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ORIGINAL ARTICLE

Role of laparoscopic surgery in gynecology.

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ABSTRACT… Objective: Technological advancements extend the range of indications for gynecological laparoscopy. We are presenting the outcome of our experiences with gynaecological laparoscopies and assessed rate, indications, complications and its benefits in a teaching hospital. **Study Design:** Retrospective Observational study. **Setting:** MTI Hayatabad Medical Complex Peshawar. **Period:** January 2021 to December 2021. **Material & Methods:** we performed laparoscopic procedure for a total of 222 patients and all were included in the study. Laparoscopic surgeries were performed under general anesthesia. Successful creation of the pneumoperitoneum was done with the help of Veress needle, mostly by closed access technique and occasionally with the open method. Secondary ports were introduced under direct vision. After completing the surgery laparoscope and secondary ports were removed under direct vision to minimize any iatrogenic insult. **Results:** During the study period, 908 major gynaecological operations including 222 laparoscopies were performed. This gave the rate of 24.45% laparoscopies per 100 operations. Diagnostic laparoscopies were performed in 195 (87.84%) cases and operative were in 27 (12.16%) cases. Complications were only in 5 of the cases, two being of major nature. A ureteric ligation occurred during laparoscopic hysterectomy resulting in conversion of laparoscopic surgeries into open surgery and another was during cystectomy due to excessive bleeding. **Conclusion:** Laparoscopic surgery propounds unique benefits including definite diagnosis, mobilization and speedy recovery, minimal complications, less cost and shorter hospital stay. In young patients, laparoscopy helps in preserving their fertility with better prognosis in contrast to open surgery.

Key words: Complications, Gynaecology, Laparoscopy.

INTRODUCTION

Technological advancements extend the range of indications for gynecological laparoscopy.[1] Laparoscopy has become a vital tool in both operative and diagnostic gynaecological procedures as it provides excellent visualization of the pelvic structure.[2] Being less invasive, laparoscopy is safe and results in smaller and cosmetically acceptable wound, less pain, short hospital stay and speedy return to normal life.

The field of minimal invasive surgery has revolutionized all surgical fields including gynaecology. Laparoscopy has become the most preferred choice of gynaecologists worldwide for both diagnostic and several minimal access surgical procedures. It provides diagnosis of gynecologic disorders and pelvic surgeries without laparotomy. In well-equipped advanced centers with trained staff, approximately 80% of surgical procedure in the field of gynaecology can be done laparoscopically.[3] Laparoscopy is particularly relevant in tropical gynecological practice where more than 50% of consultations are because of infertility, especially those because of tuboperitoneal factors.[4,5]

The rate of laparoscopy varies widely worldwide, especially between developing and developed countries. While in the developing countries, use of laparoscopy is evolving and is limited to diagnostic primarily, laparoscopy is extensively used in the developed countries. According to reports, approximately 350000 tubal ligations and 200000 laparoscopically-assisted vaginal hysterectomies are done annually in the USA[6],

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whereas in the UK, approximately 250,000 gynaecologic laparoscopic surgeries are performed annually.[7]

With respect to indications, laparoscopy has evolved over the years from being a simple diagnostic tool to assess acute and chronic pelvic pain, evaluate infertility or assess amenorrhea, to being a major surgical aid used to treat a wide range of gynecological problems including treatment of ectopic pregnancy, removal of lower abdominal masses, performing hysterectomies and staging and treatment of gynecological cancers.[8,9]

Higher rate of complications (0.6%-18%) is reported for major laparoscopic procedures whereas in minor laparoscopic procedures rate of complications ranges from 0.06% to 7.0%).[5] The reported overall complication rates ranges from 0.2 % to 10.3%.[10] Majority of the complications usually occur during the entry of Verres' needle into the abdomen to create pneumoperitoneum. Other minor risks include surgical port site hernia and site infections. Major complications of laparoscopy include bladder injuries, trauma to bowel, major blood vessels injuries and risks related to anesthesia due to increased intra-abdominal pressure, such as aspiration and difficulty in ventilating the patient.

We are presenting the outcome of our experiences with gynaecological laparoscopic surgeries and measured rate, indications, complications and its benefits in a tertiary care hospital and will provide basis for further research.

MATERIAL & METHODS

In this retrospective observational study, we performed laparoscopic procedure for a total of 628 patients during the period January 2019 to December 2021 in our unit of MTI Hayatabad Medical Complex Peshawar and all were included in the study.

All the information including total number of major gynecological operations performed during the study period, number of patients undergoing laparoscopy, age, parity, indications, route and complications were retrieved from ward registers, clinical notes and records. The data was thoroughly reviewed and analyzed using simple statistical measures and the results presented as frequencies and percentages. This study was conducted after availing approval of the ethical committee of the institution (901/HEC/B&PSC/2022).

RESULTS

During the study period, 2025 major gynaecological surgeries including 628 laparoscopies were performed yielding the rate of 31.01% laparoscopies per 100 operations. Diagnostic laparoscopies were performed in 529 (84.24%) cases and operative were in 99 (15.76%) cases. Complications were noted in 15 of the cases, four being of major nature and all other were of minor nature mostly related to abdominal pain and wound sepsis. Of the major complications, two cases of ureteric ligation occurred during laparoscopic hysterectomies and another two were of the excessive bleeding occurred during cystectomies resulting in conversion of laparoscopic surgeries into open surgery. Age distribution of the patients underwent laparoscopies is given in Table-I.

Age	Types of Laparoscopies			Percentage
	Diagnostic	Operative	Total	
18-25 years	69	14	83	13.22%
26-33 years	306	51	357	56.85%
34-41 years	140	20	160	25.48%
42-49 years	14	14	28	4.46%
Total	529	99	628	100%

Table-I. Age distribution

Primary (55.47%) and secondary (44.42%) infertility were the foremost cause for all the diagnostic laparoscopies whereas in the operative laparoscopies, ovarian mass (33.33%%) was the commonest indication followed by laparoscopic BTL (21.21%), laparoscopic hysterectomies (19.19%) and cyst aspiration (10.10%). Other indications of laparoscopic surgeries are given in Table-II.

Indications	Number	Percentage
Diagnostic Laparoscopy		
Primary infertility	267	50.47%
Secondary infertility	235	44.42%
Pelvic pain	1	0.19%
Pelvic mass	17	3.21%
Primary amenorrhea	9	1.70%
Total	529	100%
Operative Laparoscopy		
Ectopic pregnancies	4	4.04%
Cyst aspiration	10	10.10%
IUCD removal	4	4.04%
Ovarian masses	33	33.33%
Ovarian drilling	6	6.06%
Laparoscopic hysterectomy	19	19.19%
Laparoscopic BTL	21	21.21%
Adhesionolysis	1	1.01%
Oophorectomy	1	1.01%
Total	99	100%

Table-II. Indications of laparoscopy

Complications occurred in 15 (2.23%) of the cases, only three being of major nature. One case of ureteric ligation occurred during laparoscopic hysterectomies and another two were of the excessive bleeding occurred during cystectomies resulting in conversion of laparoscopic surgery into open surgery. All other complications were of minor nature.

Complications	Number
No Complication	614
Ureteric ligation	1
Excessive bleeding	2
Abdominal Pain	7
Wound Sepsis	4
Total	628

Table-I

DISCUSSION

Laparoscopy has developed as a valuable and common procedure in recent times and is used extensively as a major diagnostic and therapeutic modality in a wide range of gynaecological diseases including infertility, removing benign ovarian masses, endometriosis, hysterectomy, lymphadenectomy, and oncologic procedures.

During the study period, 2025 major gynaecological operations including 628 laparoscopies were performed. This gave the rate of laparoscopies to be 31.01%. Diagnostic laparoscopies were performed in 529 (84.24%) cases and operative laparoscopies were in 99 (15.76%) cases. Rate of diagnostic laparoscopies in our study is in contrast and higher than 35%[1] and 20%[10] reported in other studies. Low rate of operative laparoscopies in this series indicate lack of availability of trained consultants and that laparoscopy has recently been included in our setup. However, this trend is changing as the surgeons are getting more exposure to therapeutic laparoscopic surgeries leading to development of better operative skills.

The age range of the patients who underwent laparoscopy was 18–49 years. Highest frequency of laparoscopy (56.85%) was noted in the age range of 26-33 years. This was normal as most of the laparoscopic procedures were performed for infertility and the patients were in reproductive age. It is also indicative of the fact that patients are now more educated and present earlier for evaluation and infertility treatment. Similar findings have been reported by other researchers in their studies.[1,5,10]

Among the diagnostic laparoscopy, infertility was the leading indication comprising of 93.26% of the total in our study. Primary infertility (50.47%) was a more common indication than secondary infertility (44.42%). This finding was consistent to that stated by Avidime et al.[11] Infertility being the leading indication for laparoscopies is also corresponding to other studies.[1,5,11]

Laparoscopic cystectomies for the removal of benign ovarian cysts are a safe and feasible option for women with added advantage of short hospital stay.[10] In the operative group of this series, benign ovarian masses were the most common indication for laparoscopic cystectomies accounting for 33.33% of the cases. High rate of laparoscopic cystectomies for ovarian masses is similar to the findings in other studies by Begum et al[1] and Bajracharya et al.[12] In our study, the second most common indication for laparoscopies was laparoscopic BTL done in 21.21% cases. Laparoscopic hysterectomy (19.19%), cyst aspiration (10.10%), Ovarian

drilling (6.06%) and ectopic pregnancies (4.04%) were among the other significant indications.

Complications are unavoidable in all surgical procedures; intra or post-operatively, minor or major, and potentially lethal or non-lethal.[13] Complications in our study were only in 15 (2.23%) cases in overall. Three of the complications were of major nature that occurred in the operative group of laparoscopies. One case of ureteric ligation occurred during laparoscopic hysterectomies and another two were of the excessive bleeding occurred during cystectomies resulting in conversion of laparoscopic surgery into open surgeries. Rate of complications of 3 (3.03%) in the operative group and 11 (2.08%) in the diagnostic group is well within the reported overall complication rate ranging from 0.2 % to 10.3%.[7] The conversion rate of 0.64% was similar to 0.7% reported by Omokanye[10] however it is slightly higher than 0.12% reported Ikecebelo[14] but far lower to other studies.[15,16] There was no mortality in this series.

CONCLUSION

Laparoscopic surgery offers unique benefits including definite diagnosis, mobilization and speedy recovery, minimal complications, less cost and shorter hospital stay. In young patients, laparoscopy helps in preserving their fertility with better prognosis in contrast to open surgery. Laparoscopic surgery is an economically feasible option nowadays, however, inadequate training at basic levels has still not enabled us to perform skillful laparoscopic surgeries in all centers.

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2	Rukhsana Karim	Conception of idea, Manuscript writing, Final proof reading.	
3	Zoopah Inayat	Data collection, Statistics analysis.