Original Article

Patterns Of Hysterosalpingographic Findings In Infertile Patients Presenting In A Tertiary Care Hospital Of Quetta

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ABSTRACT

Objective: To study the different patterns of Hysterosalpingographic findings in women evaluated for infertility in a tertiary care hospital of Quetta.

Setting and design: A crossectional study conducted at the Radiology Department of Bolan medical complex hospital, Quetta

Methodology: A two year secondary data based study of hysterosalpingographic films were assessed, data of 338 infertile women investigated for infertility from July' 2016 till June' 2018. Hysterosalpingography examination was done in the preovulatory phase of the menstrual cycle.

Results: Infertility was the main indication for all the hysterosalpingographic examinations with primary infertility the predominant infertility accounting for 186(55%) of all cases while secondary infertility constituted 152(45%) cases. Majority of the patients n=146(43%) were in the age group of 28-33 years as this is the peak age of reproduction. Out of the total 338 patients reviewed, normal hysterosalpingography finding with free peritoneal spill of contrast were seen in n=212(62%) cases. The most common abnormality revealed was tubal blockage among n=81 (24.2%) patients followed by hydrosalpinx n=23(6.5) %. Other abnormalities included loculated contrast spill, fibroids, Asherman syndrome and adenomyosis. Congenital anomalies were also seen of which arcuate uterus was seen commonly followed by bicornuate uterus.

Conclusion: It was concluded that most of the HSG findings were normal, followed by tubal abnormalities in the age range from 28 to 33 years. Tubal occlusion and hydrosalpinx were the most common abnormal findings in this study.

KEY WORDS: Hysterosalpingography, Infertility, Fallopian tube, PID

INTRODUCTION:

Infertility affects an estimated 13% to 15% of couples worldwide is a disease of the female reproductive system defined as failure of the couple to conceive 12 months or more of regular unprotected intercourse[1].The most common causes of infertility include male factor(45%),disorders of the ovulation(37%) and tubal damage or blockage(18%)[2].

Hysterosalpingography is a valuable technique and plays an important role in the investigation of infertility to assess the pathologies related to the uterus and fallopian tubes. Although hysterosalpingography (HSG) is an invasive procedure, it remains an important investigation in the infertility management .HSG has been considered to be a vital diagnostic procedure in the gynecology practice for decades[3]. It helps in diagnosing the congenital anomalies, surgical changes, polyps, synechiae, adenomyosis and fibroids. The tubal abnormalities include tubal blockage, hydrosalpinx and peritubular adhesions. However, its primary role is still in the evaluation of fallopian tubes[4].HSG is known to have 65% sensitivity and specificity in the diagnosis of tubal occlusion[5].

Infertility is a worldwide phenomenon that is estimated to affect 60 million to 168 million people globally[6].Majority of the sufferers are from developing countries[7]. The prevalence of infertility in Pakistan is around 22% where primary infertility constitutes 4% and secondary infertility about 18%[8].Primary infertility was more common than secondary in our study, which is in agreement with previous studies[9, 10, 11].Some authorities consider that hysteroscopy and laparoscopy can replace HSG. But HSG is still a superior procedure in diagnosing the uterine and tubal pathologies due to its availability and cost effectiveness making it the standard and easy method for the evaluation of women infertility specially in the developing. And low resource countries.[12,13].

It is contra-indicated in pelvic inflammatory infection (PID) and pregnancy. [14] The common complications noted with it are severe pain ,pelvic infection, bleeding and vasovagal episodes.[15] The objective of this study was to assess the different patterns of Hysterosalpingographic findings in women evaluated for infertility in a tertiary care hospital of Quetta Pakistan over a period of two years.

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METHODOLOGY:

This was a cross sectional study. The data was collected from the archive of the department of radiology of Bolan Medical Complex Hospital Quetta. The patients referred from gynecology department after thorough clinical history and examination were included. Patients with active pelvic inflammatory disease were given antibiotic prophylaxis before the examination. The sample size was 264 which was calculated by considering 22% prevalence of infertility in Pakistan.[8] This was augmented as 338 reported data was retrieved over the period of two years which met the inclusion criteria, clinical history and examination) of the study. Since it was a retrospective study, therefore no contact with patients or their families was made during the study. In addition, no contact was made with any other physician. Approval from institutional review board was obtained before date collection. A data sheet was made which included age, indications, HSG findings and examination date to generate information. Data has been formulated as simple frequency tables. Data was entered in SPSS version 22. After detailed history and explaining the procedure, a verbal informed consent was taken from the patient according to the protocol of the department before performing HSG. All HSG examinations were performed in the first half of the menstrual cycle. This is because during the proliferative phase the endometrium is thin and helps in proper image interpretation. It was ensured that there was no pre existing pregnancy. Contraindication to the procedure included bleeding, pregnancy, pelvic inflammatory disease(PID)and allergy to iodine containing contrast agents.

About15 to 20 ml of water-soluble contrast material, usually Urograffin, was injected slowly into the uterine cavity after cannulation. Prior antibiotic was given to prevent infection. Several films were taken to visualize fallopian tubes, uterine cavity and peritoneal spillage. All the HSG procedures were supervised, interpreted and reviewed by the radiologists. The most important complaint experienced during the procedure was pain. About 60% of the patient's complaint of pain that even persisted after 24 hours. Two of the patients went into vasovagal shock and were resuscitated. Pain was experienced less in secondary infertility.

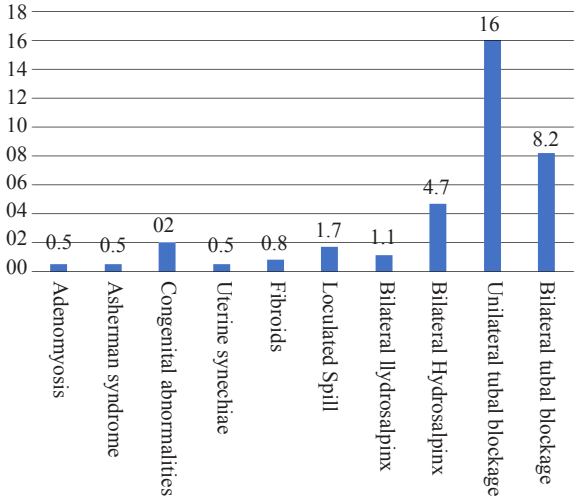
RESULTS:

During the study period, 338 HSGs were done with majority of the patients 146 (43%), aged 28-33 years with a mean of 31 years of age-Table-1.Out of them 185(55%) 54.7 cases were of primary infertility while 152 (45%) of secondary infertility. Normal Hysterosalpingographic examination with free spillage of contrast bilaterally were noted in 62% of cases. Tubal blockage was present in 8.2% while unilateral blockage in 16% of patients. Bilateral hydrosalpinx were present in 4.7% of cases while loculated spill present in 1.7%. Congenital anomalies were present in 2% of patients of which arcuate uterus was common. Uterine synechiae and Asherman syndrome were present in 0.5% of patients respectively. Uterine fibroids were seen in 0.8% of patients.-Graph-1

Table-1: Age Distribution of Sample

Age Stratifications	Frequency N-338	Percentage
22-27	51	15%
28-33	146	43%
34-39	105	31%
40-45	33	10%
>45%	3	1%

Graph 1: HSG findings in infertile patients



DISCUSSION:

Infertility is considered important not only because of its physical entity but considered as a social stigma in our society as our cultural norms and perceived religious customs consider infertility equal to a personal, interpersonal or social failure. Apart from emotional stress, it can have serious impact on economic, physical and social well-being for both spouses, but affects women more as motherhood is considered as a supreme achievement for a woman.[16]

More than 70 million couples are affected from the infertility worldwide. Majority of them belongs to the developing countries. The consequences of childishness are experienced more in the developing countries as compared to the west.[17]

Infertility remains the main indication for HSG. The causes of infertility and its incidence (primary or secondary) vary in different regions of the world. In our study, the incidence of primary infertility was higher than that of secondary infertility. This is in contrary to the reports from some other studies where it has been studied that secondary infertility is commoner.[18]

Hysterosalpingography (HSG) is considered an important investigation in the evaluation of infertile couple despite the increased advocacy of sonohysterography, laparoscopy and dye test. Its value has not been underestimated in the developing countries, as they are not yet readily available. It can efficiently evaluate fallopian tubes , uterus and cervixin a female presenting with infertility at a lower cost and the benefit being readily available and non-invasive.[19]

Preliminary ultrasound was requested as it defines the uterine contour and evaluates for uterine fibroids and other myometrial abnormalities like adenomyosis. HSG was done between 8 to 10 day of cycle as the isthmus of the fallopian tube is most distensible at this time. The second half of menstrual cycle is avoided because of the fear of irradiating a developing embryo and to avoid the risk of venous intravasation.[20]

Under aseptic measures, the cervical Os was cannulated and contrast medium was injected to outline cervix, uterus and fallopian tubes and serial films were taken. Balloon catheter was used for cannulation as it is associated with less pain and side effects.[21]

HSG is regarded as an uncomfortable and painful procedure. Our study discovered 60% of the sample population felt pain even after 24 hours of HSG procedure and these results were slight lower than the study of Tokmak et al[22] pain among 85% of women who underwent HSG. Pain was experienced more in patients with increased pre procedural anxiety levels therefore need for research to deal with fear and anxiety associated with hysterosalpingography must be carried out.[22]Pain during HSG was mostly experienced while placement of a cervical tenaculum, inflating the balloon and during contrast media spillage through the fallopian tubes into the peritoneal cavity. Some patients have described the pain experienced during the contrast spillage as severe abdominal cramps similar to a worse form of pain experienced during dysmenorrhea.[23]Mild analgesics were usually prescribed for pain relief.One problem encountered during HSG is to differentiate spasm from blockage. Intramuscular antispasmolytic was administered to every patient before the study to minimize cornual spasms.[24]

HSG has limitations such as exposure of patients to ionizing radiation, invasive nature of the procedure, inability to define uterine contours, attendant complications such as severe pain, hemorrhage, pelvic infection and syncopy.[25] Most of the female with primary infertility had Hysterosal-pigographic examination with normal findings; therefore a high number of normal HSG examinations were noted in the primary infertility. This has been reported earlier as well.[26]Infertile women mostly presented for HSG within the range of ages 28-34 years because this is the peak of reproduction. Mean age encountered in this study was 31 and showed that this is the commonly presenting age as seen in previous studies.[27]

Tubal blockage was the most common abnormality observed in our study. This is observed in previous studies as well.[28]Pelvic inflammatory disease is considered the most common reason of tubal occlusion resulting in infertility. In active pelvic infections, HSG is contraindicated. In chronic PID the complications of previous infections can be seen at the HSG examinations. Tubal blockage is seen as an abrupt cut off contrast material with non-opacification of the fallopian tubes distally. It can be either unilateral or bilateral, and can involve any portion of the fallopian tube.[4]

The high rate of primary infertility and the high rate of tubal related abnormalities points to the high prevalence rate of pelvic inflammatory disease specially pelvic tuberculosis in our environment.[29]As most of the cases are asymptomatic therefore it is difficult to diagnose genital tuberculosis clinically. Moreover histopathology and mycobacterium culture facilities are limited in high prevalence countries. Therefore, the infection in these circumstances is usually diagnosed during hysterosalpingography procedure for the preliminary investigations of infertile women.[30]

Second common abnormality detected was hydrosalpinx, which were observed in 18 patients (4.7%) bilaterally, and 4 patients (1.1%) unilaterally. The blockage in the ampullary portion can result in tube dilatation forming a hydrosalpinx. Previous studies have shown increased incidence of hydrosalpinx on right side.[31]This was not seen in our study which is comparable to earlier study.[18] One of the complications of PID is adhesions in the peritoneal cavity adjacent to the fallopian tube. Peritubal adhesions results in prevention of the contrast material from spilling freely into the peritoneal cavity and can be seen as loculation of the contrast material around the of the fallopian tube ampullary region. Loculated spill was noted in 6 cases. Congenital uterine anomalies were demonstrated in 2% of the Hysterosalpingograms in this study. The most common congenital anomaly encountered was arcuate uterus followed by bicornuate uterus. Asherman syndrome was seen in 2 cases. Uterine synechiae was noted in 2 cases and Fibroids in 3 cases.

Other less commonly encountered HSG abnormalities in our study included two cases in which contrast filled irregular branching spicules were seen radiating from the uterine cavity extending from endometrium into the myometrium. The provisional diagnosis of adenomyosis was made which was later confirmed by transvaginal ultrasound.

Continuous advocacy on preventive measures should be implemented by the practice of proper hygienic care and seeking timely consultation as soon the symptoms appear. These measures will bring down the incidence of tubal abnormalities among the women especially in the developing countries. There is need of further studies to investigate the cause of these abnormalities so that appropriate measures to be taken at the earliest to bring down the rate of occurrence of these conditions.

CONCLUSION:

The common patterns as seen in our study were normal findings. Tubal pathologies were the most common abnormal imaging findings on HSG as shown by tubal blockage and hydrosalpinx because of infective and inflammatory processes.

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