Hysterosapingographic Evaluation Of Primary And Secondary Infertility

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Abstract:

Infertility is a unique medical condition because it involves a couple rather than a single individual. Both the prevalence of infertility and the number of patients seeking the treatment of this disorder are increasing and especially in the third world. Approximately 8% of couples (52-80 million patients) worldwide are suffering from infertility. Although it is not a physically debilitating disease, infertility may severely affect the couple's psychological harmony, sexual life and social function.

Hysterosalpingography (HSG): is an imaging modality used in assessing the fallopian tubes of patients with infertility. There have been reports suggesting that tubal pathologies may be responsible for most cases of secondary infertility.

Result:The study showed that most of the patients had 2ry infertility (55%). The percentage of patients who had 1ry infertility was 45%.most of the patients with 1ry and 2ry infertility were between 20 and 40 years (86.7% 1ry and 90.9 2ry). the majority of patients with 1ry infertility (97.8%) had negative abortion history while 40% of the patients with 2ry infertility had negative abortion history. The majority of the patients with 2ry infertility (60%) had positive abortion history The cause of infertility in the current study was mainly due to both sexes (68.9% of 1ry infertility and 52.7% of 2ry infertility). About 95% of 1ry cases had no history compared with 49.1% of 2ry cases. Regarding the HSG result, the current study showed that abnormal cervix was higher in 2ry infertility than in 1ry infertility while abnormal

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uterus was higher in 1ry infertility than in 2ry infertility. The result showed that more abnormal Rt fallopian tube abnormalities was seen in 1ry than 2ry infertility patients. The result also revealed that abnormal Lt fallopian tube was more in 2ry infertility patients than the 1ry infertility patients.

Conclusion The study concluded that secondary infertility is more common than the primary infertility. Tubal abnormalities also is more common in secondary infertility than primary infertility and most common tubal abnormality is two tubal block.

Key words : infertility mhysterosalpingogram ,tuba abnormality,

الملخص:

تشوهات الأنبوب في العقم الأولي والثانوي أن العقم حالة طبية فريدة من نوعها لانها تشمل زوجين 8 ٪ من الأزواج في أنحاء العالم يعانون من العقم حيث إنه يؤثر بشدة على الانسجام النفسي والحياة الجنسية والوظيفة الاجتماعية للزوجين وتعتبر (HSG)هي طريقة تصوير الرحم بالصبغة تستخدم في تقييم قناتي فالوب لمرضي العقم، وتهدف الدراسة إلى تقيم التشوهات لقناتي فالوب التي تظهر في النساء اللتي تم فحصهن بواسطة HSG .

المواد والطرق : كانت الدراسة بأثر رجعي قائمة على (استبيان دراسة المقطع الرحمي) تم اجراؤه في عيادة المختار والمسرة الخاصة في طرابلس – ليبيا خلال عام 2015 - 2016 تم اختيار 120 مريضة لديهم عقم وتم تقسيم المرضي الي مجموعتين حسب نوع العقم أي مجموعة عقم أولي وعقم ثانوي خضع جميع المرضى لأختبار HSG وتم الحصول على البيانات التالية من المرضي :

العمر، تاريخ التكافؤ ، تاريخ الاجهاض، الحمل خارج الرحم، نوع العقم، سبب العقم، جراحات الحوض السابقة ، تاريخ المرض السابق، تاريخ موانع الحمل الالتهابية الحوضية.

النتيجة: تمت دراسة 120 مريضة من بين المرضى كانت حالات العقم الأولي بنسبة 48.3 ٪ والعقم الثانوي بنسبة ٪51.7 وكان متوسط عمر مجموعة الدراسة 32 عام في كل من العقم الاولي والثانوي من اجمالي دراسة العينة 120 ثم فحص HSG كانت نسبة الطبيعي 45.8 ٪ ونسبة غير الطبيعي 54 ٪ أمراض أنبوبي فالوب التي تم فحصها بواسطة HSG كانت نسبتها 46.7 ٪ وكانت النتيجة الأكثر وهي انسداد قناتي فالوب بنسبة 24.2 ٪ وكانت نسبة انسداد الأنبوب الأيمن 8.8 ٪ ونسبة انسداد الانبوب الايسر 7.6 ٪ وكانت تشوهات قناتي فالوب اكثر في حالات العقم الثانوي.

خلصت الدراسة إلى أن العقم الثانوي أكثر شيوعا من العقم الأولي وأن تشوهات قناتي فالوب هي ايضا اكثر شيوعا في العقم الثانوي من العقم الاولي ووجود انسداد في قناتي فالوب اكثر شيوعا في العقم، كما اظهرت الدراسة ان HSG حيوي للغاية في الكشف عن تشوهات قناة الولادة وبالتالي بجب توفير مرفق لهذه العملية الهامة خاصة التنظير الفلوري في المراكز الصحية للتقين المناسب للنساء المصابات بالعقم .

الكلمات المفتاحية: العقم – الصورة الملونة– انسداد انبوب فالوب.

Introduction

Infertility is a unique medical condition because it involves a couple rather than a single individual. Both the prevalence of infertility and the number of patients seeking the treatment of this disorder are increasing and especially in the third world. Approximately 8% of couples (52-80 million patients) worldwide are suffering from infertility. Although it is not a physically debilitating disease, infertility may severely affect the couple's psychological harmony, sexual life and social function.

Hysterosalpingography (HSG): is an imaging modality used in assessing the fallopian tubes of patients with infertility. There have been reports suggesting that tubal pathologies may be responsible for most cases of secondary infertility.

Aim of study:

To assess the common tubal abnormalities that are seen in women who has been investigated , by HSG , tubal factor infertility remain a common a etiology **.**

Materials and methods:

this study was retrospective questionnair based cross section study. It was conducted in Al mukhtar and Almasara private clinic Tripoli/Libya during the year 2015-2016. One hundred and twenty patients with history of infertility were selected for the study. Patients then divided to 2 groups according to the type of infertility to 1ry group and 2ry group. All the patients underwent HSG test. The following data was obtained from the patients: the age, parity, abortion and, ectopic pregnancy history , type of infertility, cause of infertility, previous pelvic surgeries , previous c/s history , contraceptive

history ,pelvic inflammatory disease and HSG results.

Materials and Methods:

Study design : retrospective questionair based cross sectional study .

Study setting: this study was conducted in Al mukhtar and Almasra private clinic

Tripoli/Libya

Study period: during the year 2015-2016

Study population : this study was carried out in Al mukhtar and Almasra private clinic.

One hundred twenty patients with history of infertility were randomly selected for the study. Patients then divided to 2 groups according to the type of infertility to 1ry group and 2ry group. The patients underwent HSG test. The following data was obtained from the patients: the age, parity history, abortion history , ectopic pregnancy , type of infertility ,duration of infertility , cause of infertility, previous pelvic surgeries , previous c/s history , contraceptive history pelvic inflammatory disease and HSG results.

Hysterosalpingoraphic technique

The HSG examination was performed at the Radiology Department of our institution by trained radiologists who also interpreted the results thereafter. All the patients provided referral request forms from the gynaecologists or family medicine physicians. Verbal informed consent was obtained from the patient after due explanation of the procedure and possible complications with reassurance. The examination was performed during days 7–12 of the menstrual cycle (day 1 being the first day of menstrual bleeding). This is because the endometrium was thin during this proliferative phase and also facilitated image interpretation and ensured that there was no existing pregnancy. Contraindication for the procedure included pregnancy, active pelvic inflammatory disease, bleeding and severe allergy to iodine-based contrast agents.

The procedure was performed using fluoroscopy. The patient was placed in supine position on the fluoroscopy table, and a scout film of the pelvis was acquired to assess for proper positioning, technical factors and radiopaque pelvic lesions. The patient was placed in lithotomy position. Using aseptic technique, the cervix was visualized with the aid of speculum and the anterior

lip held with a Volsellum forceps. A matching size Everard Williams or Leech–Wilkinson uterine cannula was inserted into the endocervical canal after sounding the uterus with a uterine sound. Maintaining a seal between the cannula and cervical canal with gentle traction on the Volsellum and pressure on

the cannula, 15–20 ml of water-soluble contrast medium, urografin 76% (sodium amidotrizoate + meglumine amidotrizoate) was injected slowly into the uterine cavity. The appearance of the uterine cavity and patency of the fallopian tubes were assessed by direct image intensification. Spot films during the phases of early uterine filling, tubal filling and peritoneal spill were taken. A release film was taken to check for the clearance of the contrast from the pelvic cavity, especially if there was

hydrosalpinx. For the detection of minor deformities of the uterine cavity, it was essential to obtain the radiographs of the uterus in the true anteroposterior projection, and this was achieved by the cervical traction and oblique positioning of the patient where necessary. All HSG examinations were interpreted by the direct visualization of hard copy images, checking for unilateral and bilateral spillage of contrast medium into the pelvic cavity and abnormalities in the outline of the cervix and uterine cavity, which may suggest uterine anomalies.

Statistical analysis:

Statistical analysis was computerized using the Statistical Program for Social Sciences (SPSS version 21) that used for data entry and analysis. Descriptive statistics were used and all results are presented as frequencies, and percentages. Categorical data were compared using the Chi-square test and Fisher's exact test if appropriate. A P-value of less than or equal to 0.05was considered statistically significant.

Result:

■ Atotal of 120 patient involved in the studay , All of them were investigated for infertility .there were 48.3% of primary infertility and 51.7% of secondary infertility .

The Mean age of paient with primary infertility was 32.34years whears that of for secondary infertility was 32 years (FIGUR 1).

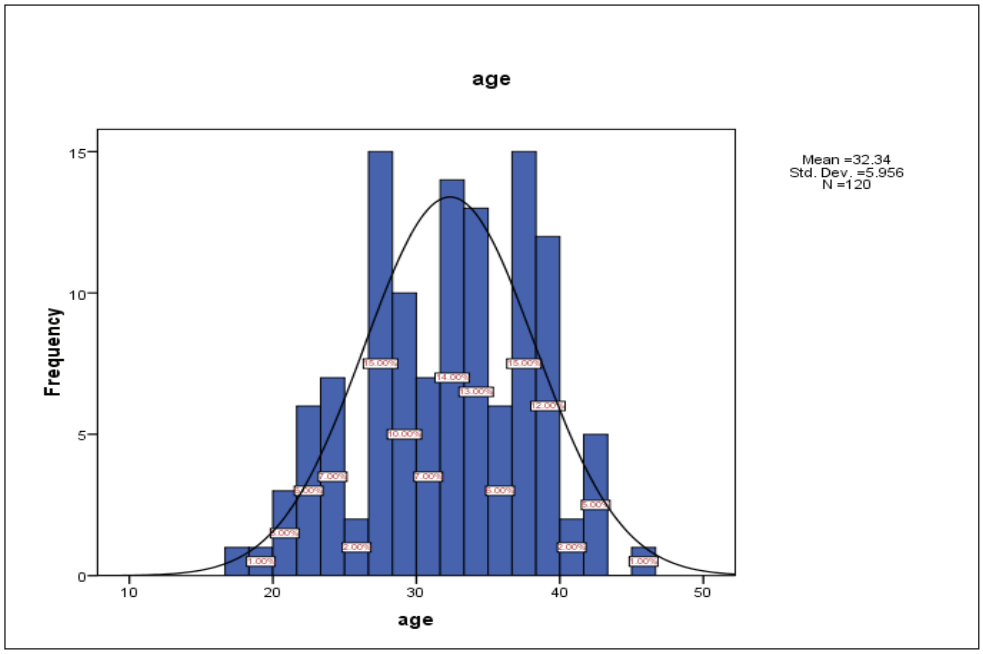

FIGURE 1: Age distribution

■ Out of total sample study (120) patient, 45.85% shows normal HSG result , while abnormal HSG were seen in 54% of cases(FIGURE 2).

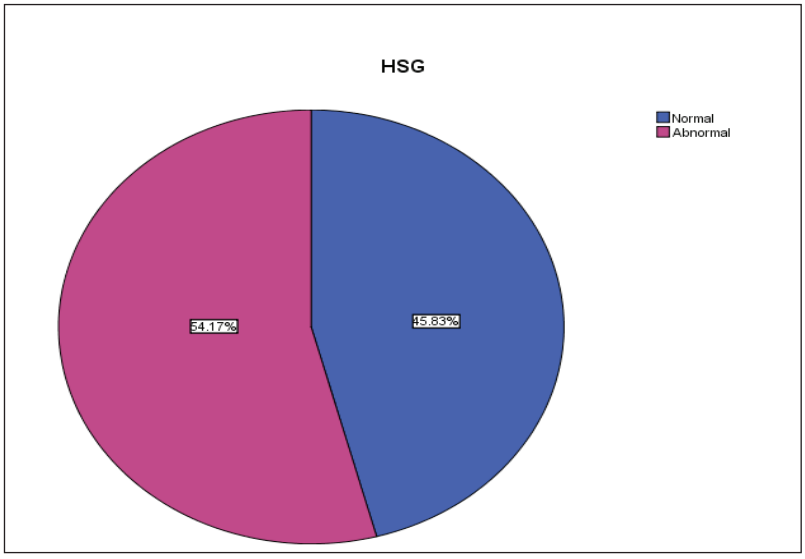

FIGURE 2: HSG result

■ This study show that there is H/O pelvic surgery in 31.6% of cases and myomectomy was seen in 18.3%. of those cases.This study also show that 66.6% of patient with secondary infertility have H/O caesarian section surgery, and positive H/O pelvic inflammatory disease in 38.3%. of cases. In this study The mean of duration of infertility was 5.2 years

And regarding type of infertility ,secondary infertility were seen in 51.7% of cases while primary infertility represent 48.3%. of cases (FIGURE 3).

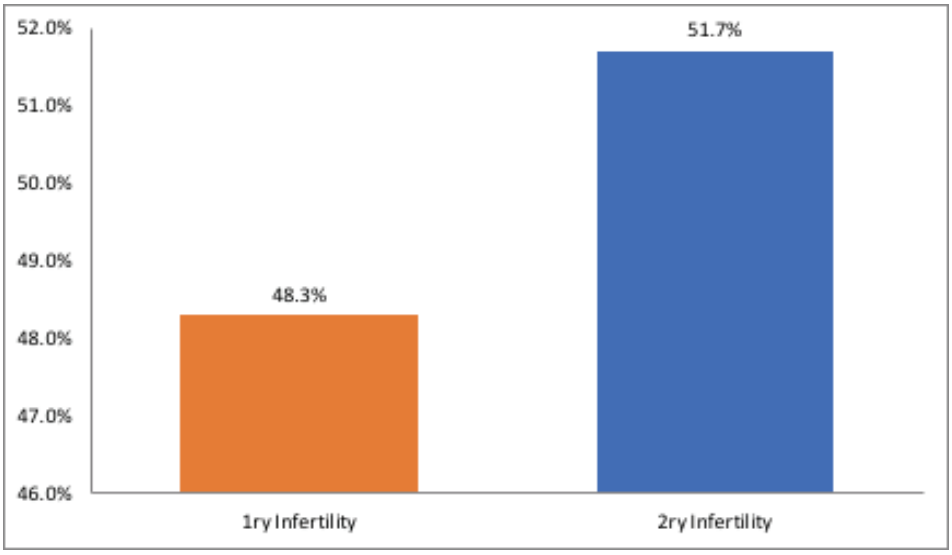

FIGURE 3: Type of infertility

■ This study shows that 100 patient(83.3%) had no uterine pathology while 20 patient (16.7%) show uterine pathology and the commonest uterine pathology was septate uterus (FIGURE 4).

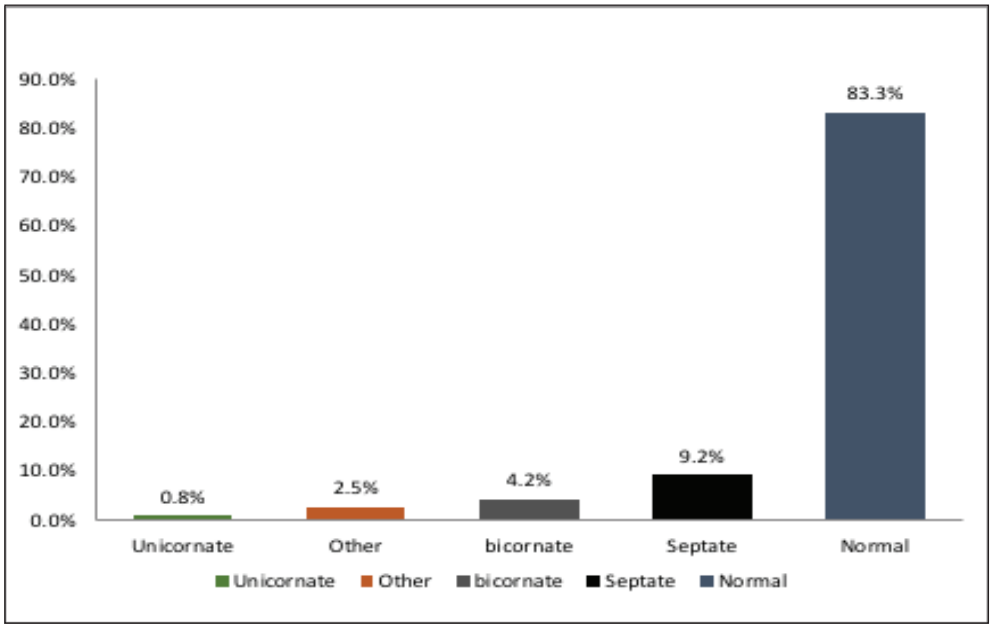

FIGURE 4: uterine pathology.

■104 of patient (86.7) had no cervical pathology while 16 (13.3%) had cervical pathology (FIGURE 5)

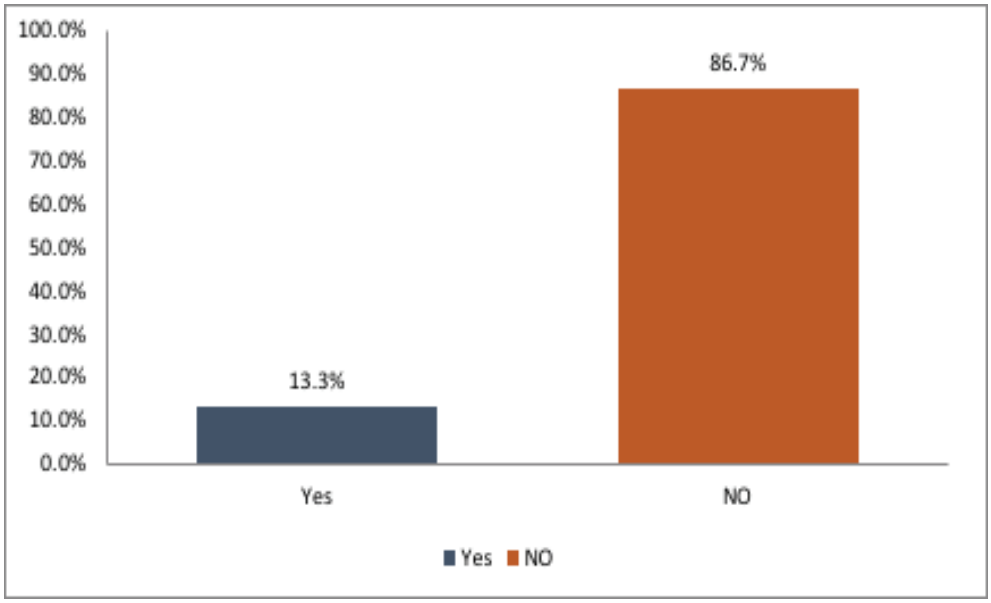

FIGURE 5: cervical pathology.

Table -1 : comparisone table.

OUR STUDY shows that Tubal abnormality in HSG represent 46.7% in our study (table- 1) , also shows that tubal abnormality is more commone in secondary infertility (38) cases in compare with primary infertility(18) cases (table -2) ,and tubal block is most common abnormality ,24.2 % cases shows bilateral tubal block while 8.8% shows right tubal block and 7.6% shows left tubal block(table- 3).

Type of infertility	Uterine Abnormality		Cervical Abnormality		Use of contraceptive		H/O Pelvic surgery		Pelvic inflammatory diseases		Tubal Abnormality	
	Yes	NO	Yes	NO	Yes	NO	Yes	NO	Yes	NO	Yes	NO
1ry (58 case)	15	43	10	48	5	53	17	41	18	40	18	40
2ry (62 case)	5	57	6	56	26	36	21	41	28	34	38	24
Total (120 case)	20 (16.7%)	100 (83.3%)	16 (16.3%)	104 (86.6%)	31 (16.8%)	89 (74.2%)	38 (31.6%)	82 (68.3%)	46 (38.3%)	74 (61.7%)	56 (46.7%)	64 (53.3%)

Table -2: tubal abnormality crosstabulation

(Type of infertility * Tubal abnormality Crosstabulation (P value = 0.001

No		Tubal Abnormality		Total
		Yes		
Type of infertility	Primary infertility	40	18	58
	Secondary infertility	24	38	62
Total		64	56	120

Table -3:pattern of fallopian tube abnormality

Right tube	Left tube	Bilateral block
8.8%	7.6%	24.2%

DISCUSSION:

Though there are other advanced and efficient methods of evaluating the uterine cavity and fallopian tubes in women presenting with infertility, hysterosalpingogram is still widely used because it is cheap, readily available and easy to interpret. It reveals the abnormalities in the cervix, uterus and fallopian tubes at a lower cost and non-invasively. It is readily available and usually the first line of imaging evaluation of the fallopian tubes in infertility, especially in developing countries such as ours.{1,2,3,4,5,6,7}.

In this study, secondary infertility was (52%) {8,9,} with higher prevalence than primary infertility (48%). Similar observations were made by previous researchers.[10,11,12,13,14,15,16,17,18,19] Contrary to our finding, some studies observed that primary infertility is the most common indication for hysterosalpingography in infertile women.[20,] One of such studies .

This study reveals a mean age of 32.34 years and also showed that the greatest number of the infertile women presenting for HSG are within the age range of 30–34 years. This is not surprising because it is the peak of the female reproduction stage. Similar mean age was observed in previous studies.[14,20] Due to increased female education, most females in our environment got married between the ages of 24 and 30 years. If pregnancy is not achieved after marriage, there is more delay at presenting for medical

evaluation, because the first line of action was usually dedication to religious activities and prayers. However, after a few years of unsuccessful patience, increased desire to achieve pregnancy and in some cases the increased burden of domestic violence from spouse and in-laws, as she is assumed to be the cause of the problem, leads to submission to medical consultation and investigations.[11]

The result of the study revealed that 53.3% of the cases had normal HSG findings. This is higher than the 44.2% reported previously in a similar study.[20] This difference could be attributed to the fact that the previous study was not conducted under fluoroscopy and some of the lesions could have been obliterated by contrast material. Similar studies in Kampala and Nnewi recorded 16.6 and 29.1% of normal findings, respectively.[18,20]

This study revealed a lower frequency of uterine cavity abnormalities (16.7%) which is lesser to the 47% recorded in a similar study in Nnewi[20] and 26.8% recorded in a previous study in Port Harcourt.[20] The higher frequency in the previous report in Port Harcourt could be attributed to the reasons mentioned above.

Congenital Uterine abnormality in this study wasnot common , about 83.3% were normal and most common uterine abnormality was septate uterus 9.2%. Mgbor[20] and Imo and Adeoye[12] made similar observations in their studies, with septate uterus constituting 13.5% and 20% respectively.

This study shows that 64 cases had normal fallopian tubes with free contrast material spillage, whereas 56 (46.6%) cases had fallopian tube abnormalities. This is comparable to 33.6, 40 and 43.55% fallopian tube abnormalities recorded in previous studies.[14,15,20]

Bilateral tubal occlusion was seen in 24.2% while one tubal block found in 15.8%. This is higher than the 4% previously reported in Port Harcourt **[19]** and the 4.5% reported in Sokoto[14] but close to the 18.7% reported in Nnewi.[20] Broeze *et al*. **[18]** in a meta-analysis of seven studies on the hysterosalpingography diagnosis of tubal pathologies revealed that the overall prevalence of bilateral tubal pathology was 15% with a range across studies from 9 to 21%.Tubal obstruction was found to be more common on the right 8.8% than on the left 7.6% of the cases. A high frequency of right fallopian tube involvement was also reported by previous researchers**[17]** who had attributed

it to previous appendicectomy and its surgical complications. However, in this study, we did not collect data on postsurgical complications. Distal fallopian tube obstruction was the most common form of tubal obstruction. This obstruction is commonly caused by previous pelvic infections and adhesions; previous studies had shown that infections were the most important cause of infertility in our environment.[20]

Conclusion:

The study concluded that secondary infertility is more common than the primary infertility. Tubal abnormalities also is more common in secondary infertility than primary infertility, and most common tubal abnormality is two tubal block. This commonly would have been as a result of infection and inflammatory process as shown by high distal tubal involvement and hydrosalpinx .this study showed that HSG is very vital in detecting birth canal pathologies hence the facility for this important process especially fluoroscopy ,should be made available in the health centers for adequate assessment for women with infertility.

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