

CRITICAL EVALUATION OF LAPAROSCOPY AND H.S.G. IN INFERTILITY

By

K. JAYAKRISHNAN

SUMMARY

Three hundred and sixty two patients who underwent Diagnostic Laparoscopy from 1983-1987 studied. Those patients who had hysterosalpingography were followed up with laparoscopic assessment of the findings and critically evaluated. Fifty six patients who had abnormal H.S.G. findings were followed up with laparoscopy. In 7 patients laparoscopy revealed no significant pathology. Tuberculosis was detected in 4 cases. Twelve out of 49 patients with pelvic pain had no pathology on laparoscopy. Endometriosis was detected in 37 cases. In our series 64 cases of endometriosis had normal H.S.G.

Introduction

Tubal factors account for 20% of all cases of infertility and 70% of these are incurable. Introduction of microsurgical techniques has revolutionised the approach to tubal surgery. The physiological function of the Fallopian tubes include gamete transport and maturation, providing the environment for fertilization and sustaining metabolic aspects of early embryonic development.

After a decade of extensive use of the laparoscope in tubal infertility it is now possible to assess its true value, vis-a-vis hysterosalpingography (HSG) evaluates intrauterine lesions and the endosalpinx, and localises the precise point of tubal obstruction. It is important to differentiate between valve effects, tubal spasms and true obstruction in salpingography.

From: SAT Hospital, Medical Colltge, Trivandrum.

Accepted for publication on 31-3-89.

Material and Methods

362 patients who underwent diagnostic laparoscopy from 1983-1987 were taken up in this 5 year old study conducted at Sree Avittam Tirunal Hospital, Medical College, Trivandrum. Those patients who underwent H.S.G. were followed up with laparoscopic assessment of the findings and critically evaluated.

Out of 362 patients, primary infertility accounted for 228 (62.98%) and secondary infertility for 37 patients (7.45%). Indications for laparoscopy are given in Table I.

Assessment of Tubal patency

Tubal patency can be assessed by chromotubation. Terminal hydrosalpinges are easily identified, peritubal adhesions mapped, loculated spill caused by pelvic adhesions detected and other pelvic pathology assessed. Thus laparoscopy has very many advantages in the pre-operative assessment of

TABLE I
Indications of Laparoscopy in Infertility

a. Assessment of tubal patency without HSG	209	57.73%
after HSG	56	15.46%
b. for pelvic infection	26	7.18%
c. Suspected endometriosis	37	10.22%
d. Primary amenorrhoea	40	11.04%
e. Suspected ectopic	06	1.65%
f. Prior to tubo-ovarian surgery	02	0.55%
g. Miscellaneous	02	0.55%

pelvis. In the present study 209 (57.7%) patients underwent diagnostic laparoscopy for assessment of tubal patency alone. Patients with long standing infertility and those with suspected pelvic pathology are submitted for diagnostic laparoscopy first. Those patients with abnormal HSG findings are followed up with laparoscopic assessment prior to surgery.

Assessment of tubal patency after HSG

56 (15.46%) patients who had abnormal findings on HSG were followed up with laparoscopy. Some authorities advocate combined procedure of laparoscopy and HSG under general anaesthetic at the same time to reap the benefits of both techniques. Its use is recommended in selected cases only.

Prior to Laparotomy (Table II)

Pre-operative laparoscopy was done in 56 patients with findings of tubal pathology in HSG. In 7 patients (12.50%) laparoscopy revealed significant pathology when compared to HSG. In 7 patients (12.50%) Laparoscopic findings were normal when compared to HSG and in 17 patients (30.35%) both were abnormal. Israel and March (1976) carried out preoperative laparoscopy in a series of 155 patients with tubal occlusion and avoided laparotomy in 46% of cases, 27% had normal or marginally affected tubes and 18% were inoperable. Swolin (1977) and Gomel (1975) commented on the absolute importance of tubal preview in order to decide suitability for operation.

Prior to tubal reanastomosis

In the present series 6 patients were subjected to laparoscopic evaluation of the

TABLE II
Comparison of HSG with Laparoscopy

Total 56 cases		
Abnormal HSG findings	}	7
Normal laparoscopy findings		
		12.50%
Abnormal laparoscopy findings	}	7
Normal HSG		
		12.50%
Both abnormal		17
		30.35%

tubes prior to tubal reanastomosis. Only in 2 patients there was an excess of 5 cm of tube and they were subjected to reanastomosis. HSG will show only the point of occlusions. Laparoscopy is required to assess the suitability for reanastomosis, Betz (1978) states that both laparoscopy and subsequent reconstructive surgery should be attempted at a time when the woman wishes to have another child and has the best chance of success during first year of operation. In our set up it is ideal to perform the Pomeroy's method of sterilization at the isthmal portion of the tubes so that the chances of a successful reanastomosis are better.

Assessment following pelvic infection

In the present series in 26 cases (7.18%) of pelvic infection diagnostic laparoscopy was done. Out of 365 cases in 42 cases (11.60%) adhesions were between tubes ovaries and uterus, 6 cases (1.65%) between viscera and peritoneum and 38 cases (10.49%) had omental adhesions and 4 cases (1.10%) had evidence of tuberculosis. A previous tuberculosis involving the tubes and ovaries may have been missed. Gomel (1977) had 177 cases with both HSG and Laparoscopy and discovered six cases of undiagnosed genital T.B.

Assessment of pain and suspected endometriosis with infertility

12 out of 49 patients with pelvic pain had no pathology on laparoscopy. It is apparent that psycho-sexual problems may come into light only after a negative laparoscopy. Pelvic endometriosis still remains difficult to assess but laparoscopy has proved invaluable in diagnosis, evaluation and appraisal of the response to treatment. Endometriosis is often difficult to diagnose clinically and will escape detection

at HSG. In our series 64% of cases of endometriosis had normal H.S.G.

In the present series laparoscopy for suspected endometriosis was done in 37 cases (10.22%) Uterus showed endometriotic spots in 12 cases. Ovaries were involved in 17 cases and tubes were affected in 10 cases. Pouch of Douglas, rectum and other viscera were affected in 20 cases (54.05%).

Gabos (1976) demonstrated that 54% of his cases had normal hysterosalpingograms. Not all cases of endometriosis suffer from infertility. In one series 21% of women coming for laparotomy were found to have endometriosis, but in only 50% was infertility a factor, which suggests that it is a common coexistent condition. In those cases where there is a little scarring and patent tubes the patient may still fail to become pregnant. Betz (1978) states that removal of endometriotic implants in these cases results in 50% pregnancy rate.

Vaginal agenesis and ovarian failure

In the present series 40 (11.04%) patients accounted for laparoscopy done for primary amenorrhoea.

In most cases of primary ovarian failure a diagnosis may be made from chromosomal or hormonal evidence. In patients with XY Karyotype, laparoscopy may be helpful to locate the gonads. In primary or secondary ovarian failure, a decision for induction with gonadotrophins can be reached by taking a biopsy from the ovary. Corson (1977) had advocated laparoscopy for all cases of vaginal agenesis so that vaginoplasty may be performed to allow conception in those cases seen to have normal ovaries, tubes and uterus.

Discussion

Any evaluation of laparoscopy in case of infertility must be based on comparison

with HSG. HSG helps evaluation of intra uterine lesion such as septa, polyps, fibroids and synechia. The other most important point in favour of HSG is its use in the evaluation of the endosalpinx and opportunity to localize the precise point of tubal obstruction. If the endosalpinx is smooth the results of tubal surgery are 4-5 times worse than when rugae can be seen. Dilatation of any part of the tube also shortens the odds on successful surgery.

It is important to try and differentiate between valve effects, tubal spasms and true obstruction in salpingography, though these do not seem to present a problem with laparoscopy. There are real pitfalls waiting to trap the clinician who solely depends on laparoscopy or HSG. In Gomel's series (1977) of 300 patients there was complete agreement between two procedures in 177 cases. In 20 cases in which HSG was abnormal, subsequent laparoscopy showed a normal pelvis with patent tubes. In 42 patients with a normal HSG, laparoscopy showed significant pelvic pathology.

The commonest radiological error was seen to occur when HSG revealed apparently normal spill of dye, but laparoscopy demonstrated tubal phimosis or mild hydro-salpinx with pin head sized opening at distal end.

Incorrect diagnosis of occlusion at utero-tubal junction is a commonly observed

failure of salpingography (Meathusetal, 1978; Moghissi and Sim, 1975) and is due to a valve mechanism. Peritubal adhesions are often missed or misdiagnosed by HSG.

The differences in results obtained by HSG and laparoscopy may be explained by variation in techniques of anaesthesia, the viscosity of the radio-opaque medium, tubal spasm and errors in interpretation.

In comparison with HSG laparoscopy is found to have many diagnostic advantages but despite these, it is felt that the two procedures should be regarded as complementary rather than alternatives.

References

1. Betz, G.: Urological Clinics of North America, 5(3): 483-502, 1978.
2. Corson, S. L.: Journal of Reproductive Medicine, 18: 127, 1977.
3. Gabos, P.: Fertility and sterility, 27: 238, 1976.
4. Gomel, V.: Reconstructive surgery of the oviduct journal of Reproductive medicine, 18: 251, 1975.
- 4a. Israel, R. and March, C. M.: Am. J. of Obstet. Gynec., 125: 969, 1975.
5. Maathuis, J. B.: Fertility and Sterility, 23: 428, 1972.
6. Moghissi, K. S. and Sim, G. S.: Fertility and sterility, 26: 1178, 1975.
7. Swolin, K.: Laparoscopy as an operative tool in female sterility. Journal of Reproductive Medicine, 19(3), 167, 1977.