

PATTERN OF HYSTEROSALPINGOGRAPHIC FINDINGS
IN INFERTILITY IN PORT HARCOURT

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ABSTRACT

The study was carried out to determine the pattern of radiological findings in 500 consecutive patients who presented with primary and secondary infertility in Port Harcourt, the cosmopolitan capital city of Rivers State of Nigeria.

Five Hundred adult female patients, aged between 17-40 years being investigated for infertility had HGS done on them in a private Radiological centre run by a Radiologist between January 1996 and December 1998.

Hydrosalping was found to top the list of pathologies, 76 patients (91.52%). Out of this 51 patients (10.2%) had unilateral hydrosalpinx while 25 patients (5%) had bilateral hydrosalpinges. 70 patients (14%) had uterine myoma. 33 patients (6.6%) had tubal occlusion, of this 20 patients (4%) had bilateral tubal occlusion while 13 patients (2.6%) had unilateral occlusion. 64 patients (12.8%) had synechiae. Only one patient (0.2%) had congenital uterine malformation-unicornuate uterus.

The pattern of Radiological changes from this study shows hydrosalpinges as the highest cause of abnormality and suggests that congenital malformation is very rare.

ABSTRAIT

L'étude a été effectuée pour déterminer le modèle des résultats radiologiques dans 500 patients consécutifs qui se sont présentés avec l'infertilité primaire et secondaire dans Harcourt gauche, la ville capitale cosmopolite de l'état de fleuves du Nigéria.

Cinq cents patients féminins d'adulte, âgé entre 17-40 ans étant étudiés pour l'infertilité a fait faire HGS sur eux à un centre radiologique privé couru par un radiologiste entre janvier 1996 et décembre 1998.

Hydrosalping s'est avéré pour compléter la liste de pathologies, 76 patients (91.52%). Hors du ce 51 patients (10.2%) ont eu le hydrosalpinx unilateral tandis que 25 patients (5%) avaient les hydrosalpinges bilatéraux. 70 patients (14%) ont eu le myoma utérin. 33 patients (6.6%) ont eu l'occlusion tubal, du ce 20 patients (4%) ont eu l'occlusion tubal bilatérale tandis que 13 patients (2.6%) avaient l'occlusion unilatérale. 64 patients (12.8%) ont eu des synechiae. Seulement un patient (0.2%) a eu l'utérus utérin congénital de malformation-unicornuate.

Le modèle des changements radiologiques de cette étude montre des hydrosalpinges comme cause la plus élevée d'anomalie et suggère que la malformation congénitale soit très rare.

INTRODUCTION

Tubal anatomy and patency are accurately assessed on hysterosalpingogram. Uterine malformations maybe initially assessed with trans-vaginal sonography (TVS) followed by hysterosalpingography to demonstrate the lumen or MRI for myometrial contour.¹ The advantages of hysterosalpingography include producing a global image of the reproductive canal with details of the endothelial architecture from cervix to fimbria using water soluble contrast medium. There is also a wide spread familiarity with this technique that will perpetuate its use.² Hysterosalping-ography (HSG) is a positive contrast radiological investigation to demonstrate the uterine cavity, fallopian tubes and peritoneal spill in women. The optimal time for performing HSG in women is generally accepted to be towards the end of the first week after the menstrual period when the uterus is at its most distensible phase and fallopian tubes are most readily filled with contrast.³ The study was carried out to determine the pattern of radiological findings in 500 consecutive patients who presented with primary and secondary infertility in Port Harcourt, the cosmopolitan capital city of River State of Nigeria.

MATERIALS AND METHODS

Five Hundred adult female patients, aged between 17-40 years being investigated for infertility had HSG done on them in a private Radiological centre run by a Radiologist between January 1996 and December 1998. Procedures were done without fluoroscopy. This is because no centre has image intensifier in Port Harcourt. Everalld Williams uterine cannula was used.

In all patients the procedure was performed between 8th and 11th day of menstrual cycle and patients were

advised to avoid sexual intercourse during this period to prevent exposure of ovum to radiation. Fifteen to twenty milliliters (15-20ml) of 76% aqueous meglumine sodium diatrizoate compound was used for each patient. This is preferred and is easily available when compared with oil medium which is outdated.⁴ Nine patients whose tubes were not seen due to under filling had double dose of the volume of contrast i.e. thirty-forty milliliters (30-40 ml) injected into the uterus. The procedure was explained to each patient before the investigation. A control radiograph of the pelvis was done as in all contrast investigations to check positioning of patient on the table and radiographic factors. Patients were in lithotomy position, the labia swabbed with gauze soaked in hibitane. Large cusco speculum was inserted into the vagina. Large size was preferred to make for space for the Volselum forceps and cone of cannula. Uterine sound was passed. All patients whose cervical canal could not admit the sound were sent back for dilatation of cervix to Hegars size six and the procedure done forty-eight hours after. With the patient in lithotomy position, a matching size cone is threaded into the tip of the cannula, syringe with contrast is connected to cannula and column of air in the cannula expelled. The tip of the cannula is inserted into the cervical canal and held tightly to prevent reflux. The speculum is withdrawn from the vagina. Five milliliters of contrast medium injected and film of pelvis taken. This will show uterine cavity and cervical canal. Another five milliliters is injected and film taken to show uterine cavity and fallopian tubes. The remaining contrast is injected. This injection in stages is done because fluoroscopy is not used due to non availability of the equipment. The instruments are removed and film taken to show peritoneal spill. All cases that did not show peritoneal spill in the

last film had delayed film taken twenty (20) minutes after. Patients were usually reassured at every stage of the procedure, as instrumentation and peritoneal irritation could give some pain. Patients were advised to take pain relief pills if pain was severe. Vaginal bleeding after the procedure is usually not heavy, but patients were advised to use sanitary pads or cotton wool afterwards.

RESULT/STATISTICAL ANALYSIS

Hydrosalping was found to top the list of pathologies, 76 patients (91.52%). Out of this 51 patients (10.2%) had unilateral hydrosalpinx while 25 patients (5%) had bilateral hydrosalpinges. 70 patients (14%) had uterine myoma. 33 patients (6.6%) had tubal occlusion, of this 20 patients (4%) had bilateral tubal occlusion while 13 patients (2.6%) had unilateral occlusion. 64 patients (12.8%) had synechiae. Only one patient (0.2%) had congenital uterine malformation-unicornuate uterus.

DISCUSSION

Routine hysterosalpingography has been one of the standard investigations for evaluating the anatomical appearance of the uterus and fallopian tubes until the laparoscopic examination was added as a complementary test. (Snowden & Rosencratz 1972, Moghissi & Simp 1975)^{5 & 6}

The importance of hysterosalpingography lies in determining factors responsible for female infertility uterine or tubal factors. Being minimally invasive and economical, hysterosalpingography will remain a front line investigation, almost like a screening procedure, to be followed by sonography and endoscopic study.⁷ the ten day rule for all women of child bearing age in all radiological investigation has been

recently abandoned as it is now believed that the embryo is more susceptible to radiation during organogenesis (4-10 weeks intra-uterine period) than during the first few weeks of cell division of the embryo.⁸ In this study hydrosalpinges was the most common pathology and all of these were distal hydrosalpinges. Hydrosalpinx is elongated tortuous dilatation of ampullary portion of the fallopian tube that shows contrast retention even in delayed (10 minutes) film. It is the commonest end result of acute and chronic salpingitis. Some times it may be difficult to distinguish a paratubal collection from a large hydrosalpinx. Mucosal folds are present in a hydrosalpinx unlike a paratubal collection which has smooth amorphous walls. However, it can be difficult to distinguish between hydrosalpinx and loculated peritoneal spill secondary to extensive peritubular adhesions.⁹ Hydrosalpinx is closely followed by uterine myoma. Changes on radiographs depend on the size and site of the myoma. Small intra-mural myoma may not show changes in uterine cavity, size and shape. Submucous and large intra-mural fibroids distort and enlarge the uterine cavity and show filling defects in the cavity. Double dose of contrast was used in these cases with large uterine cavity. Cornual distortion or obstruction of fallopian tubes may be caused by fibroids. HSG is conclusive in the diagnosis of fibroids.¹⁰ Synechiae of different sizes, shapes and positions seen on radiographs as irregular filling defects constitute 12.8% of the pathologies, 64 patients were involved. This is high when compared with 4.3% recorded by Ogedengbe and Ogunmokun.¹¹ Synechiae was more in lower uterine cavity and cervical canal area. Fifteen of these patients admitted terminating pregnancies in the last twenty four months. Synechiae is a complication of surgery, over zealous curettage while terminating

pregnancies. 33 patients (6.6%) had bilateral tubal occlusion. This is relatively low when compared with 17.5% recorded by Adinma et al.¹² Proximal tubal occlusion has a reported incidence of between 5-20% in infertile women. The commonest aetiological factors are infection with inflammation and subsequent fibros and endometiosis.^{9, 13} Distal tubal occlusion is the most frequently occurring occlusive tubal disease and has a strong correlation with previous infection. The initial acute infection which is often asymptomatic may go unrecognized and therefore

Fig 1 shows different pathologies with the number of patients affected.

	Number	(%)
Normal	221	44.2
Hydrosalpinges	76	15.2
Myoma	70	14
Synechiae	64	12.8
Tubal Occlusion	33	6.6
Congenital	1	0.2
Venous Intravasation of contrast	35	7

untreated in 50-80% of women.¹⁴ Thirty-five patients (7%) had venous intravasation. Intravasation can occur in normal patients and in studies done close to either the beginning or the end of the menstrual cycle. It can also occur in patients with fibroid disease or other uterine pathology, tubal occlusion, following misplacement of the uterine cannula or excessive injection pressure/volume of contrast.¹⁵ One patient (0.2%) had congenital abnormality of uterus unicornuate uterus. This is obviously not common in this environment.

False tubal occlusion in HSG is probably due to spasm to the tubes hence in all repeat cases antispasmodic was given before repeating the examination. No case of salpingitis isthmica nodosa (SIN) or Tuberculosis of fallopian tubes was recorded.

CONCLUSION

HSG, as a first line investigation in female infertility is still very relevant. The pattern of Radiological changes from this study shows hydrosalpinges as the highest cause of abnormality and suggests that congenital malformation is very rare.

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