



Role of Hystero-Laparoscopy (DHL) in Management of Infertility Cases

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Accepted on: 10-04-2015; Finalized on: 30-04-2015.

ABSTRACT

The objective of this study is to evaluate diagnostic hysteroscopy with chromo-perturbation as a major diagnostic procedure in a group of selected cases of female infertility (both primary and secondary) and also perform definitive surgery in the same sitting. This study has been conducted in Hi-Tech Medical College, Bhubaneswar on 100 cases of primary and secondary infertility cases from the period October 2012 to October 2014 in the Department of Obstetrics & Gynecology. Out of 100 female infertility cases 60 were primary and 40 were secondary. All the abnormalities detected during the procedure were noted and definitive surgery performed in the same sitting and results analyzed. Total No. of cases diagnosed in primary infertility is 47 out of 60 and 34 out of 40 in secondary infertility i.e. 81 cases could be diagnosed out of total 100 cases. Out of 81 cases therapeutic surgery could be successfully performed in 56 cases out of total 100 cases, i.e. 56% cases could be finally managed by this procedure alone. Diagnostic hystero-laparoscopy (DHL) combined with chromoperturbation seems to be the most important mode of intervention during the process of management in female infertility cases.

Keywords: Hystero-laparoscopy, Female infertility

INTRODUCTION

Though there is no unanimous definition it is generally agreed that a woman of reproductive age not achieving clinical pregnancy after 12 months of unprotected vaginal sexual intercourse should be investigated for infertility.

If the age is more advanced the treating physician should be more vigilant to advise the non-invasive tests at the earliest opportunity. Generally, diagnostic laparoscopy and hysteroscopy are not a part of initial infertility evaluation.¹

It is seen that most of the tests like USG (trans-abdominal and vaginal), HSG are likely to miss many intra-abdominal lesions like adhesion, endometriosis, exact ovarian pathology, tubal conditions which can be easily and demonstrably visible by laparoscopy.

Congenital anomalies of reproductive system are associated with high rate of infertility.²

Additionally in the same sitting definitive surgical procedures can be performed like removal of endometrial polyp, septal resection during hysteroscopy, adhesiolysis, ovarian drilling, ovarian cystectomy, myomectomy, removal of sub serous fibroid during laparoscopy.³

Chromoperturbation may be having hydro-tubation-like effects to clear out flimsy intra-tubal and peri-fimbrial adhesions not only in tubes but also in the endometrial cavity and help in the fertilization process restoring ciliary activity in the tubal mucosa and tubal peristaltic movement in early cases of tubal infection.

MATERIALS AND METHODS

Out of all infertility cases who attended Hi-Tech Medical College from October 2012 to October 2014 only the female infertility cases (both primary and secondary) were selected after basic investigations like seminal fluid analysis, CBC, ESR & Mx test, hormonal assays like T3 T4 TSH, Prolactin, blood sugar, trans-abdominal USG abdomen and pelvis for female partners along with HIG, VDRL, Hbs Ag, done on the 1st day of their visit or on the next day. 100 cases of female infertility (60 primary and 40 secondary) were selected basing on the agreement of the couples who would come for all the tests as per the schedule of 5 subsequent visits and the male infertility cases basing on their seminal fluid analysis report were excluded.

All the 100 patients included in the study group were in the age group ranging from 20-40 years with h/o infertility for 2 to 10 years and also more than 10 years with different socio-economic status and different parity (P₁ P₂ & P₃) for secondary infertility.

During the 2nd schedule visit (on 2nd/3rd day of menstrual cycle) assays like FSH, LH, Estradiol, AMH & TVS for antral follicular count is done. On the 3rd visit (6th-10th day of menses) repeat TVS and Sonohysterogram done. On 4th visit D & C done to study the endometrium on 21st-22nd day of menstruation. On the 5th schedule of visit (1-2 days after menses are over the next cycle) HSG is done. The 6th and final visit is advised 3-4 days after the HSG so that Hystero-laparoscopy with chromoperturbation is done, usually between 10-14th day of cycle. In this study only



the observations of the last visit findings are analysed and discussed.

The instruments used were those of KARL STORZ Endoscopy India Pvt. Ltd. and Johnson & Johnson.

For chromopertubation HSG cannula with a tapering end with screw to fit into the cervical canal and 10ml disposable syringe to inject methylene blue were used.

Observation

Abnormalities started to be encountered with insertion of the laparoscope and penumoperitoneum to visualization of peritoneum, pelvic ligaments, uterus, tubes, ovaries while doing laparoscopy; uterine cavity by hysteroscopy, tubal patency and visualization of tubes by chromopertubation.

Minor adhesions involving omentum were adhesiolysed, noted but were not taken into account. But major degree of pelvic adhesions, tubal structural defects like short and thickened tubes were taken to account.

Size of the uterus with irregular bulging, sub serous fibroids, adenomyosis suggestive of uterine factors were noted. Features suggestive of endometriosis with or without tubal blockage were noted. PCO, ovarian cysts, endometriotic cysts, hydrosalpinx were noted.

Similarly, congenital defects of the uterus with septate uterus, bicornuate uterus, endometrial polyps, uterine synechia were noted while doing hysteroscopy (Table-1).

PCO, endometriosis, congenital defects of uterus were more common in primary than the secondary infertility cases (15 out of 60 or 25%, 8 out 60 in 13%, 6 out of 60 or 10% in comparison to 8 out of 40 or 20%, 3 out of 40 or 7.5%, nil out of 40 respectively).

Adenomyosis, Hydrosalpinx, tubal blockage, endometrial polyps, Asherman's Synechia are more common in the

secondary infertility group compared to primary infertility group (2 in 40 or 5%, 3 in 40 or 7.5%, 7 out of 40 or 17.5%, 3 in 40 or 7.5%, 3 in 40 or 7.5% as against 1 is 60 or 1.7%, 1 in 60 or 1.7%, 4 in 60 or 7%, 2 in 60 or 3.5%, nil in 60 respectively). (Table-1) Single defects could be detected in 41 cases of primary infertility (68%) as compared to 22 cases of secondary infertility (55%). Multiple (two) defects could be detected in 6 cases of primary infertility (10%) as compared to 12 cases of secondary infertility (30%) (Table-2 & 3).

In 47 cases out of 60 primary infertility cases (78%) either single or multiple defects could be detected. In 34 out of 40 secondary infertility cases single or two defects were detected (85%).

In 81 cases out of total 100 cases (81% of cases) single or multiple (two) defects could be detected by DHL added with chromopertubation (Table-3).

The multiple (two) abnormalities detected were major degree of pelvic adhesion with endometriosis, leiomyoma with polyp, leiomyoma with PCO, endometriotic cyst with adhesion, Hydrosalpinx with PCO and hydrosalpinx with adhesion (Table-2).

Simultaneous surgical procedures either by laparoscopy or by hysteroscopy were performed namely adhesiolysis, ovarian drilling, ovarian cystectomy, myomectomy, removal of subserous fibroid, fulguration of endometriotic lesions, salpingostomy, polypectomy and synechia release in 30 cases of primary infertility and 26 cases of secondary infertility (50% and 65% of cases respectively).

Total 56 cases out of 100 cases (56%) underwent definitive surgical interventions in the same sitting. (Table-4). No patient required more than 48 hours of hospitalization. Except mild abdominal pain there was no case of any other complication.

Table 1: Exact No. of Pathology Detected

S. No.	Exact Abnormality detected during Laparoscopy, Hysteroscopy & Chromo Perturbation	Primary Infertility (n=60)	Secondary Infertility (n=40)	Total
1.	Intra-peritoneal adhesion of minor degree not involving pelvic structures which could be easily adhesiolysed.	2	4	6
2.	Major degree of adhesion involving pelvic structures which called for extensive adhesiolysis to free the tubes, uterus and Ovaries	4	5	9
3.	Tubal structural defects with minor variation with doubts regarding previous infection like short, thickened tubes and ease with which normal tubes can be manipulated lacking.	2	3	5
4.	PCO (affecting both ovaries)	15	8	23
5.	Ovarian cyst (Unilateral)	1	1	2
6.	Bilateral Ovarian cyst			
	a) Simple	1	0	1
	b) Endometriotic	2	1	3
7.	Subserous fibroid with peduncle	1	1	2
8.	Subserous Fibroid in the uterine body-single, sessile	2	2	4
9.	Features suggestive intra-mural fibroid (corelated with USG) & Adenomyosis	1	2	3
10.	Multiple Fibroid in the body of uterus (2-4 in no.)	2	1	3



11.	Features of Endometriosis (with tubal block)	5	3	8
12.	Features of Endometriosis (without tubal blockage)	3	0	3
13.	Unilateral tubal block (all are positive for criteria in SI. No. 3)	2	2	4
14.	Bilateral tubal block (all are positive for criteria in SI. No. 3)	2	5	7
15.	a) Hydrosalpinx (Unilateral)	1	0	1
	b) Hydrosalpinx (Unilateral) with h/o salpingectomy for tubal ectopic.	0	1	1
	c) Hydrosalpinx (bilateral)	0	2	2
16.	Congenital defects of uterus seen by hysteroscopy	6	0	6
17.	Endometrial Polyp seen by hysteroscopy	2	3	5
18.	Asherman's uterine synechia	0	3	3
19.	By laparoscopy with Chromopertubation			
a.	Unilateral hydrosalpinx with ipsilateral tubal blockage	1	0	1
b.	Unilateral hydrosalpinx with no tubal blockage	0	1	1
c.	Bilateral hydrosalpinx with bilateral tubal blockage	0	2	2
	Total No. of Abnormalities seen	53	46	99

Table 2: Cases with Multiple (two) defects detected by Hystero-laparoscopy

S. No.	Abnormalities detected	Primary Infertility (n=60)	Secondary Infertility (n=40)	Total
1.	Major degree of pelvic adhesion + intra-uterine adhesion	1	3	4
2.	Interamural fibroid/Adenomyosis with fibroid polyp	1	2	3
3.	Intramural fibroid with PCO	1	2	3
4.	Adenomyosis with PCO	1	2	3
5.	Endometriotic cyst with adhesion	2	1	3
6.	Hydrosalpinx with PCO	-	1	1
7.	Hydrosalpinx with major degree adhesion	-	1	1
	Total	06	12	18

Table 3: Table showing No. of abnormal findings and number of cases detected

S. No.	Abnormalities detected	Primary Infertility (n=60)	Secondary Infertility (n=40)	Total
1.	Total No. of abnormalities detected during DHL	53	46	99
2.	No. of case with single abnormality detected	41	22	63
3.	No. of cases where multiple (two) abnormalities detected	06	12	18
4.	No. of cases where single or two abnormalities detected	47	34	81
5.	% of abnormalities identified	78%	85%	81%

Table 4: Different Laparoscopic / Hysteroscopic therapeutic procedures done in the same sitting.

S. No.	Surgical Procedure	Primary Infertility (n=60)		Secondary Infertility (n=40)		Total No. with %age	
1.	Adhesiolysis	4/4	100%	5/5	100%	9/9	100%
2.	Ovarian drilling	10/15	66.6%	7/8	86%	17/23	73%
3.	Ovarian Cystectomy	3/4	75%	2/2	100%	5/6	83%
4.	Myomectomy	1/2	50%	1/2	50%	2/4	50%
5.	Removal of Subserous Fibroid	1/1	100%	1/1	100%	2/2	100%
6.	Fulguration of Endometriotic sites	8/8	100%	3/3	100%	11/11	100%
7.	Salpingostomy (in unilateral Hydrosalpinx)	1/1	100%	1/1	100%	2/2	100%
8.	Hysteroscopic Polypectomy	2/2	100%	3/3	100%	5/5	100%
9.	Synechia release	0	-	3/3	100%	3/3	100%
	Total Cases	30/37	81%	26/28	92%	56/65	86%



DISCUSSION

Godinjak Z, Idrizbegovic E did simultaneous laparoscopy and hysteroscopy in 360 infertile cases and found tubal occlusion in 8%, pelvic adhesion in 11%, myomas 11%, Endometrial polyp 7%, Asherman syndrome in 0.8%, uterine anomalies in 5% cases³. The incidence of postoperative complications with laparoscopy is very low⁴.

The corresponding figures in this study is 11%, 9%, 12%, 5%, 3% and 6% respectively which is almost similar except the Asherman's synechia. Previous attempts at treatment in various stations doing dilatation and curettage most probably has made such an effect in these 3 cases. Tsuji in 2006 conducted diagnostic laparoscopy in 57 infertile females with normal HSG findings and he detected endometriosis, peritubal and/or perifimbrial adhesions in 63% and 9% cases respectively⁵.

Puri S, Jain D did a study of 50 infertile female patients comprising of 24 primary and 26 secondary infertility cases married between 8-9 years.

The most common pathology were PCO, endometriosis and tubal blockage as detected by laparoscopy. They concluded that this study demonstrates the benefit of laparohysteroscopy for diagnosis and therapeutic tool in patients with primary and secondary infertility⁶.

Kaminski P, Wieczorek K did a study on 106 primary infertility and 82 secondary infertility cases to evaluate hysteroscopy as a means of diagnosis and found that endometrial polyp, intra-uterine adhesions, subserous myomas and congenital uterine anomalies were found to be the etiological factors in 27%, 23%, 14% and 1.5% of the cases. He concluded that performing hysteroscopy in patients with sterility increases considerably the range of information's about reproductive organs. He detected a comparatively high rate of intrauterine adhesion (43%) in secondary infertility which is 7.5% in our study group⁷.

Hinckley MD, Milki AA did diagnostic hysteroscopy prior to IVF in 1000 consecutive cases and found that 22% cases had endometrial polyps, 3% had intra-uterine adhesions and concluded that a significant percentage of patients had uterine pathology detected by routine hysteroscopy that may impair the success of fertility treatment⁸.

The incidence of asymptomatic endometrial polyps in women with infertility has been reported to range from 10% to 32%⁹. A prospective study of 224 infertile women who underwent hysteroscopy observed a 50% pregnancy rate after polypectomy¹⁰.

CONCLUSION

Diagnostic hystero-laparoscopy is a safe and simple surgical procedure in female infertility cases in expert

hands combined with definitive therapeutic surgery in the same sitting.

The procedure along with chromopertubation should be offered in all tertiary health care centers for effective management of female infertility cases especially in whom all other tests like hormonal assays, routine tests including ESR, Mx, TVS and SIS, HSG and endometrial study have already been done. Endometrial study helps to reduce the unexplained etiological factors in infertility and to know the ovulatory factor.

The advantage is finding and pin-pointing the exact etiological factor/factors. Definitive surgical procedures like adhesiolysis, ovarian drilling, ovarian cystectomy, salpingostomy, myomectomy, polypectomy and release of uterine synechia can safely be combined together with DHL to increase the fertility rate at a short interval of time.

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Source of Support: Nil, Conflict of Interest: None.

