fortune Journals

Research Article

OBSTETRICS AND GYNECOLOGY RESEARCH

ISSN: 2637-4560

Laparoscopic and Hysteroscopic Evaluation of Female Infertility: A Tertiary Level Hospital Study in Bangladesh

Dr. Benozir Haque Panna[1*], Prof. Dr. Sehereen F. Siddiqua[2], Prof. Dr. Ferdousi Islam Lipi[3], Dr. Sharmin Abbasi[4], Dr. Prianka Poddar[5]

Abstract

Background: Infertility, one of the most common conditions confronting gynecologists, is defined as the inability to conceive after 1 year of regular unprotected sexual intercourse. In recent years, laparoscopy along with hysteroscopy has been considered a prominent tool in the diagnosis and treatment of female infertility. This study aimed to assess the effectiveness of the laparoscopic and hysteroscopic evaluation of female infertility.

Methods: This prospective observational study was conducted in the department of Gynaecology and Obstetrics Anwer Khan Modern Medical College, Dhaka, Bangladesh, during the period from 26 March 2021 to 21 July 2022. A total of 56 infertile female patients who underwent diagnostic laparoscopy along with hysteroscopy after basic infertility workup were enrolled in this study as study subjects purposively. All data were processed, analyzed, and disseminated by using the MS Excel program.

Results: Among the total participants, 64% were with primary and 36% were with secondary infertility. In laparoscopic diagnosis, out of 36 cases of primary infertility, adhesions were found in 14 (39%) patients, and out of 20 cases of secondary infertility, adhesions were found in 6 patients (30%). Through laparoscopy, uterine abnormalities like bicornuate uterus (n=2), unicornuate uterus (n=1), and fibroid uterus (n=1) were found in some cases of primary infertility group patients only. Hysteroscopic findings: 69.6% normal, 32.1% endometrial polyps, 30.4% adhesions, 17.9% chronic endometritis, 10.7% intrauterine septum, 7.1% T-shaped uterus, 5.4% submucous myoma.

Conclusion: In female infertility cases, primary infertility is the most common, and many women may not have adhesions. Laparoscopy combined with hysteroscopy is a safe, cost-effective diagnostic tool for evaluating the cause of infertility in women.

Keywords: Laparoscopic; Female infertility; Uterine abnormality; Tubal disease; Ovarian adhesions

Introduction:

Infertility is defined as the inability to conceive after 1 year of regular unprotected sexual intercourse [1]. Infertility is a problem of global proportion. The World Health Organization (WHO) estimates 60–80 million couples worldwide suffer from infertility [2]. Infertility varies across regions of the world and is estimated to affect 8–12% of couples' universal [3]. At present times, infertility is affecting approximately 9-16% of married couples [4]. Some patients conceive with more diagnostic procedures while others never do so despite running through a gamut of investigations. Medical science is

Affiliation:

[1]Assistant Professor, Department of Gynecology & Obstetrics, Popular Medical College, Dhaka, Bangladesh.

[2]Professor & Head, Department of Gynecology & Obstetrics, Anwer Khan Modern Medical College, Dhaka, Bangladesh.

[3]Professor, Department of Gynecology & Obstetrics, Popular Medical College, Dhaka, Bangladesh.

[4]Associate Professor, Department of Gynecology & Obstetrics, Anwer Khan Modern Medical College, Dhaka, Bangladesh.

[5]Residence Surgeon, Department of Gynecology & Obstetrics, Popular Medical College, Dhaka, Bangladesh.

***Corresponding author:**
Dr. Benozir Haque Panna, Assistant Professor, Department of Gynecology & Obstetrics, Popular Medical College, Dhaka, Bangladesh.

E-mail: dr.benozirsomc@gmail.com

Citation: Dr. Benozir Haque Panna, Prof. Dr. Sehereen F. Siddiqua, Prof. Dr. Ferdousi Islam Lipi, Dr. Sharmin Abbasi, Dr. Prianka Poddar. Laparoscopic and Hysteroscopic Evaluation of Female Infertility: A Tertiary Level Hospital Study in Bangladesh. Obstetrics and Gynecology Research. 7 (2024): 86-90.

Received: September 19, 2024
Accepted: September 23, 2024
Published: September 30, 2024

Dr. Panna BH, et al., Obstet Gynecol Res 2024
DOI:10.26502/ogr0165

constantly striving to achieve such techniques which would bring perfection in diagnosis. Laparoscopy, one of such achievements, offers a simple rapid, and safe way to assess and diagnose intra-abdominal diseases. The main causes of infertility are tubal disease like tubal obstruction, peri-tubal adhesions, periovarian adhesions, ovulatory disorders like cystic ovaries, uterine factors like fibroid uterus, endometriosis, tuberculosis, and male factor infertility [5]. Infertility can be divided into primary and secondary infertility. In primary infertility, no previous pregnancies have occurred, and in secondary infertility, a prior pregnancy although not necessarily a live birth has occurred [6]. Globally, most infertile couples suffer from primary infertility [7]. The female factors contribute most (40–55%) in the etiologies of infertility followed by malefactors (30–40%), both partners (10%), and unexplained (10%) [8]. The importance of diagnostic laparoscopy in female subfertility lies in patients with tubal, peritoneal factors, and uterine factors which may be missed on routine clinical examination and imaging modalities. It helps to evaluate uterine, tubal, and ovarian pathology with a single visual inspection in no time. Undetectable peri-tubal adhesions which often are not visualized by HSG can also be lysed during a laparoscopic examination. Uterine factors like congenital anomalies or fibromyoma of the uterus compressing the tubal lumen and ovarian factors like Stein Leventhal syndrome causing polycystic ovaries, endometriosis, periovarian adhesions are important in the causation of infertility and are best diagnosed by laparoscopy. Early stages of endometriosis are most difficult to diagnose by pelvic examination, but laparoscopy plays an important role in diagnosis. The laparoscope can be manipulated throughout the pelvic bases for a detailed inspection of the peritoneal surface thus providing an effective method of obtaining an early diagnosis in patients with suspected genital T. Diagnostic laparoscopy has been found safe and cost-effective in the initial management of young women with infertility [9]. Laparoscopy can identify milder degrees of distal tubal occlusive disease, pelvic and adnexal adhesions, and endometriosis that may adversely affect fertility [10]. Diagnostic laparoscopy also provides the clinician an opportunity for a therapeutic procedure at the time of diagnosis. The objective of this current study was to assess the effectiveness of the laparoscopic and hysteroscopic evaluation of female infertility.

Methodology

This prospective observational study was conducted in the department of Gynaecology and Obstetrics, Anwer Khan Modern Medical College, Dhaka, Bangladesh, during the period from 26 March 2021 to 21 July 2022. A total of 56 infertile female patients who underwent diagnostic laparoscopy after basic infertility workup were enrolled in this study as study subjects. Properly written consent was taken from all the participants before data collection. The whole intervention was conducted following the principles of human research specified in the Helsinki Declaration [14] and executed in compliance with currently applicable regulations and the provisions of the General Data Protection Regulation (GDPR) [15]. As per the inclusion criteria of this study, patients with primary or secondary infertility, normal semen analysis of the male partner, and patients with polycystic ovarian syndrome not responding to treatment were included. On the other hand, according to the exclusion criteria of this study, couples with male factor infertility, couples who had not lived together for 12 months, patients with absolute or relative contraindications for laparoscopy, cases with hyperprolactinemia or thyroid function abnormalities and vaginal causes for infertility were excluded. A predesigned questionnaire was used in data collection. Along with data regarding the diagnosis of female infertility, all the demographic and clinical information of the participants were recorded and analyzed. All data were processed, analyzed, and disseminated by using the MS Excel program.

Result

In this study, in total 56 cases of infertility were taken into consideration. Among those cases, 64% were with primary infertility and the rest 36% were with secondary infertility. In the primary infertility group, out of 36 cases, the majority (58%) were from the age group of 26- 30 years. Similarly, in the secondary infertility group, out of 20 cases, the majority were from the same age group. In laparoscopic diagnosis, out of 36 cases of primary infertility, adhesions were found in 14 (39%) patients, and out of 20 cases of secondary infertility, adhesions were found in 6 patients (30%). Peri tubal/per ovarian adhesions with both tubes blocked were present in 8 cases (23.0%) in the primary infertility group and 3 cases (15%) in the secondary infertility group. Besides these, in the primary infertility group, both tube patent and one tube patent cases were 2.5% (n=1) and 5.1% (n=2) respectively which were 5% (n=1) and another 5% (n=1) in another group respectively. Through laparoscopy, uterine abnormalities like bicornuate uterus (n=2) unicornuate uterus (n=1), and fibroid uterus (n=1) were found in some cases of primary infertility group patients only. According to macroscopic ovarian findings on diagnostic laparoscopy, out of 56 cases of primary infertility, 36 patients (64%) had normal ovaries. But in 3 (5%) cases: cystic ovary, in 4 (7%) cases: unilateral T.O. mass, in 10 (18%) cases: adhesions around the ovary were observed which were noticeable. Tuberculosis was found in 4 cases (11%) in primary infertility patients and 2 cases (9%) in secondary infertility patients. Primary infertility endometriosis was present in 3 cases (8%) and endometriosis was found in 1 case (4.5%) in secondary infertility patients. Fibromyoma was present in one case (3%) of primary infertility. The hysteroscopic findings among participants revealed that 69.6% had normal findings, 32.1% had endometrial polyps, and 30.4% had adhesions. Additionally,

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DOI:10.26502/ogr0165

chronic endometritis was present in 17.9% of cases, an intrauterine septum in 10.7%, a T-shaped uterus in 7.1%, and submucous myoma in 5.4% of cases. The ratio of abnormal findings was higher in the secondary infertility group than in the primary infertility group.

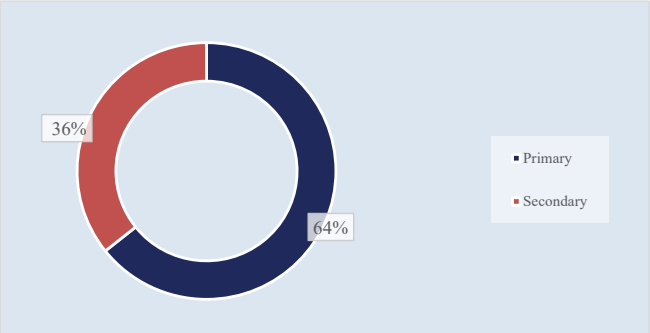

Figure I: Ring chart showed distribution of study patients according to the type of infertility (N=56)

Table 1: Distribution of study patients according to age groups (N=56)

Age groups	Primary		Secondary	
	n	%	n	%
21-25 Yrs.	9	25%	1	5%
26-30 Yrs.	21	58%	12	60%
31-36 Yrs.	5	14%	6	30%
≥36 Yrs.	1	3%	2	10%

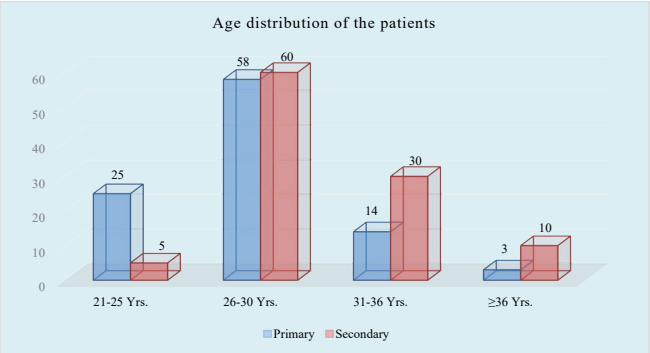

Figure II: Ring chart showed group wise patients age (N=56)

Table 2: Finding of adhesions on diagnostic laparoscopy (N=56)

Findings		Primary infertility		Secondary infertility	
		n	%	n	%
Peri tubal/ peri-ovarian adhesion	Both tubes blocked	8	23	3	15%
	Both tube patent	1	2.5	1	5%
	One tube patent	2	5.1	1	5%
Nothing was visualized due to adhesion		3	7.6	1	5%
No adhesions		22	61.5	14	70%

Table 3: Uterine abnormality seen on laparoscopy

Findings	Primary infertility (n=36)		Secondary infertility (n=20)	
	n	%	n	%
Bicornuate Uterus	2	6%	0	0
Unicornuate Uterus	1	2.6	0	0
Fibroid Uterus	1	2.6	0	0

Table 4: Macroscopic ovarian findings on diagnostic laparoscopy (N=56)

Condition of Ovary	n	%
Normal	36	64%
Atrophy	1	2%
Cystic ovary	3	5%
T.O. Mass	4	7%
Endometriotic deposits	1	2%
Adhesions around ovary	10	18%
Sclerosed ovary	1	2%

Table 5: Miscellaneous findings of diagnostic laparoscopy

Findings	Primary infertility		Secondary infertility	
	n	%	n	%
Tuberculosis	4	11%	2	9
Endometriosis	3	8%	1	4.5
Fibromyoma	1	3%	0	0

Table 6: Hysteroscopic findings distribution (N=56)

Findings	Total		Primary infertility		Secondary infertility	
	n	%	n	%	n	%
Normal findings	39	69.60%	22	61.10%	17	85.00%
Endometrial polyps	18	32.10%	8	22.20%	10	50.00%
Adhesions	17	30.40%	8	22.20%	9	45.00%
Chronic endometritis	10	17.90%	4	11.10%	6	30.00%
Intrauterine septum	6	10.70%	3	8.30%	3	15.00%
T shaped uterus	4	7.10%	1	2.80%	3	15.00%
Submucous myoma	3	5.40%	1	2.80%	2	10.00%
Cervical abnormalities	2	3.60%	1	2.80%	1	5.00%

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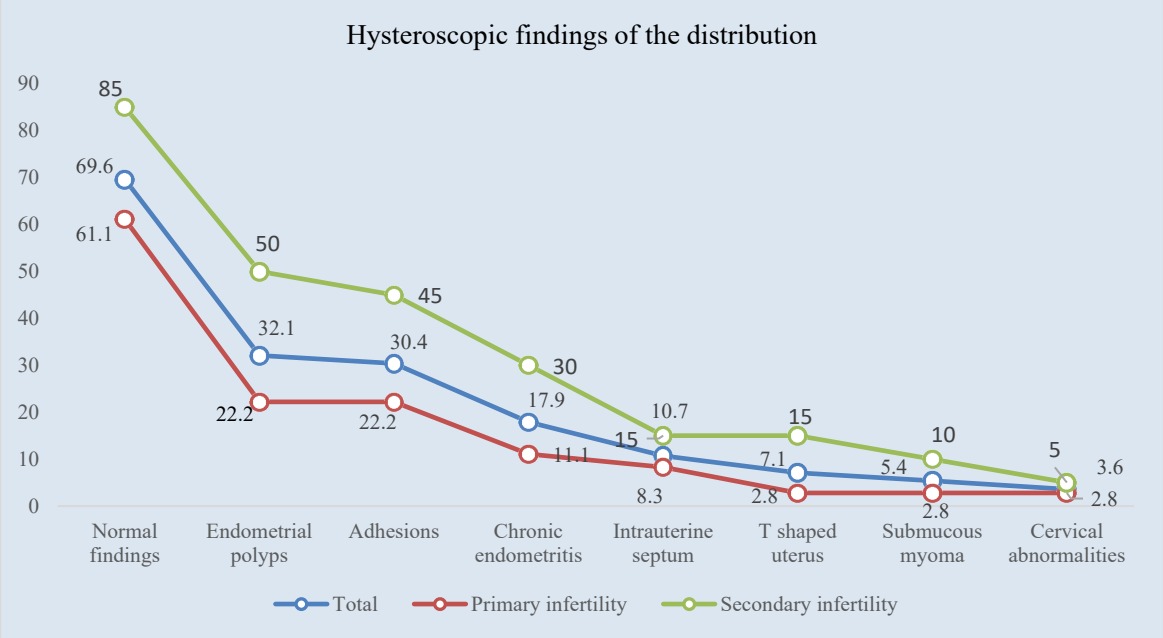

Figure III: Ring chart showed hysteroscopic findings of the patients (N=56)

Discussion

This study aimed to assess the effectiveness of the laparoscopic and hysteroscopic evaluation of female infertility. In this current study, among the total cases, 64% were with primary infertility and the rest 36% were with secondary infertility. Our findings were in correspondence with those of Panchal DL, et al. [13] who found the incidence of primary as well as secondary infertility to be 68% and 32% respectively. Similar findings were also observed by various authors like Gupta S, et al. [12]. This indicates that the incidence of primary infertility is higher because of various social factors, marital disharmony, and rejection by other members of the family. [15] In this study, in the primary infertility group, out of 36 cases, the majority (58%) were from the age group of 26- 30 years. Similarly, in the secondary infertility group, out of 20 cases, the majority were from the same age group. These findings were following a study done by Panchal DN, et al. [13] where maximum infertility cases were from the age group of 21-25 years followed by 26-30 years age groups. A study done by Singh M, et al. [16] also showed similar results. In our study, peri tubal/per ovarian adhesions with both tubes blocked were present in 8 cases (23.0%) in the primary infertility group and 3 cases (15%) in the secondary infertility group. Besides these, in the primary infertility group, both tube patent and one tube patent cases were 2.5% and 5.1% (n=2) respectively which were 5% and another 5% in another group respectively. Through laparoscopy uterine abnormalities like bicornuate uterus (n=2) unicornuate uterus (n=1) and fibroid uterus (n=1) were found in some cases of primary infertility group patients only. In Duigan, et al. [17] bilateral blocks with adhesions were found in 7.9% of cases of primary sterility and 16.1% of cases of secondary sterility which contrasts with our study. On the other hand, Feai, et al. [18] found 5 patients with peri tubal adhesions (18.52%). In this study, according to macroscopic ovarian findings on diagnostic laparoscopy, out of 56 cases of infertility, 36 patients (64%) had normal ovaries. But in 3 (5%) cases: cystic ovary, in 4 (7%) cases: unilateral T.O. mass, in 10 (18%) cases: adhesions around the ovary were observed which were noticeable. Minavi, et al. [19] found polycystic ovaries in 4.76% of cases which was quite close to our finding. The hysteroscopic findings among participants revealed that 69.6% had normal findings, 32.1% had endometrial polyps, 30.4% had adhesions, 17.9% had chronic endometritis, and 10.7% had an intrauterine septum. Nearly similar findings were observed in another study [20]. The findings of another Iranian study [21] were also comparable with that of our study. All the findings of this current study may be helpful in further similar studies.

Limitation of The Study

This was a single-centered study with small-sized samples. Moreover, the study was conducted over a very short period. So, the findings of this study may not reflect the exact scenario of the whole country.

Conclusion

As per the findings of this current study, we can conclude that, among female infertility cases, the majority are found with primary infertility. The majority of female infertility cases may remain free from any type of adhesions. Uterine abnormalities are found more frequently among females with primary infertility. As a safe and cost-effective diagnostic procedure, laparoscopy along with hysteroscopy may be considered a prominent diagnostic tool for the evaluation of the cause of infertility in women.

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Dr. Panna BH, et al., Obstet Gynecol Res 2024
DOI:10.26502/ogr0165

References

1. Rutstein SO, Macro ORC, Shah IH. Infecundity, infertility, and childlessness in developing countries. DHS Comparative Reports No 9. ORC Macro and the World Health Organization, Calverton, Maryland, USA (2004).
2. Jejeebhoy SJ. Looking back, looking Forward: A Profile of Sexual and Reproductive Health in India. Population Council, Rawat Publications, New Delhi, India, 16 (2004): 240.
3. Sciarra J. Infertility: An international health problem. Int J Gynaecol Obstet 46 (1994): 155-163.
4. Howkins, Bourne. The pathology of conception. In: Padubidri VG, Daftary SN (Eds.), Shaw's textbook of Gynaecology. 13th (Edn.), Elsevier, (2004): 508.
5. Aubuchon M, Burney RO, Schust DJ, Yao MW, Chapter 32. In: Berek JS, et al. (Eds.), Infertility and Assisted Reproductive Technology in Bereks and Novaks Gynaecology. 15th (Edn.), Williams & Wilkins, Baltimore (2017): 1134.
6. Inhorn MC. Global infertility and the globalization of new reproductive technologies: Illustrations from Egypt. Soc Sci Med 56 (2003): 1837-1851.
7. Speroff L, Marc AF (2005) Female Infertility: Clinical Gynecologic Endocrinology and Infertility. 7th (Edn), Jaypee Brothers Medical, India (2005): 1013-1068.
8. Tanahatoe SJ, Hompes PGA, Lambalk CB. Investigation of the infertile couple. Should diagnostic laparoscopy be performed in the infertility workup program in patients undergoing intrauterine insemination? Hum Reprod 18 (2003): 8-11.
9. World Health Organization, Infertility: A Tabulation of Available Data on Prevalence of Primaryand Secondary Infertility. Program of Maternal and Child Health and Family Planning Unit (1991).
10. Rutstein SO, Macro ORC, Shah IH. Infecundity, infertility, and childlessness in developing countries. DHS Comparative Reports No. 9, ORC Macro and the World Health Organization, Calverton, Maryland, USA (2004).
11. World Medical Association. World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. Bulletin of the World Health Organization, 79 (2001): 373 - 374. World Health Organization. https://apps.who.int/iris/handle/10665/268312.
12. Voigt, Paul, and Axel von dem Bussche. "Enforcement and fines under the GDPR." The EU General Data Protection Regulation (GDPR). Springer, Cham (2017). 201-217.
13. Panchal DN, Shah A. Role of diagnostic laparoscopy in infertility. Int J Reprod Contracept Obstet Gynecol 5 (2016): 4180-4183.
14. Gupta. Comparative study-hysterosalpingography and laparoscopy in 120 cases of infertility. J Obst Gyn Ind 34 (1984): 685.
15. Kutubi, A., Rahman, R., Rahman, S., & Rahman, M. M. Evaluation of Female Infertility by Laparoscopy in a Secondary Level Infertility Care Centre. Journal of Shaheed Suhrawardy Medical College, 11 (2019): 9-12.
16. Singh M. A comparative analysis of diagnostic laparoscopy and hysterosalpingography in cases of infertility. J Obst Gyn Ind 4 (1988).
17. Duignan NM, Jordan JA, Coughlan BM. One thousand consequitive cases of diagnostic laparoscopy. BJOG 79 (1972): 1016-1024.
18. Feai RE. Laparoscopy: A valuable aid in gynaecological diagnosis. Obstet Gynaecol 31(1968): 297-309.
19. Minawi MFE, Hadi MA, Ibrahim AA, Wahby O. Comparative evaluation of laparoscopy and hysterosalpingography in infertile patients. Obstet Gynecol 51 (1978): 29-32.
20. J. Priyanka, K. Mansi, C. Tulika, S. et al. Abnormal Hysteroscopic Findings in Patients with Infertility, EJMCM, ISSN: 2515-8260, 9 (2022): 860-866.
21. Zargar, Mahvash, Farideh Moramezi, and Sarah Zarepeyma. "Comparing Hysterosalpingographic Findings with Laparoscopic and Hysteroscopic Results in Infertile Patients: A Southwestern Iranian Study." Journal of South Asian Federation of Obstetrics and Gynaecology 11 (2019): 17-22.

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