



Research Article

Role of Diagnostic Hysteroscopy and Laparoscopy in the Evaluation of Infertility

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Abstract

Background: Infertility is defined as failure to conceive even after one year of unprotected intercourse. Hysteroscopy is gold standard to evaluate infertility. Hysteroscopy is used to detect any tubal, ovarian and uterine pathology.

Methods: This prospective study conducted in our Department RNT Medical College, Udaipur. Women with primary/secondary infertility were included from September 2018 to September 2019; we included 50 women in this study.

Results: There were 50 patients in this study out of which 34 patients were of primary infertility and 16 were of secondary infertility. Forty percentage (40%) of women were of 26-30 year of age. 48% of patients were present with duration of infertility between 1-5 year. Ovarian pathology was seen in 21% of patients. In chromopertubation there was bilateral tubal blockage seen in 24% of patients.

Conclusions: Diagnostic laparoscopy is gold standard to diagnose infertility. It helps to diagnose pathology and at the same time intervention can be done.

Keywords: Infertility, Diagnostic laparoscopy, Hysteroscopy.

Introduction

Infertility is a major problem in between couples. It is defined as 1 year of unprotected intercourse without pregnancy¹. In normal couples 50% of population conceive after 3-4 months, 90% of couples should conceive within 12 months of unprotected intercourse². Male factor is responsible in 30-40%, females in 40-50%, both in 10% and unexplained in 10%. Infertility incidence now a day's increase due to life style

modification, obesity, older age, medical disorders and late marriages. In reproductive age group infertility affects 10-15% of couples³. Main cause of female infertility is ovarian and tubal factors; in 10% cause remains unexplained. Diagnostic laparoscopy is important tool in diagnosis of infertility. Diagnostic laparoscopy allows direct visualization of pelvic organs, so definitive diagnosis could make out⁴. Diagnostic laparoscopy is minimal invasive technique which

allows finding any tubal, ovarian and uterine pathology. At the same time therapeutic intervention can be performed like ovarian drilling, cystectomy etc. In some patients complications may arise like skin irritation, bladder infection and haematoma of abdominal wall may occur over incision site. Damage to bladder, bowel and uterus may occur. Diagnostic laparoscopy provides magnified view of internal pelvic organ⁵. After all screening test for infertility, diagnostic laparoscopy is performed to evaluate the cause and to decide definitive management of infertility.

Methods

An observational study was conducted in the department from September 2018 to September 2019. After taking written valid informed consent from the couples diagnostic hysterolaparoscopy was performed. In this study women with primary/ secondary infertility who have normal value of TSH, FSH, LH, SERUM PROLACTIN and husband having normal semen analysis were included. Patients with abnormal HSG were also included in this study, due to high probability of false positive results with HSG due to reflex vasospasm. Patient above 40 year of age with normal AMH level were also included in this study. Patients with relative and absolute contraindication to laparoscopy, patients with active tuberculosis and patients with cardiovascular disease were excluded from our study. After evaluation of female factors,

gynaecological examination, baseline investigations and pre anaesthetic examination patient were taken for hysterolaparoscopy procedure. Patient placed in lithotomy position, abdomen and perineum were cleaned and draped. Supraumbilical incision taken, 10 mm trochar and cannula inserted then trochar removed and laparoscope introduce, intra-peritoneal entry confirmed, CO₂ insufflations done, which pushes the abdominal wall away from internal organs and decreases the risk of injury to surrounding organs. If any abnormal finding were present, are noted. By hysteroscopy, tubalpatency was tested by methylene blue dye. Operative procedure like adhesiolysis, ovarian drilling and cystectomy was done. Intra-operative uterine, ovarian, tubal findings and patency of tubes were noted. Statistical analysis was done using descriptive analysis.

Results

In our study 36 cases were of primary infertility and 14 cases were of secondary infertility. In 82% of women periods were regular and in 18% of women periods were irregular. 40% women were of age group between 20-25 years, 34% women were of 26-30 years, 14% women were of 31-35 years, 10% were of 35-40 years and 2% women were of >40 years of age group. In our study 24 (48%) patients with duration of infertility between 1-5 years and 18 (36%) patients with duration of infertility is 6-10 years.

Figure 1: Prevalence of infertility in reproductive females

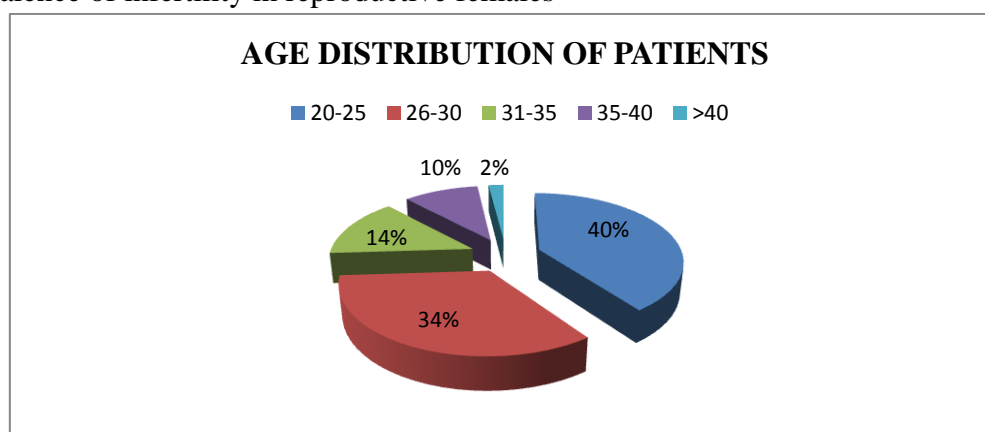


Table 1: Duration of infertility in years

Years of infertility	Primary infertility	Secondary infertility	Percentage
1-5 yrs	19	5	48
6-10 yrs	13	5	36
> 10 yrs	4	4	16

Chi-square = 2.533 with 2 degrees of freedom; P = 0.282

Table 2: Hysteroscopy findings in infertility

HYSTEROSCOPIC FINDINGS			PRIMARY INFERTILITY	SECONDARY INFERTILITY
NORMAL			26	10
CERVICAL STENOSIS			0	1
ENDOMETRIUM		SUBMUCOUS FIBROID	3	0
		ENDOMETRIAL POLYP	1	1
		INTRAUTERINE ADHESION	6	1
		ATROPHIC ENDOMETRIUM	4	1
		TUBERCULAR PATCHES	1	0
UTERUS	UTERINE SEPTUM		0	1
	OSTIA	Both ostia visualised	18	9
		Only one visualised	11	2
		Both not visualised	5	3

Hysteroscopy revealed a normal uterine cavity in 36(72%) patients. In 14% of patient's intrauterine adhesion was seen. In 6% of patients sub mucous fibroid was seen on hysteroscopy. In 4% of patients endometrial polyp, in 2% of patients cervical stenosis and in 2% of patients uterine septum was seen. On hysteroscopy, primary

infertility patients in which 18(53%) patients both Ostia are visualized, in 11(32%) patients only one Ostia seen and in 5(15%) both Ostia are not visualized. In secondary infertility 9(64%) patients both tubal Ostia are visualized, only one Ostia seen in 2 (14%) of patients and both Ostia are not visualized in 3(22%) of patients.

Table 3: Laparoscopy findings of fallopian tube

LAPAROSCOPY FINDINGS	PRIMARY INFERTILITY (N=36)	SECONDARY INFERTILITY (N14)	% (out of 50)	P Value LS
NORMAL	16	8	48	0.242 with 1 df; P = 0.623NS
ABNORMAL	20	6	52	
CONGESTION	3	1	8	0.195 with 1 df; =P=0.659NS
ADHESIONS	4	3	14	0.240 with 1df; P = 0.624NS
HYDROSALPINX	11	2	26	0.670 with 1df; =P =0.413NS
BEADED TUBES	1	0	2	0.245 with 1df; P =0.621
KINKING OF TUBES	1	0	2	0.245 with 1df; P =0.621

On laparoscopy in 48% of patients fallopian tube was normal. In 8% of patients tubal congestion was seen, in 26% of patients hydrosalpinx was

seen in 14% of patients peritubal adhesion was seen, in 2% of patient's beaded tubes and in 2% of patients kinking of tubes was seen on laparoscopy.

Table 4: Laparoscopy findings of uterus in infertility

FINDINGS ON LAPAROSCOPY	PRIMARY INFERTILITY (N=36)	SECONDARY INFERTILITY (N=14)	PERCENTAGE (Out of 50)	P Value LS
NORMAL	21	7	56	0.047 with 1 df; P = 0.829NS
ADHESION	3	2	10	0.352 with 1 df; P = 0.553NS
CONGESTION	9	4	26	0.010 with 1 df; P = 0.920NS
SUBSEROSAL FIBROID	0	1	2	0.245with 1df;=p 0.621NS
HYPOPLASTIC UTERUS	1	0	2	0.245with 1dfP = 0.621NS
RUDIMENTARY HORN	2	0	4	0.009with 1df; P = 0.923NS

Table 5: Laparoscopy findings of Ovary in Infertility

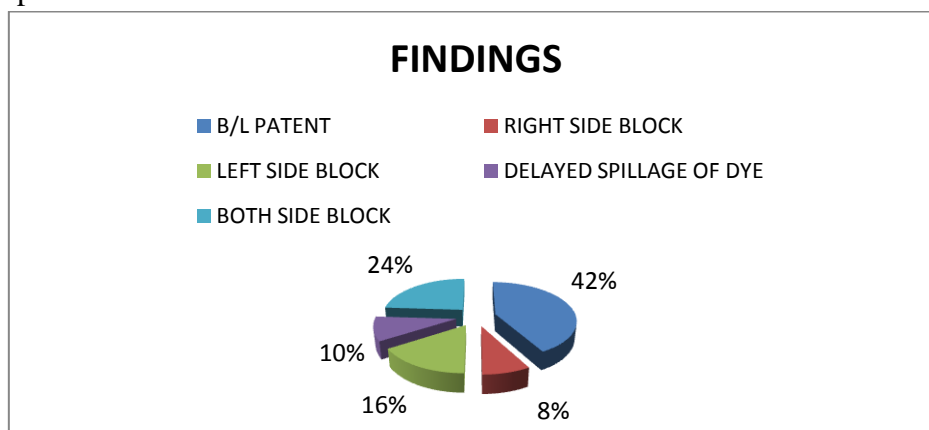
LAPAROSCOPY FINDINGS	PRIMARY INFERTILITY (N=36)	SECONDARY INFERTILITY (N=14)	PERCENTAGE	P Value LS
NORMAL	21	8	58	0.059 with 1 df; P = 0.808
ABNORMAL	15	6		
ADHESION	3	1	8	0.195 with 1df; P = 0.659
ENDOMETRIOMA	4	1	10	0.011with 1df;P=0.916
TUBOOVARIAN MASS	2	0	4	0.009with 1dfP= 0.923
OVARIAN CYST	5	3	16	0.050with 1df;P=0.823
PCOD	1	0	2	0.194with1df =0.659
DERMOID CYST	0	1	2	0.245with =1 df P = 0.621

On laparoscopy, 56% of patients were with normal uterus, in 26% of patient’s uterine congestion, in 10% of patient’s adhesions to uterus, in 2% of patients hypo plastic uterus and in 4% of patient’s rudimentary horn was seen.

On laparoscopy, in 58% of patients were having normal ovarian findings, in 16% of patient’s

ovarian cyst, in 10% of patient’s endometrioma, in 8% of patient’s adhesion to ovary, in 4% of patients tub ovarian abscess, in 2% of patients PCOD and in 2% of patient’s dermoid cyst was seen.

Figure 2: Chromopertubation test



In chromopertubation, 21(42%) of patients were having bilateral patency of tubes, in 12(24%) of patients both tubal blockage, in 8(16%) of patients left sided tubal blockage, in 4(8%) of patients

right sided tubal blockage, in 5(10%) of patients delayed spillage of dye was seen.

Intervention-in 8 patients we did adhesiolysis, in 5 patients ovarian drilling, in 4patients cyst aspiration and in 2patients cyst excision was done.

Discussion

Infertility is a worldwide problem affecting 8-12% of couples (50-80 million) during their reproductive lives⁶. In India prevalence of primary infertility is between 3.9-16.8%⁷. In today's busy world one of most common problem faced by gynaecologist is infertility. Conception depends on both partners so detailed history should be taken from both partners. Female factor is responsible for 40-50% of total cases in infertility, so detailed history and physical examination should be done. Laparoscopy is a gold standard to evaluate tubal factor of infertility. Hysteroscopy and laparoscopy is complimentary to each other.

In these study 40% cases of infertility is between 21 and 25 years of age. 2% patients age >40 years. Female age is the single most important determinant of spontaneous as well as treatment related conception, with a gradual decline in infertility especially after the age of 35 years⁸.

By laparoscopy, we can detect tubal patency, tubal motility, hydrosalpinx, peritubal adhesion, pcos, endometriosis, and PID .In our study primary infertility were 72% and secondary infertility is 28%, while in study by kimaya 70% were of primary infertility and 30% were of secondary infertility⁹.

In our study ovarian pathology detected by laproscopy is 21%. A study done by peri et al they detected ovarian pathology in 22% of cases¹⁰. Amogh et al found ovarian pathology in 22.2% of cases¹¹. In our study most common pathology is ovarian cyst followed by endometrioma.

In our study 14% of cases intrauterine adhesions were present. In 4% of cases endometrial polyp and in 2% of cases uterine septum was seen. Uterine septum causes deficient implantation so that hysteroscopic resection was done in one patient. In two patients hysteroscopic polpectomy was done. Removal of polyp improves fertility.

Congenital uterine anomalies associated with frequent abortions. In our study 8% patients have congenital anomaly.

In our study tubal pathology is most common cause of infertility seen in 52% of patients, in which hydrosalpinx are most common seen in 26% of patients. A study conducted by Philip oluleke et al show incidence of hydrosalpinx in 10.5% of patients¹². Peritubal adhesion seen in 14% of cases. Adhesions can cause infertility by impairing tubal ovum pickup, after adhesiolysis pregnancy rate improved.

Endometriosis found in 10% of patients in our study .while a study conducted by Godinjak Z et al show 14% and Parveen S et al show 8% incidence of endometriosis¹³.

On chromopertubation bilateral tubal blockage is seen in 24% of patients and 10% delayed spillage of dye was seen in our study. While comparison to study by Ashok k et al show bilateral block in 18% of cases and study by Yedidya Hovav show B/L tubal blockage in 26% of cases¹⁴.

Conclusion

Diagnostic laparoscopy is a gold standard to diagnose infertility. It helps to diagnose pathology and simultaneously intervention can be done. As more and more surgeons are well versed with laparoscopic training hence incidence of complications are reduced and it become a safe and cost effective in initial management of infertility.

Acknowledgements: Nil

Declarations

Funding: No funding sources

Conflict of interest: none declared

Ethical approval: RNT/STAT./IEC/2019/397

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