

Pattern of abnormalities detected on scout films at hysterosalpingography (HSG) among infertile women

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Abstract

Background: Hysterosalpingography (HSG) assesses tubal status during infertility investigation. The scout film standardizes the film qualities and detects calcified areas in the pelvis. Unfortunately the film is often skipped during HSG. This study determined the pattern of abnormalities detected in scout films and assessed the value of the film in HSG.

Methods: The hysterosalpingographic scout films of infertile women performed over ten years at the Jos University Teaching Hospital in central Nigeria were analysed in a retrospective study.

Results: The ages of the women ranged from 15 to 44 years with a preponderance of those aged between 25 and 29 years, number (n=419) and 44 (4.4%) were teenage girls. Of the 998 women whose scout films were analysed, 389 (39.0%) women had primary infertility, and 609 (61.0%) had secondary infertility. Majority of the women, (n=974, 97.6%) the scout films were normal,

while for 24 (2.4%) women the scout films had various abnormalities [pelvic calcifications (n = 8; 33.3%); evidence of previous pelvic bone fracture and bladder calcification (n = 4; 16.7%) each; urolithiasis (n = 2; 8.3%); IUCD (n = 3; 12.5%); and full bladder (n = 1, 4.2%)].

Conclusion: Non-osseous lesions were the main findings on the scout radiograph of infertile women in Jos, Nigeria. Albeit the overall small number of abnormal findings (n=24, 2.4%), the apparent relationship of some of the findings with female infertility and the ease of missing such lesions without the scout film justifies the film at HSG studies.

Key Words: Hysterosalpingography, Infertility, Northern Nigeria, Pelvic Calcification, Scout Films

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Introduction

Infertility still remains a major health problem in Nigeria with psycho-social implication on the couple¹ and emotional and physical repercussion on the woman². It is the commonest indication for routine gynaecological consultation in Nigeria³. The World Health Organization multicentre study of the aetiology of infertility⁴ showed that in Africa, the rate of tubo-peritoneal disease (TPD) with the resultant tubal occlusion was three times higher than other regions (49% versus 11-15%) except the East Mediterranean (20%). Studies from South-western Nigeria⁵ showed the preponderance of tubal disease in infertile women. Therefore a test of tubal patency is an important tool

in the evaluation of women with infertility.

Hysterosalpingography (HSG) is a valuable tool in the evaluation of intraluminal uterine and tubal causes of for infertility⁶. The scout film is the preliminary film taken before the instillation of the contrast medium^{7,8}. It enables the detection of opacified areas and other abnormalities that might be tainted with the administration of the contrast study. Hitherto, there are few reports⁹ in the literature on findings on HSG scout films from this country. The paucity of stand-alone studies on the scout films and discouragement of its use⁸ have led to a general neglect of the value of the preliminary film to the extent that the film is usually omitted during study at HSG.

Since 1984 we had routinely done HSG as part of the evaluation of infertile women in the infertility unit of Jos University Teaching Hospital in North central Nigeria. This study analyses the pattern of abnormalities identified on the scout films of the hysterosalpingograms of 998 consecutive infertile women.

Materials and Methods

The subjects of this study were 998 consecutive eligible infertile women who had HSG between July 1988 and August 1998 in the infertility unit of the department of

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Obstetrics and Gynaecology of Jos University Teaching Hospital (JUTH). Illegible radiographs because of poor film qualities were excluded from the study. All patients had complained of inability to conceive for a period of twelve months or more. The timing of the study on the women was between the 7th and 10th days of the menstrual cycle and all procedures were performed in the radiology unit. The indication for HSG, its side effects and technique were explained to the patient and consent obtained. The procedure was performed using a semi-sterile technique in the Radiology Department. Water soluble contrast medium (Urograffin 76%, Scherring A.G. W. Germany) 20mls was used. Usually five projections were obtained:- a Scout film; uterine film (Hysteroqram) after initial injection of 5mls of contrast, two more films (including an oblique view) after further injection of the contrast media; and finally the delayed film obtained 30 minutes after the procedure had been completed. Only a few of the procedure were monitored by fluoroscopy. Adequate arrangement was made for resuscitation in case of emergencies. The radiographs were reviewed by the radiologists in conjunction with the gynaecologists and abnormalities on the scout films documented.

The parameters retrieved from the records for the purpose of this study included the patients' age, type of infertility, the scout films and the HSG report among other things. This study was approved by the ethical committee of JUTH. The data obtained were analysed using descriptive statistics.

Results

Subjects and type of infertility

A total of 1026 scout radiographs were available for this study. Of these, 28 (2.8%) were excluded because of illegible film qualities. The remaining 998 (97.2%) radiographs were used for data analysis. Of the 998 films that were analysed, 389 were from women who presented with primary infertility (39.0%), whereas the remaining 609 (61.0%) had secondary infertility.

Table 1: Age distribution of the infertile women (n = 998)

Age (yrs)	Primary Infertility (n =389) (%)	Secondary Infertility (n =609) (%)	Total (n =998) (%)
15-19	23 (5.9)	21 (3.4)	44 (4.4)
20-24	96 (24.7)	154 (25.3)	250 (25.0)
25-29	164 (42.2)	255 (41.9)	419 (42.0)
30-34	58 (14.9)	90 (14.8)	148 (14.6)
35-39	46 (11.8)	73 (12)	19 (11.9)
40-44	7 (1.8)	10 (1.6)	17 (1.7)
TOTAL	389 (100)	609 (100)	998 (100)

The women ranged in age from 15 – 44 years. The greatest number (n = 419) of women were in the 25 –

29 year category. There were 44 (4.4%) teenage girls among the study group. In each age group, secondary infertility was more prevalent than primary infertility (Table 1).

Analysis of scout films

No abnormality was detected in the scout radiographs of 974 (97.6%) women, while the scout radiographs of 24 (2.4%) women had various radiographic abnormalities (Table 2). These included pelvic calcifications (n = 8; 33.3%); evidence of previous pelvic bone fracture and bladder calcification (n = 4; 16.7%) each; urolithiasis (n = 2; 8.3%); intrauterine contraceptive device (IUCD) (n = 3; 12.5%); and full bladder during the study (n = 1, 4.2%) (Table2).

Table 2: Distribution of the pelvic abnormalities detected by scout films in infertile Nigerian women for type of infertility (n= 24)

Type of abnormality	Primary Infertility (n = 9 (%))	Secondary Infertility (n = 15(%))	Total n = 24 (%)
Pelvic calcification	3 (33.3)	5 (33.3)	8 (33.3)
Previous fracture	1 (11.1)	3 (20.0)	4 (16.7)
Bladder calcification	3 (33.4)	1(6.7)	4 (16.7)
Bladder stone	0	2(13.3)	2 (8.3)
Ureteric stone	1(11.1)	1(6.7)	2 (8.3)
IUCD*	0	3(20.0)	3 (12.5)
Full bladder**	1(11.1)	0	1 (4.2)
Total	9 (100.0)	15(100.0)	24 (100)

*Intra-uterine contraceptive device

**Full bladder is not a pathology, but not expected in a patient undergoing HSG

Discussion

The study showed that non-osseous lesions were the main findings on the scout radiograph of infertile women in Jos, Nigeria. Most of the lesions detected appeared in such a manner that HSGs without the scout films could have made spotting them difficult because of the contrast opacities. Radiographic abnormalities were seen in the scout films of 2.4% of the women studied and of these abnormalities, 62.5% were suggestive of the cause of infertility in the women.

The type of infertility and age distribution of subject in this study are similar to that observed by other workers^{9,10}. The majority of the women were within the 25 – 29 age category in both types of infertility. The age and infertility type distribution is a reflection of the overall population of the gynaecological patients attending the clinics¹¹. However there were 4.4% of teenage girls among the study population. This is at variance with the findings in Eastern Nigeria¹² where none of their subjects were below the age of 20 years. The difference shows the regional diversity of the age at marriage and desire for childbearing among the younger population in

Northern part of the country¹³.

In this study, pelvic calcification constituted (n= 12, 50.0%) of the abnormal findings at scout films. Two chronic conditions that can cause infertility and may present radiographically with pelvic calcification are schistosomiasis and pelvic tuberculosis⁷. Bladder calcification suggestive of urinary schistosomiasis was among the pelvic calcifications observed. Link between chronic asymptomatic schistosomiasis and infertility has been established in several studies including one from this center^{14,15,16}. Similarly, there is high prevalence of pelvic tuberculosis in the Nigerian middle belt¹⁷. The increasing rate of HIV infection among women¹⁸ and with tuberculosis as one of the common opportunistic infections¹⁹ requires that tuberculosis and schistosomiasis are considered in the aetiology of infertility in our women. Therefore HSG scout films can be of value in offering clues in the evaluation of these patients.

Another finding in the study significant to the diagnosis of the cause infertility in the women studied was the detection of intra uterine contraceptive devices (IUCD) in 12.5% of the scout films with abnormalities. These IUCDs were inserted either to prevent conception or treat intrauterine adhesions in Asherman's disease and subsequently forgotten by the women. The problem of forgotten IUCD among women opting for this method of contraception has been documented²⁰. For women who had completed their family size, it does not bother them to seek medical attention since they suffer no pain or any discomfort. However, for women who chose IUCD as a form for temporary contraception and later forgot of its presence in the uterus as a result of missing the device thread or migration of the device outside of its placement, may present in the infertility clinic with complaint of inability to achieve pregnancy. In this situation, the scout radiograph at HSG can determine the diagnosis of the cause of infertility in the woman.

Among the 24 scout films with radiographic abnormalities, 16.6% had urinary stones. Urinary stones have not been shown to bear aetiological relationship with infertility in women, but can cause chronic pelvic pain. In this part of the world, it is common to find women with infertility presenting with lower abdominal pain as the presenting complaint²¹. This study shows that the complaint of pelvic pain among infertile women may not be a misrepresentation of their need for infertility evaluation but of co-morbidity with the infertility and the need for a broad base evaluation of the woman and management of the findings with the appropriate specialties.

This study was not without limitations. The retrospective design of the study limits its ability to associate the scout film findings and the diagnosis of the causes of the infertility among the women.

In conclusion, our findings have revealed that the

scout film is more than just a 'control' in HSG study for the evaluation of women with infertility in our environment. Some of the radiographic abnormalities detected can be of clue to the diagnosis of the infertility and chronic pelvic pain in women. Besides standardizing the quality of film exposure, the scout film can also detect pelvic abnormalities that may be of diagnostic significance in the evaluation of infertility. It should therefore remain an integral part of HSG in the evaluation of women with infertility and receive equal attention at review and interpretation of the HSG.

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