Outcome of Laparoscopy in Infertile Couples attending a Teaching Hospital in Eastern Nepal: A Descriptive Cross-sectional Study

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ABSTRACT

Introduction: Infertility is a global health issue and a socially destabilizing condition for couples with several stigmas including medical, social, psychological burdens and a marital disharmony. The aim was to study the outcome of laparoscopy in infertile females attending Nobel Medical College as laparoscopy is considered as a gold standard in investigation and treatment of infertility.

Methods: A descriptive cross-sectional study was carried out in the department of Obstetrics and Gynaecology over a period of May 2018-April 2020, where the outcomes of laparoscopy in infertile females were studied. All the patients with abnormal HSG, unexplained infertility and adnexal mass in the background of infertility were enrolled.

Results: Of the 100 infertile patients who underwent laparoscopy, 62 (62%) had evidence of tubal disease as documented by unilateral or bilateral block, 63 (63%) had peritubal adhesions and hydrosalpinx in 15 (15%). Associated pelvic pathology like endometriosis in 50 (50%) in the form of cyst, adhesions and complete and partial obliteration of Pouch of Douglas.

Conclusions: Laparoscopy is definitely an effective diagnostic tool of tubal and pelvic pathology. Laparoscopy is recommended for all infertile females with suspected tubal factor and moreover it provides opportunity to correct the condition in possible cases.

Keywords: cyst; endometriosis; female; laparoscopy; pregnancy.

INTRODUCTION

Infertility is one of the major health problems worldwide, including Nepal. The average prevalence of infertility in developing countries is estimated to be around 6.9-9.3%.1 Approximately 15% of couples attempting their first pregnancy meet with failure. A global review of infertility from the World Fertility Survey estimated infertility as 4% in Bangladesh, 6% in Nepal, 5% in Pakistan and 4% in Sri Lanka.2

Infertility is defined as failure to achieve pregnancy after a year of unprotected intercourse. This is further classified as primary if the couples fail to achieve previous pregnancy and secondary if a prior pregnancy, although not necessarily a live birth, has occurred.3 Leading causes of infertility include tubal disease, ovulatory disorders, uterine or cervical factors, endometriosis and male factor infertility.4,5,6 Laparoscopy is an essential step and a standard procedure in the investigation and evaluation of infertile females before initiating infertility problems.7,8 According to World Health Organization (WHO) guidelines, diagnostic laparoscopy is still recommended as minimal requirement in the investigation of female infertility.9 In the case of unexplained infertility, laparoscopy offers an excellent modality through direct visualization to rule out any hidden pathology.

This study aims the role of laparoscopy in female infertility.

METHODS

A descriptive cross-sectional study was carried out in the department of Obstetrics and Gynecology, Nobel Medical College Teaching Hospital, Biratnagar, Nepal. Email: shantisubedi1973@gmail.com, Phone: +977-9842021806.
Nobel Medical College Teaching Hospital, Biratnagar from May 2018- April 2020. Ethical clearance was taken from the hospital IRC with Reference Number 142/2018. After obtaining informed consent, all the patients were prepared for the procedure during the proliferative phase of the menstrual cycle. All the patients with history of failure to conceive for a period of one year were included in the study. The sample size was calculated as per the following formula:

Convenience sampling was done, and the sample size (n) was calculated as,

\[ n = \frac{Z^2 \times p \times q}{e^2} \]

Where,
- \( Z = 1.64 \) at 90% Confidence Interval
- \( p = \) prevalence 50%
- \( q = 1-p \)
- \( e = \) margin of error, 10%

The sample size came as sixty-seven (n=67). The detail history of the couples and physical examination of the female partner was done and for male partner, examination was done by urologist if at all semen analysis was found to be abnormal. All the patients had undergone semen analysis after three days of abstinence, abdominal ultrasound, hysterosalpinography on day 6-11 and hormonal assessment included thyroid function test and serum prolactin as a routine. AMH done in selected patients depending on the age. Diagnostic laparoscopy with chromopertubation done if HSG was abnormal and in case of unexplained infertility and if adnexal mass was noted in clinical and ultrasound examination.

The relevant clinical findings were documented and finally data were extracted from the same and analyzed using SPSS version 26. The descriptive statistical analysis was done. Frequency and percentages were calculated for binary data whereas mean and standard deviation were calculated for continuous data.

RESULTS

A total of one hundred infertile females with abnormal HSG, unexplained infertility and if adnexal mass noted during clinical and ultrasound examination in the background of infertility were included in the study.

Of the patients with tubal factor, 62 (62%) had block in one or both tubes, right distal tubal block was the commonest finding. 63 (63%) had peritubal adhesions and hydrosalpinx was observed in 15 (15%) (Figure 1, 2 and 3).

Endometriosis was observed in 50 (50%) of them underwent laparoscopy in the form of endometriotic cyst, adhesions and partial and complete obliteration of the pouch of Douglas.

Associated lesions diagnosed during evaluation were dermoid cyst in 25 (25%) and myoma in 13 (13%).
The mean age of the patients was 28.61 years (range from 16-47 years). Primary infertility was more 51 (51%) than secondary infertility 49 (49%) (Table 1).

Surprisingly 54 (54%) with infertility females were housewives by occupation as compared to working females and no obvious association were found for the same. Mean age of infertility was found be 28.61 years (Table 2).

Hydrosalpinges adversely affect reproductive outcomes and several factors have been implicated, including a mechanical interference with implantation and toxic effects on the endometrium and embryo. (Beyler et al.20, 1997; Meyer et al. 199721). This study observed the same in 15% of cases. The negative effects of hydrosalpinges on spontaneous conceptions and IVF pregnancies are well established (Beyler et al.20 1997; Meyer et al.21 1997).

Endometriosis was observed in 50% of cases in the form of endometriotic cyst, adhesions with partial and complete obliteration of pouch of Douglas. Endometriosis affects 2.5-3.3 percent of women of reproductive age22 and is diagnosed in 20-68 percent of the women studied for infertility.23

Additional findings obtained during laparoscopy in the study were desmoids in 25% and myoma in 13 % of the cases.

In our study of 100 patients, 51% were of primary and 49% of secondary infertility which were comparable with the studies done by Foroozanfard et al16, M heiss et al,17 Gokhan Goynumer et al.24

CONCLUSIONS

Infertility is a global health issue that requires appropriate
diagnosis and treatment. Tubal factor being the most common contributing factor in 62% of infertile females in the study. Laparoscopy with chromoperturbation and evaluation of associated pelvic pathology remains the gold standard for detection and management of infertility.

REFERENCES

1. Boivin J, Bunting L, Collins JA, Nygren KG. International estimates of infertility prevalence and treatment-seeking: potential need and demand for infertility medical care. Hum Reprod. 2007 Jun; 22(6):1506-12. [Full Text] [DOI]

2. Vaessen M. Childlessness and infecundity. WFS Comparative Studies, Series 31. Voorburg, The Netherlands: Cross National Summaries, 1984. [Full Text]

3. Mira Aubuchan. Infertility and assisted Reproductive Technology. (15th ed).1133-89. [Full Text]

4. Jose-Miller AB. Boyden JW, Frey KA. Infertility Am Fam Physician 2007; 75: 849. [Full Text]

5. Howkins and Bourne. The pathology of conception. In Shaw's textbook of Gynecology 13th edition. Elsevier 2004. [Full Text]

6. Naz T et al. Laparoscopic evaluation in infertiltiy. JCPSP. 2009;19:704. [Full Text]

7. Tanahatoe SJ, Hompes PG, Lambalk CB. Investigation of the Infertile couple: should diagnostic laparoscopy be performed in the infertility work up programme in patients undergoing intrauterine insemination? Hum Reprod. 2003;18:8. [PubMed] [DOI]

8. Komori S, Fukuda Y, Horiiuchi I, Tanaka H, Kasumi H, Shigeta M, et al. Diagnostic laparoscopy in infertility: a retrospective study. J Laparoendosc Adv Surg Tech A. 2003; 13:147-51. [PubMed]

9. Rowe PJ, Comhaire FH, Hargreave TB and Mellows HJ. WHO manual for the standardized investigation and diagnosis of the infertile couple. 1993. [Full Text]

10. Helmerhorst FM, Oei SC, Bloemenkamp KW, Keirse MJ. Consistency and variation in fertility investigations in Europe. Hum Reprod. 1995; 10:2027-30. [PubMed] [DOI]

11. Swart P, Mol BW, Van der Veen F, Van Beurden M, Redekop WK, Bossuyt PM. The accuracy of hysterosalpingography in the diagnosis of tubal pathology: a meta-analysis. Fertil Steril. 1995;64(3):486-91. [Full Text]

12. Yazbeck C, Le Tohic A, Koskas M, Madelenat P. Pour la pratique systématique d’une coelioscopie dans le bilan d’une infertilité. Gynecol Obstet Fertil. 2010;38(6):424–7. [Full Text]

13. Mol BW, Collins JA, Burrows EA, Van der Veen F, Bossuyt PM. Comparison of hysterosalpingography and laparoscopy in predicting fertility outcome. Hum Reprod. 1999; 14(5): 1237-42. [Full Text]

14. Shetty SK, Shetty H, Rai S. Laparoscopic evaluation of tubal factors in cases of infertility. Int J Reprod Contracept Obstet Gynecol 2013;2:410-3. [Full Text]

15. Chaudhari AD, Baria AM, Chaudhari UR, Dixit GT, Thakor N. Diagnostic laparoscopy in the evaluation of tubal factors in cases of infertility. Int J Reprod Contracept Obstet Gynecol 2017;6:1275. [Full Text]

16. Foroonzanford E, Sadat Z. Diagnostic value of Hysterosalpingography and laparoscopy for tubal patency in Infertile Women. Nurs Midwifery Stud. 2013;2(2):188-92. [Full Text]

17. Heis M, Amariz Z et al. Uterine and Tubal anatomical abnormalities in Infertile Women: diagnosis with routine hysterosalpingography prior to selective laparoscopy. SA Journal of Radiology. 2011 Dec;15(4):121-2. [Full Text]

18. Nagata Y, Honjou K, Sonoda M, Makino I, Tamura R, Kawarabayashi T. Perti-ovarian adhesions interfere with the diffusion of gonadotrophin into the follicular fluid. Human Reproduction. 1998;13:2072-2076. [Full Text]

19. Daniell JF, Pittaway DE, Maxson WS. The role of laparoscopic adhesiolysis in an in vitro fertilization program. Fertility and Sterility. 1983;40:49-52. [Full Text]

20. Beyer SA, James KP, Fritz MA, Meyer WR. 1997. Hydrosalpingeal fluid inhibits in-vitro embryonic development in a murine model. Human Reproduction. 1997;12:2724-2728. [Full Text]

21. Meyer WR, Castelbaum AJ, Somkuti S, Sagoskin AW, Doyle M, Harris JE et al. 1997. Hydrosalpinges adversely affect markers of endometrial receptivity. Human Reproduction. 1997;12:1393–1398. [PubMed] [DOI]

22. DE Houston, KL Nour, LJ Melton, BL Selwyn, RJ Hardy. Incidence of pelvic endometriosis Rochester, Minnesota, 1970-1979. AMJ Epidemiol. 1977;125:959-69. [PubMed] [DOI]

23. R Matorras, F Rodriguez, JI Pijoan, et al. Epidemiology of endometriosis in infertile women. Fertil Steril. 1995;63:34–38. [PubMed]

24. Goynumber G, Yetim G, Gokcen O et al. Hysterosalpingography, Laparoscopy or both in the Diagnosis of Tubal disease in Infertility. World Journal of Laparoscopic Surgery. 2008 May-Aug; 1(2):23-6. [Full Text]

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