were collected and analyzed on SPSS version for statistical analysis.

RESULTS
A total of 602 women with both primary and secondary subfertility between ages 21 and 40 years were in included in the study. Out of the 402 patients were in primary subfertility group and 200 patient were in secondary subfertility group. The duration of subfertility ranged between 2 to 20 years. Mean age of patient with primary subfertility was 27.80 years where as mean age of patient with secondary subfertility was 30.52 years. Majority of patient in both primary and secondary subfertility groups were in age group 21-30 years i.e. 78.6% and 61.5% respectively. As for as duration of subfertility is concerned 55.2% patient with primary subfertility and 73% patients with secondary subfertility group came for evaluation with 1-5 years of subfertility. Regarding the

hysteresalpingographic findings unilateral blockage was observed in 402 (10.4%) of primary subfertility group. Unilateral hydrosalpinx and blockage was 13 (3.2%) in primary subfertility group and 2 (01%) in primary subfertility group. Bilateral blockage was more common in secondary subfertility group which was 10 (5%) as compared to primary subfertility group which turnout to be 14 (3.5%). Bilateral hydrosalpinxx and blockage was 12 (3%) in primary group and 3 (1.5%) in secondary subfertility group. As for as uterine abnormalities were concerned, bicornuate uterus was seen in 4 (1%) primary subfertility group in 6 (3%) of secondary subfertility group. Asherman's syndrome was seen in 1 (0.2%) of primary and 1 (0.5%) of secondary subfertility group. Unicornuate uterus found in 3 (0.7%) of primary and 1 (0.5%) of secondary subfertility group where as filling defect due to fibroid uterus was seen in 3 (1.5%) of secondary subfertility group. A total of 313 (77.9%) patients of primary and 132 (66%) patient of secondary group have normal hysterosalpingographic findings.
History of E&C / D&C was found in --------- number of patient with tubal blockage.

According to age of patient

	Primary Subfertility	Secondary Subfertility
21-30 Years	316 (78.6%)	123 (61.5%)
31-40 Years	86 (21.4%)	77 (38.5%)
Total	402 (100%)	200 (100%)
Mean Age	27.80 years	30.52 years

Duration of Subfertility

	Primary Subfertility	Secondary Subfertility
01- 05 Years	222 (55.2%)	146 (73%)
06- 10 Years	132 (32.8%)	43 (21.5%)
11 – 15 Years	35 (8.7%)	18 (9%)
16 – 20 Years	13 (3.2%)	03 (1.5%)
Total	402 (100%)	200 (100%)

Hysterosalpingographic findings

		Primary Subfertility	Secondary Subfertility
Unilateral Block		42 (10.4%)	42 (21%)
Unilateral Hydrosalpnix and Blockage		13 (3.2%)	02 (01%)
Bilateral Block		14 (3.5%)	10 (05%)
Bilateral Hydrosalpnix and Blockage		12 (3.0%)	03 (1.5%)
Uterine abnormalities	Bicornuate Uterus	04 (1.0%)	06 (03%)
	Asherman Syndrome	01 (0.2%)	01 (0.5%)
	Unicornuate Uterus	03 (0.7%)	01 (0.5%)
	Filling Defects		03 (1.5%)
Normal		313 (77.9%)	132 (66%)
Total		402 (100%)	200 (100%)

DISCUSSION

Subfertility is a major problem for consultation of health are provides in Pakistan. Subfertility is the most widespread problem and challenges in the whole world especially in the developing countries. Child bearing is the source of happiness, wellbeing, martial stability.[15] subfertility therefore has adverse social and[16,17,18].

Subfertility is commonly defined as the failure of conception after at least twelve months of unprotected intercourse. [19]

The results of this study revealed that patients with primary subfertility that patients with primary subfertility were the major group accounting for 402 (66.87%) patient whereas secondary subfertility has 200 (33.2%) this is in contrary to the previous studies which short (81.6%) patients with primary subfertility and (18.4%) with secondary subfertility.[20,21,22,23] These contrary results could be due to the early referral of patients of primary subfertility due to social reasons.

Age of the patient has great impact on subfertility.[24] In this study majority of the women with both primary subfertility (78.6%) and secondary subfertility (61.5%) were in the age group between 21 – 30 years. The mean age of patient for primary subfertility was 27.8 years where as the mean age of patient for secondary subfertility was the results of this study was supported by international study showed 41.1% patients were subfertility in the age group of 26 – 30 years where as less number of patients presented after 30 years.[26,27] The similar study done at Nishtar Hospital Multan in 2014 also reveal that primary subfertility was more common than secondary subfertility.[25] The greater number of patients falling in 21 – 30 years age group is self-revealing in the all these women are at the peak of their reproductive age.

As for as duration of subfertility concerned (55.2%) of patients with primary subfertility and (73%) patients with secondary subfertility consulted for medical advice within 1 – 5 years duration of subfertility. Number of patients coming for evaluation of subfertility progressive decreased with increase in the duration of subfertility.

Early age, marriage and early seeking of medical advice for conception due to social reasons could be the cause for early referral for hysterosalpingography more patients with primary subfertility being referred for hysterosalpingography .

As for as hysterosalpingography findings are concerned 77.9% of primary subfertility group and 66.6% secondary subfertility group has normal radiological findings. Similar results were seen in other studies with increased incidence of structural abnormalities of the uterus and fallopian tubes in secondary subfertility group.[28] Both bilateral and unilateral tubal blockage was more common in secondary subfertility group. Smiliary uterine abnormalities such as bicornuate, unicornuate uterus, ashyrmen's syndrome and filling defects of uterine contour were also more common in secondary subfertility group. A higher incidence of tubal abnormalities in secondary subfertility group due to pelvic inflammatory disease or surgical interventions in previous studies. Both unilateral and bilateral hydrosalpings was seen more commonly in primary subfertility group. This could be due to higher incidence of pelvic inflammatory disease in young patients with primary subfertility.

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