

A COMPARATIVE ANALYSIS OF DIAGNOSTIC LAPAROSCOPY AND HYSTEROSALPINGOGRAPHY IN CASES OF INFERTILITY

By

M. SINGH, R. MISRA, R. BAVEJA AND J. NAITHANI

SUMMARY

One hundred and twenty seven cases of primary and secondary infertility were subjected to hysterosalpingography and diagnostic laparoscopy. It was seen that diagnostic laparoscopy was a better evaluator of the infertile patient, but could never be considered as a replacement for the preliminary hysterosalpingography procedure which gave lesser diagnostic information, but which was invaluable for the planning of tubal and uterine plastic reconstructive procedures.

Introduction

Laparoscopy is a modern tool for the study of infertility by direct visualization of the abdominal cavity. Laparoscopy has therefore offered the gynaecologist the means, without resorting to laparotomy, for elucidating many equivocal conditions intra-abdominally and for carrying out many minor surgical procedures with minimal trauma and post operative discomfort.

The problems of infertility are many fold. The simpler investigations are often enough to bring about a conception in some cases whereas at times, even extremely expensive and tedious procedures are a dismal failure.

Therefore, for a thorough evaluation it is imperative that all procedures be carried out systematically and meticulously because the usefulness of each procedure is, in its own right, confirmatory of the findings of one procedure often complement-

ing, but at times also negating each other. Thus Parekh and Arronet (1972) showed from detailed studies, that laparoscopic findings were significantly different from the age old Rubin's test. Sheth and Krishna (1979) showed that laparoscopic findings were revealing and at times, proved hysterosalpingographic findings shockingly wrong.

However, to think that laparoscopy has replaced the older investigations for infertility, may be a mistake, because in all probability, this procedure has come to us as a supplement not as a replacement, for the other more time consuming, but equally important procedures.

Methods and Materials

To investigate and to evaluate laparoscopy versus hysterosalpingography in the study of infertility we took up 127 patients of primary and secondary infertility from the Swarup Rani Nehru and Kamala Nehru Memorial Hospitals affiliated with the Moti Lal Nehru Medical College, Allahabad. In all patients both in-

*From: Department of Obstetrics and Gynaecology, Moti Lal Nehru Medical College, Allahabad.
Accepted for publication on 28-1-88.*

vestigations were done. Hysterosalpingography was done, six to twelve months before the laparoscopic procedure. Both procedures were done according to existing standard techniques and laparoscopy was done by the single puncture method.

Observations and Discussion

The diagnostic discrepancies seen in the tubal factor in both the procedures may be due to bad technique, inadequate filling of the uterus, by usage of a defective Rubin's cannula (Here the Foley's Balloon Catheter gives excellent results), and the performance of these investigations by inexperienced personnel who may fail to utilize their expertise to sift different anatomical aberrations and may fail to recognise a variety of clinical syndromes.

Hysterosalpingography detected 22 bilaterally patent tubes whereas on diagnostic laparoscopy only 8 of them were found patent. This may probably be due to the dye used in hysterosalpingography, being thicker in consistency and so being more capable of breaking down some flimsy adhesions. Also the false negative results may be due to kinking or spasm of the tubes during the laparoscopy procedure, or rarely due to inadvertent infection introduced during hysterosalpingography, which may have later resulted in blockage of the tubes by the time laparoscopy was undertaken. Also inadequate anaesthesia and inadequate positioning of the patient during laparoscopy may also be responsible for the false results. A Foley's catheter introduced vaginally into the uterus is the ideal instrument for pushing in the dye. When the Rubin's cannula is used, it was seen that the dye leaked out partially and so this gave false negative results.

On hysterosalpingography 85 cases showed bilateral tubal occlusion but on

laparoscopy there were only 68 cases of bilateral occlusion. The 17 false positive cases on hysterosalpingography may have been due to:

1. Inadequate filling of the uterus and tubes with the dye with leakage into the vagina because of faulty instruments as has just been mentioned.

2. Because some cases of tubal blockage seen on hysterosalpingography can be manipulated under vision and this can sometimes relieve kinks and the finer adhesions can also be broken under vision.

Diagnostic laparoscopy detected less of beading of the tubes than hysterosalpingography because hysterosalpingography is a better evaluator of the endosalpinx than diagnostic laparoscopy.

Hysterosalpingography could not detect 20 cases of adhesions because it is quite understandable that they will be better visualized by direct vision rather than being just speculations on an X-ray film.

The uterine findings show that subserous myomata can only be detected by laparoscopy whereas submucous myomata and uterine synechiae can only be detected by hysterosalpingography.

There was a marked discrepancy in the recognition of unicornuate uterus as laparoscopy did not show any unicornuate uterus while hysterosalpingography showed 3. This has been explained by the fact that all three could have been septate uteri whereas on hysterosalpingography the dye may have gone into only one half of a double uterus. Here again in both the above examples we find that both the diagnostic aids supplement each other and result in a better evaluation of the infertile patient. However, considering the ovarian, pelvic, peritoneal and adnexal findings, we see from Table I that a host of additional information can be received

by a diagnostic laparoscopy but none of these things could even be surmised, after a hysterosalpingography whereas certain details seen on hysterosalpingography could never be seen by a laparoscopic evaluation.

TABLE I

Shows the Incidence of Primary and Secondary Infertility in Our Series

Type of cases	Number	Percentage
Primary infertility	96	75.59
Secondary infertility	31	24.41
Total	127	100.00

To conclude, therefore, the diagnostic laparoscopy proved the better evaluator and proved more accurate and informative than the hysterosalpingographic evaluation but certain anatomical aberrations were much better seen by hysterosalpingography like beading of tubes, exact site of the tubal blockage, sub-mucous fibroids and intrauterine synechiae.

It is generally accepted that the results of tubal surgery are disappointing and the more critical the analysis of such results, the more disappointing they appear. There is every need therefore to ensure, that before embarking upon tubal plastic procedures both tubes are certainly blocked, the site of blockage is known and the pro-

TABLE II

Shows a Comparison and Diagnostic Discrepancies Between the Findings Obtained by Diagnostic Laparoscopy and Hysterosalpingography

S. No.	Findings	HSG No.	Diagnostic Lap. No.
1.	Tubal		
	1. Bilateral tubal patency	22	8
	2. Unilateral occlusion	12	4
	3. Bilateral occlusion	85	68
	4. Bilateral hydrosalpinx	4	5
	5. Unilateral hydrosalpinx	6	19
	6. Beading of tubes	14	11
	7. Elongation and tortuosity	2	1
	8. Adhesions (Peritubal)	20	40
2.	Uterine		
	1. Bicornuate uterus	3	4
	2. Unicornuate uterus	3	0
	3. Fibromyoma		
	a. Subserous	0	3
	b. Submucous	2	0
	4. Interuterine synechiae	1	0
3.	Ovaries		
	1. Streak	0	2
	2. Ovulating	0	35
	3. Polycystic	0	9
	4. Thickened tunica	0	3
	5. Endometriosis	0	3
4.	Pelvic endometriosis	0	8
5.	Tuberculous lesions	0	11
6.	Inflamed uterus	0	2
7.	T.O. Mass	0	17

cedure to be adopted is outlined and planned from before. Also the time expected to be taken for the procedure should be adjusted in the day's programme well before to avoid last minute 'Hurry scurry' surgery, which could prove disastrous for such a delicate plastic procedure.

In the days before diagnostic laparoscopy most of us may have at times, opened an abdomen for tuboplasty and found to our dismay, a tubercular abdomen with massive inoperable adhesions. Thus knowledge obtained on laparoscopy of pelvic tuberculosis, pelvic inflammation and endometriosis is invaluable.

Conclusion

Therefore we can rightfully state that hysterosalpingography is a very important

preliminary investigation in cases of infertility, as it is easy to perform, carries a low complication rate and at the same time, provides valuable details of intra-uterine and intra-tubal pathology. It also proves to be an invaluable supplement to the laparoscopic evaluation, which though dangerous in the hands of beginners, has however, proved a superior confirmative procedure where patency of the tubes is doubtful or where ovarian, adnexal and pelvic factors may be the major cause of the infertility.

References

1. Parekh, M. C. and Arronet, G. H.: Clinical obstetrics and Gynaecology, 15: 41, 1972.
2. Sheth, S. S. and Krishna, U. R.: The Journal of Obstetrics and Gynaecology of India, 29: 511-515, 1979.