

ROLE OF HYSTEROSALPINGOGRAPHY IN RECURRENT ABORTION FOR INVESTIGATION OF INTRAUTERINE PATHOLOGY

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ABSTRACT

Background and Objective: To assess the diagnostic value of hysterosalpingography (HSG) in the evaluation of the uterine cavity in recurrent aborters in comparison to hysteroscopy as the gold standard of diagnosis.

Methods: 58 reproductive age women, all with habitual abortion (3 consecutive abortions), were examined by both HSG and hysteroscopy.

Results: The overall sensitivity and specificity of HSG was 18.75% and 82.2%, respectively. The false positive and false negative results of HSG were 17.8% and 81.25%, respectively, and the positive predictive value for HSG is, therefore, 37.5%.

Conclusion: Regarding very low sensitivity, specificity and high false-negative rates of HSG, it is concluded that it has low value in detection of uterine cavity abnormalities in habitual abortion and hysteroscopy should be used as the gold standard method for diagnosis in these patients.

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Keywords: Hysterosalpingography; Hysteroscopy; Recurrent abortion.

INTRODUCTION

Traditionally, habitual pregnancy loss has been defined as three or more clinically recognized pregnancy losses before 20 weeks gestational age. Using this definition, it occurs in almost 1 in 300 pregnancies.¹ For patients with a history of multiple pregnancy losses, the risk for subsequent pregnancy loss is estimated to be 24% after two clinically recognized losses, 30% after three losses and 40-50% after four losses.² Among the etiologies of spontaneous abortion such as genetic, endocrine, infectious, immunologic, thrombotic and anatomic factors, the last is the one in which surgical intervention for a septate uterus^{3, 4, 6} and intrauterine adhesions^{5, 6} significantly increases the rate of successful subsequent full term deliveries.

Due to the high incidence of uterine cavity pathologies and improvement of reproductive outcome after surgical correction, it is significant to evaluate the uterine cavity accurately in these patients.^{7, 8}

Among the diagnostic tools used to evaluate the uterine cavity, hysterosalpingography (HSG) has been used for many years to screen for anatomic abnormalities. Some studies recently have found that HSG will not precisely evaluate the cavity and also the rate of false-positive findings may be as high as 30 to 38%.^{9, 10, 11, 12, 13}

As hysteroscopy is a route for direct visualization of the cavity, recently it has been known as a standard tool for diagnosis of uterine cavity abnormalities. The present study was designed to compare hysterosalpingography and hysteroscopy in diagnosing structural intrauterine abnormalities.

MATERIAL AND METHODS

Fifty-eight women of reproductive age with recurrent abortion referred to Shiraz University of Medical Sciences affiliated hospitals, Shiraz, Iran, from 1998 to 2002, were investigated with HSG and hysteroscopy. All patients were evaluated and other causes of abortion were ruled out first. Hysteroscopy was performed under general anesthesia in the operating room using DW 5% as the medium. All hysteroscopies were performed by the first author, before reviewing the HSG. All HSGs were reported by the same radiologist. HSGs were performed using Urographin as the aqueous contrast medium. There were no complications during or after hysteroscopy and HSG.

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Hysterosalpingography for Recurrent Abortion

Table I. Uterine cavity abnormalities diagnosed by HSG and Hysteroscopy.

HSG				Hysteroscopy		
Findings	Number	Percent	Findings	Number	Percent	
Normal	50	86.2	Normal	42	72.4	
Abnormal	8	13.8	Abnormal	16	27.6	
	Asherman Syn. ¹	1	1.8	Asherman Syn.	3	5.2
	Endomet. Polyp ²	3	5.2	Endomet. Polyp	3	5.2
	Submuc. Myoma ³	2	3.5	Submuc. Myoma	4	6.9
	Septum	2	3.5	Septum	2	3.5
			Endometritis	4	6.9	

- 1 Asherman Syndrome
- 2 Endometrial Polyp
- 3 Submucous Myoma

Table II. Comparison of results.

	HSG	Hysteroscopy	Common in both
No. of Patients	50	42	37
Normal	50	42	37
Abnormal	8	16	3
Total	58	58	***

RESULTS

From 58 women, 48 (81%) had early, 3(5.2%) late

Table III. True and false results.

		Diseased	Healthy
HSG	Diseased	True Positive = 3	False Positive = 5
	Healthy	False Negative = 13	True Negative = 37

and 8(13.8%) early and late abortions (early and late abortions are defined as less than 12 weeks and equal to or more than 12 weeks, respectively). The mean age was 29 (19 -39), gravidity 4.3 (3-15), parity 0.36 (0-2), abortion 3.9 (3-15).

In HSG, there were 8 (13.8%) abnormal reports including 3 endometrial polyps, 1 Asherman syndrome, 2 submucosal myomas, 2 septate uteri and 50 cases were normal. There were 16 (27.6%) abnormal hysteroscopic examinations, three of which were similar to the HSG findings. Abnormal hysteroscopy results were 3 endometrial polyps, 3 Asherman syndromes, 4 submucosal myomas, 2 septate uteri, 4 endometritis cases, and 42 cases were normal (Table I). Of three common diagnoses, two were submucous myomas and one Asherman syndrome. Five abnormal HSGs had normal hysteroscopic findings. On the other hand, all of the abnormal cases detected by hysteroscopy had normal HSG findings except for three cases (Table II). Hence, the sensitivity of HSG was 18.75% and the specificity was 82.2% in detecting intrauterine pathologies. The false-positive rate was 17.8% and the false-negative rate 81.25% (Table III). The positive predictive value was 37.5% and the rate of similar findings 18.7%.

DISCUSSION

Congenital or acquired uterine defects remain an im-

portant consideration in the investigation of recurrent pregnancy loss. When repeated first or second trimester losses, preterm delivery or abnormal fetal presentation are documented, the suspicion of a structural uterine abnormality should be high. The optimal way of diagnosis for uterine pathology is still a matter of considerable controversy.⁶ Hysterosalpingography (HSG) was exclusively used for years in the investigation of the uterine cavity. Recently, in parallel to huge developments and advances in endoscopy in various disciplines of medicine, diagnostic hysteroscopy seems to be emerging as a possible main tool for the diagnosis of uterine cavity abnormalities. This is of particular importance in habitual aborters when the consistent ability to carry the pregnancy may be directly related to such uterine pathologies.

In our study, the sensitivity of HSG was 18.75% and specificity was 82.2%. The false positive and false negative results by HSG were 17.8% and 81.25%, respectively, and positive predictive value for HSG was 37.3%.

A false positive of 38.3% and 33% was reported by Ariei et al.⁹ and Ragni et al.,⁸ respectively. An extremely high false negative proportion of HSG (81.25%) in our study was higher than that reported by others (28.3% and 44%).^{5,6}

Overall, the positive predictive value for HSG was 37.5% which is similar to other reports (44% and 31%).^{7,8} In our series a similarity of 18.7% between HSG and hysteroscopy findings in a group of 58 patients was obtained, but reports by Kessler and Ariei showed 54.3% and 31%, respectively.^{4,9}

It seems that with such low sensitivity and high false negative and low positive predictive value for HSG, the use of HSG as a good tool for the diagnosis of intrauterine pathology in habitual abortion should be questioned.

Hysterosalpingography findings may be misleading, and poor technique in performing HSG can be responsible for the errors in interpretation of the radiography films. Air bubbles, mucus and debris can mimic filling defects and poor placement of the canula can cause intravasation. An excessive amount of contrast medium in the uterus can obliterate shadows caused by intrauterine adhesions.

In accordance with other findings, we believe that although HSG could be a screening method in the diagnosis of intrauterine pathology, hysteroscopy must be used as an adjunct for the definitive diagnosis of this abnormality, because it usually gives a more accurate picture. Both procedures should be complementary to each other. The use of

them together increases their diagnostic value and gives a more correct estimate of uterine and tubal status.^{14, 15, 16, 17}

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