

Hysterosalpingographic Abnormalities in Infertile Women

¹S. Mesbahi, ²M. Pourissa, ³S. Refahi, ⁴Y. Tabarraei and ⁵M.H. Dehghan

¹Department of Radiology, Faculty of Medicine, Aleppo University, Syria

²Department of Radiology, Tabriz University of Medical Sciences, Tabriz, Iran

³Department of Basic Sciences, Faculty of Medicine,
Ardabil University of Medical Sciences, Ardabil, Iran

⁴Faculty of Health, Qom University of Medical Sciences, Qom, Iran

⁵Department of Biochemistry, Faculty of Medicine,
Qazvin University of Medical Sciences, Qazvin, Iran

Abstract: Hysterosalpingography is a radiographic examination of endocervical canals, uterine cavity and fallopian tube with the use of a radiographic contrast medium. The goal of this study was to evaluate the hysterosalpingographic features of women with infertility. The study included hysterosalpingograms of 100 infertile women who were referred between January 2007 to June 2008 at the hospitals affiliated to Tabriz University of Medical Sciences, Iran. The obtained findings were abnormal in 42% of cases. 79% had primary infertility. Abnormal uterine was seen in 25% and abnormal fallopian tubes in 21%. Abnormal uterine shape and tubal blockage were the commonest abnormal finding regarding uterine and fallopian tubes. In sum, abnormalities of uterine were more than tubal abnormalities and pelvic inflammation disease was the most common cause of abnormality.

Key words: Infertility, hysterosalpingography, abnormalities, radiographic, endocervical, uterine cavity

INTRODUCTION

Hysterosalpingography (HSG) is still a commonly used investigation in the evaluation of the female genital tract and the main indication for HSG is infertility (Kiguli-Malwadde and Byanyima, 2004). HSG plays an important role in the evaluation of abnormalities related to the uterus and fallopian tubes. Uterine abnormalities that can be detected at HSG include congenital anomalies, polyps, leiomyomas, surgical changes, cynechia and adenomyosis. Tubal abnormalities that can be detected include tubal occlusion, salpingitis isthmica nodosum, polyps, hydrosalpinx and peritubal adhesions (Simpson *et al.*, 1981). The goal of this study was to find the hystero-salpingographic features of women with infertility in our setting.

MATERIALS AND METHODS

We performed a retrospective study of 100 women who were referred for infertility between January 2007 to June 2008 at the hospitals affiliated to Tabriz University of Medical Sciences, Iran. Their ages ranged from 18-45 years with a mean of 27.55±4.1 years. HSG was

performed in the 1st half of the cycle, usually on the 9th day, without anaesthesia. Radiological features were reviewed and statistical data analyzed on the software SPSS.

RESULTS

In our study (79%) had primary infertility, (21%) had secondary infertility. abnormal findings at hysterosalpingography were found in (42%). Abnormal uterine in (25%), abnormal fallopian tubes in (21%) and abnormal uterine with the accompanying abnormal tubes in (4%). Radiological features related to uterine were showed in Table 1. The commonest abnormal finding was

Table 1: Summary of hysterosalpingography findings of uterus

Characteristics	(%)
Uterus size	
Normal	93
>Normal	3
<Normal	4
Uterus shape	
Normal	90
Arcuate	5
Bicornuate	5
Filling status	
Normal	92
Filling defect	8

Table 2: Summary of hysterosalpingography findings of fallopian tubes

Characteristics	(%)
Normal	79
Occlusion	16
Narrowing	2
Dilatation	1
Filling defect	2

in uterine shape that followed by filling defect and abnormal uterine size. The radiological findings of fallopian tubes were summarized in Table 2. The commonest abnormal finding in fallopian tubes was tubal occlusion.

DISCUSSION

Hysterosalpingography (HSG) is the radiographic evaluation of the uterus and fallopian tubes and is used predominantly in the evaluation of infertility. The primary role of HSG is in the evaluation of the fallopian tubes (Society for Assisted Reproductive Technology, 2004). HSG is the only radiologic procedure routinely performed in the initial evaluation of the infertile women. HSG is used to assess the anatomy of the uterus and the patency of the fallopian tubes and is performed in the proliferative phase of the menstrual cycle (Stovall, 1997). In previous study primary and secondary infertility reported in 34.4 and 56.6%, respectively (Cisse *et al.*, 2002). In another study secondary infertility was commoner than primary infertility (Kiguli-Malwadde and Byanyima, 2004). It is not consistent with our results (79 vs. 21%, respectively).

Congenital abnormalities of uterine shape are due to abnormal fusion of the mullerian ducts during early (6-12 weeks) gestation. A unicornuate uterus results if one of the mullerian ducts does not form properly. If the 2 mullerian ducts do not completely fuse, a bicornuate uterus is formed (Troiano and McCarthy, 2004). The present study demonstrate that arcuate and bicornuate uterus were the most common abnormalities of uterine shape that probably were congenital abnormally (Fig 1). The size of the uterus varies depending on the patient's age and parity. Abnormalities of uterine size were related to previous infection in smaller uterus and myoma in bigger uterus than normal uterus. Filling defects are common findings at HSG (Simpson *et al.*, 2006). We observed filling defects and intrauterine irregularities in 5 uteruses and 2 fallopian tubes. Pelvic Inflammation Disease (PID), myoma and fibromas were cause of filling defect in uterus and tuberculosis in fallopian tubes. This is reported that the primary focus of genital tuberculosis is the fallopian tubes, which are almost always affected bilaterally but not symetrically (Nogales-Ortiz *et al.*, 1979). We found no tuberculosis in abnormalities of uterine. In the cases of

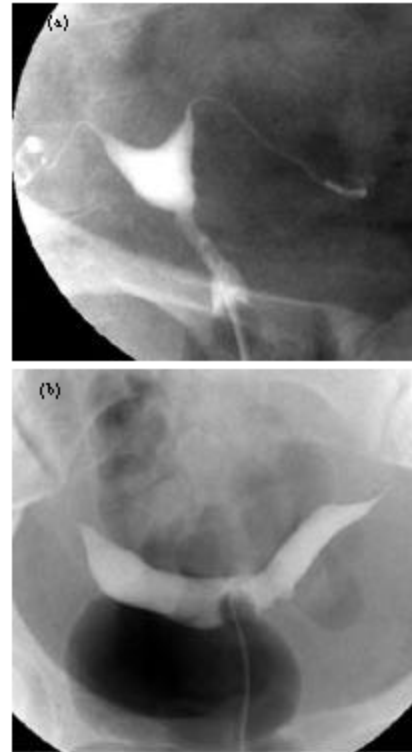


Fig 1: (a) *Bicornuate uterus*. Spot radiograph shows two markedly splayed uterine horns (b) *Arcuate uterus*. Spot radiograph demonstrates a depression of the uterine fundus, a finding that may represent a short septum or an arcuate deformity

abnormal tubal findings, 16.21 (76.2%) had tubal blockage. Salpingitis and PID were cause of tubal occlusion in 13.16 (81.25%). Other appearances of tubal lesions include tubal narrowing in 2.21 (9.52%), filling defect in 2.21 (9.52%) and dilatation in 1.21 (4.76%). Our results showed that tubal abnormalities were found in 21% and uterine lesions in 25% of the cases. In other report it was 62 and 38.2%, respectively (Cisse *et al.*, 2002). Another study by Nicotra *et al.* (1988) showed that tubal problems represent 25% of lesions in infertility. According to our experience, PID and history of previous infection are the most common cause of abnormal uterine and tubal hysterosalpingograms leading to infertility. It is similar to results reported by Sweet (1988).

CONCLUSION

On the basis of the obtained results, we observed that the main hysterosalpingographic abnormalities in women presenting with infertility was related to uterus shape and tubal occlusion.

REFERENCES

- Cisse, R., A. Wandaogo, E. Bandre, C. Lougue, T.L. Tapsoba, D. Sano, S.S. Traore, B. Kirakoya, G. Bonkougou and A. Sanou, 2002. Features of hysterosalpingography performed in Burkina Faso. *J. Radiol.*, 83 (3): 361-364. NLM ID: 7906266.
- Kiguli-Malwadde, E. and R.K. Byanyima, 2004. Structural findings at hysterosalpingography in patients with infertility at 2 private clinics in Kampala, Uganda. *Afr. Health Sci.*, 4 (3): 178-181. NLM ID: 101149451.
- Nicotra, M., C. Stampone, C. Piscitelli, L. Coccia, A. Orlandi and L.M. Porfiri, 1988. Hysterosalpingographic abnormalities in infertile women: Radiological and clinical interpretation. *Acta Eur. Fertil.*, 19(2): 79-82. Publication 1969-1995. NLM ID: 1300660.
- Nogales-Ortiz, F., I. Tarancon and F.F. Nogales Jr., 1979. The pathology of female genital tuberculosis. A 31-year study of 1436 cases. *Obstet. Gynecol.*, 53 (4): 422-428. NLM ID: 0370343.
- Simpson, W.L. Jr, L.G. Beitia and J. Mester, 1981. Hysterosalpingography: A reemerging study. *Radiographics*, 26 (2): 419-431. Publication 1981. NLM ID: 8302501.
- Society for Assisted Reproductive Technology, 2004. American society for reproductive medicine. Assisted reproductive technology in the united states: 2000 results generated from the American society for reproductive medicine/society for assisted reproductive technology registry. *Fertil. Steril.*, 81 (5): 1207-1220. Publication, 1950. NLM ID: 0372772.
- Stovall, D.W., 1997. The role of hysterosalpingography in the evaluation of infertility. *Am. Fam. Physician*, 1 55 (2): 621-628 (Review). NLM ID: 1272646.
- Sweet, R.L., 1988. Pelvic Infections in Infertility. 3rd Edn. In: Behrman, S.J., R.W. Kistner and G.W. Patton (Eds.). *Progress of in Fertility*. Boston, Mass: Little, Brown, pp: 25-46.
- Troiano, R.N. and S.M. McCarthy, 2004. Mullerian duct anomalies: Imaging and clinical issues. *Radiology*, 233 (1): 19-34. NLM ID: 0401260.