

A Comparison of Hysterosalpingography and Laparoscopy in the Investigation of Infertility

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A comparative study of hysterosalpingography (HSG) and laparoscopy in the investigation of infertility is presented. Laparoscopy with tubal-patency test was performed in 21 patients previously investigated by HSG. Results of these tests showed agreement for tubal patency in 61.9 %, and for diagnostic evaluation in 68.6 % of the cases. The authors conclude that laparoscopy does not replace HSG, but completes it.

Introduction

Evaluation of tubal dysfunction is of obvious importance in the investigation of female infertility, since tubal factors are believed to be responsible for 35-50 % of infertile marriages (7).

Major contributions in this field were made by the introduction of carbondioxide insufflation, HSG and gynecologic endoscopy.

With great technical improvement, laparoscopy has recently

become popular in the diagnostic evaluation of female infertility, and has led to the suggestion that HSG should be largely supplanted by this endoscopic approach.

In this context, we thought it appropriate to report a comparative study of HSG and laparoscopy in 21 cases of involuntary primary and secondary infertility of at least one year duration.

Materials and Methods

During the period of January 1, 1978 through September 1978, HSG and laparoscopy were performed on 21 infertile patients who had previously undergone HSG for diagnostic purposes.

HSG was performed in the late proliferative phase, using the water-soluble radiopaque (Lipiodol) in this procedure. Manometric control and analgesia was not routinely used.

Laparoscopy with the single puncture technique was carried out under both local and general anaesthesia. The Rubin cannula was inserted into the cervical canal and used to manipulate and give Methylene Blue solution for tubal patency test.

Records of HSG and laparoscopy were codified and examined independently with particular deference to the uterine tubes. Results obtained by both techniques were compared and recorded.

Table I : Comparison of results of HSG and laparoscopy.

HSG	LAPAROSCOPY					Total
	Normal	Tubal occlusion	Peritubal adhesion	Tubal occlusion and peritubal adhesion	Failure in Laparoscopy	
Normal	7	—	1	—	1	9
Tubal occlusion	—	5	—	4	—	9
Peritubal adhesion	—	—	—	2	—	2
Tubal occlusion and peritubal adhesion	—	—	—	1	—	1
Total	7	5	1	7	1	21

Table II : A comparison of level of the tubal occlusion by HSG and laparoscopy.

HSG	LAPAROSCOPY					Total
	Proximal occlusion	Distal occlusion	Mixed occlusion	Patent tuba	Failure in laparoscopy	
Proximal occlusion	2	1	—	—	—	3
Distal occlusion	—	2	1	—	—	3
Mixed occlusion	1	1	2	—	—	4
Patent tuba	—	2	—	8	1	11
Total	3	6	3	8	1	21

Table III. Additional pathological findings in infertile patients.

Laparoscopic diagnosis	Number of patients			Total
	Diagnosed by laparoscopy	First diagnosis changed	First diagnosis confirmed	
Pelvic tuberculosis	—	2	—	2
Diffuse omental adhesion (intraabdominal + adnexal)	1	—	—	1
Hypoplastic uterus	—	—	2	2
Myoma uteri	1	—	—	1
Ovarian cyst	—	—	1	1
Ruptured cyst	—	1	—	1
Hydrosalpinx	4	—	1	5
Total	6	3	4	13

Results and Discussion

A comparison of HSG and laparoscopy results are shown in Table I.

We obtained the same results with HSG and laparoscopy in 13 patients (61.9 %). A review of the literature on this subject, shows variations of figures between 46% (Maathuis) and 76% (Kierse) (2,5). The differences are generally explained by the use of different methods in research groups (2).

A comparison of the level of the tubal occlusion by HSG and laparoscopy is shown in Table II. We found same results in 14 patients as to the location of tubal occlusion (66.6 %).

Distal occlusion by laparoscopy and proximal occlusion by HSG were diagnosed in the same case. In HSG, these differences are due either to inadequate injection of the material, tubal spasm, or the different viscosity of the substances we used in HSG and laparoscopy (2). According to Sweeny, the spasm not only causes cornual block but also causes midtubal or distal obstruction (4).

Some authors reported the necessity of HSG for the determination of the block level, but others did not share this opinion.

Two cases of patent tuba and peritubal adhesions were diagnosed by HSG, but the diagnosis was tubal obstruction and adhesions by laparoscopy. The tubal obstruction was diagnosed by laparoscopy while the tuba was seen patent in HSG. A possible explanation of this may be that either the methylene blue escaped back into the vagina from the cervix, or the lipiodol used in the HSG produced inflammatory granuloma (2, 3).

Peritubal adhesions were first diagnosed in five cases by laparoscopy. HSG was invaluable in the diagnosis of the bilateral tubal obstruction and with the pelvic adhesion cases (2). On the other hand, laparoscopy gives more information on the location and anatomic relation between fimbria and ovary (2).

Additional pathologic findings in infertile patients are shown in Table III. Additional pathology was unknown in 9 patients (62.2 %) prior to laparoscopy. Unknown etiology in infertile cases by laparoscopy shows that the probability of pathological findings

is 58% according to Goldenberg and 76% according to Mc Dougall.

In conclusion, the usefulness of HSG is related to the following: easy application, agreeable to the patient, and less dangerous (2, 5).

The usefulness of laparoscopy is related to the following: not only the tubes but all other internal genital organs are examined, ovulation can be determined, sperm is taken from cul de sac, and it is the safest method for determination of the tubal structure and continuity (4, 6). On the other hand, laparoscopy carries a surgical risk and produces adhesions which are however, not of great importance.

While laparoscopy exhibits surfaces, HSG exhibits the lumens of tubes. Laparoscopy does not replace HSG but complements it (1, 7).

As a result, we believe that findings of laparoscopy are easier to interpret and more conclusive than those obtained by HSG. Both tests also provided valuable data on other factors affecting fertility (Table III).

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