

AN EXPERIENCE OF GYNAECOLOGICAL LAPAROSCOPIC SURGERIES AT LOW RESOURCE SETTING.

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ABSTRACT

Introduction

Evolution of laparoscopy has revolutionised the field of gynaecological surgery for more than 40 years. Owing to the long learning curve, added expenses and lack of awareness among patients and surgeons, its introduction and development in Nepal is not upto the timeline. Gynaecologic laparoscopy (GL) seems to be introduced at BP Koirala institute of Health Sciences, Dharan, Nepal (BPKIHS) since 2002. It remained in latency because of widespread lack of equipment and skilled personnel. Some laparoscopic procedures like diagnostic laparoscopy, laparoscopic tubal ligation and very few laparoscopic assisted vaginal hysterectomy (LAVH) were done from 2002-2012 (10 years). Since then more gynecologists have been trained in GL which has contributed to expansion of GL.

Objective

The objective of this study is to study and share trends of gynaecological laparoscopic surgeries performed at BPKIHS.

Methodology

All the patients undergoing GL surgeries have been analyzed for the indication, type of procedure, conversion and its complications. We took data from operation theatre register and patient case sheet from July 2004 to May 2018. We divided this period into two phase viz Phase 1: July 2004- June 2013 and Phase 2: July 2013 - till May 2018.

Result

Total number of GL done in this period was 427. Out of which 102 cases were from phase one and rest of the cases were done in five years of phase II. Number of operative laparoscopy has increased in phase 2 compared to phase 1. In last five years there was 155 (47.6%) cases of adnexal surgery, 77 (23.6%) cases of diagnostic laparoscopy. Total laparoscopic hysterectomy was done in 25 (7.6%) cases. Conversion to laparotomy was done in 4.6% (n=15) cases. Overall 12(3.7%) patient had major complications. Oral diet was started at 4-6th hour post-operatively, and mobilization was started after 24 hours. Seventy percent of patient had a hospital stay of 2 days and rest stayed for 3 days.

Conclusion

There is rising trend in operative GL at BPKIHS. We are facing less complication with expanding experience. There has been good learning from each case. GL has well demonstrated its advantages of reducing postoperative pain and morbidity, short hospital stay, and less postoperative recovery time. We have plans to get new gadgets and expand services in GL.

KEY WORDS

Cystectomy, laparoscopic surgery, total laparoscopic hysterectomy



INTRODUCTION

During the last 40 years, laparoscopy in gynaecology has evolved from a limited gynecologic surgical procedure used only for diagnosis and tubal ligations to a major surgical tool used for a multitude of gynecologic and non-gynecologic indications. Laparoscopy was first performed by Jacobeus in Sweden in 1910.^{1,2} By the end of 1930s laparoscopy was used to diagnose ectopic pregnancy and performing tubal sterilization. Serm of Germany reported advanced operative laparoscopy procedures such as salpingectomy, myomectomy, oophorectomy, ovarian cystectomy and salpingostomy in the 1970.¹ The first reported laparoscopic hysterectomy was in 1989 by Harry Reich,³ for endometriosis. Today, endoscopy is one of the most common surgical procedures performed in many parts of the world. Very few publications are available regarding laparoscopic surgery in gynecology from Nepal.⁴⁻¹⁰ A recent review article published by Corrie Miller et al regarding 'A Review of Minimally Invasive Gynecologic Surgery in Developing Nations' revealed that only 14% of LIC (low income country) report performing minimal invasive gynaecological (MIG) procedures.¹¹ Their literature search revealed only 3 articles published from Nepal. This show that laparoscopy in gynaecology has growing momentum in low income country like Nepal. There may be an under reporting owing to paucity to record keeping and database in country like ours having low investment in health.

As per the hospital record, gynecologic endoscopic surgeries are being done at B P Koirala Institute of health sciences (BPKIHS), Dharan, Nepal from 2002 but it had remained in latency because of widespread lack of equipment and skilled personnel. Some laparoscopy mainly diagnostic laparoscopy, lap ligation and very few LAVH were done from 2002 – 2012 as per the records in operation theatre register. Since then progressively many human resources have been trained in laparoscopy which has contributed to rising numbers of cases of gynaecologic laparoscopy. There are no study and publications in gynaecologic laparoscopy from BPKIHS. So this descriptive study is proposed with the aim to share the experience of laparoscopic gynaecological surgeries done at our institute from July 2004 -May 2018.

METHODOLOGY

This is a retrospective study. Women undergoing laparoscopic surgery for any indication in gynaecology operating room (OR) from July 2004 to May 2018 were included in this study. This period was chosen as data from 2002-2004 June was missing from our OT register. A retrospective chart review as well as data from operation theatre register was performed. Case sheet of patient admitted within last five years could only be retrieved. Period of data collection was divided into two phase. Phase 1: July 2004-June 2013 and Phase 2: July 2013- till May 2018. This division was done as the momentum of GL was geared up from July 2013 at BPKIHS

Among patients in phase II, standard three port laparoscopy was done for all diagnostic laparoscopy and standard four port laparoscopy was done for all operative laparoscopy. All the laparoscopy surgeries were done under general anesthesia.

Energy source used in all operative laparoscopy was Bipolar and monopolar electrosurgery. All the patient were operated in lithotomy position with head low position. Besides routine cleaning and draping meticulous preparation and cleaning of umbilicus was done in all patient.

All the patients undergoing GL surgeries in this time period were analyzed for the indication, type of procedure, conversion and its complications. The collected data was entered into excel sheet to calculate mean, median, standard deviation after transferring to SPSS software version 21. Descriptive statistics was applied in data analysis after constructing frequency table. Primary outcome of the study was to know the trends in laparoscopic gynecologic surgeries at BPKIHS their indications, procedure, complications and outcome. Similarly if laparoscopy was converted to open, its indication was noted.

RESULT

From July 2004 till May 2018, 427 laparoscopic gynaecologic surgeries were done at gynaecology department of BPKIHS. Out of them 145 (34%) cases were diagnostic laparoscopy while rest 282(66%) of the cases were operative laparoscopic procedures. As shown in figure 1, the trend in operative laparoscopic surgery is rising in phase II compared to phase I along with rise in number of total cases. In Phase I, only 11 cases of GL was done per year, whereas this number raised to average of 65 GL cases per year in phase II. Also there was 43% point increase in operative laparoscopic cases in phase II.

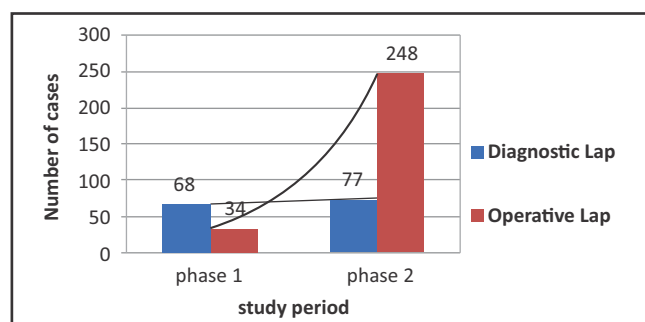


Figure 1: Trends in Gynaecologic Laparoscopic surgery

Table 1. Types of laparoscopic surgeries in phase II N(%)

Cystectomy including Endometrioma (26)	155(47.6)
Diagnostic laparoscopy (infertility , CPP)	77(23.6)
Adhesiolysis , PCOD, Cannulation	
TLH	25(7.7)
Ectopic pregnancy	25(7.7)
Laparoscopic tubal Ligation	15(4.6)
Myomectomy	13(4)
LAVH	10(3)
Cystectomy in pregnancy	4(1.2)
Re-Canalization	1(0.3)
Total	325(100)
PCOD- Polycystic ovarian disease, CPP-Chronic pelvic pain	

All the cases done in these two phase were analyzed according to the type of surgical procedure. Table 1 shows the distribution of various type of surgeries done in Phase II of the study period. We can see maximum number of laparoscopy

are done for ovarian cystectomy (n=155) which includes 26 cases of endometrioma enucleation. Diagnostic laparoscopy mainly for infertility and chronic pelvic pain was done for 77 patients. They had adhesiolysis, polycystic ovarian drilling, tubal cannulation along with hysteroscopy as needed during laparoscopy. There were 25 cases for total laparoscopic hysterectomy (TLH) with bilateral salpingectomy and ectopic pregnancy each. Other cases are as shown in the table 1. Figure 2 represents in chart the trends in different type of laparoscopic surgery done in two different phase at out hospital.

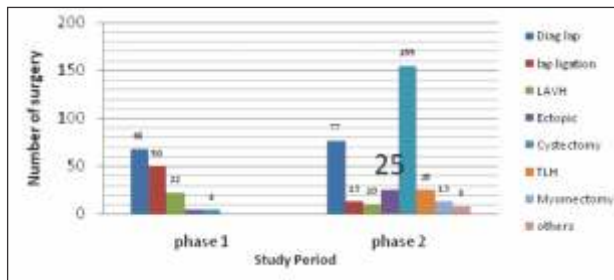


Figure 2: Distribution of types of laparoscopic surgeries

Indications of diagnostic laparoscopy was primary or secondary infertility in 38(49%) patients and chronic pelvic pain in 39(51%) of patients. Diagnostic hysteroscopy with required operative procedure was also done in all patients with infertility as a part of their management. Among them, 8 patients received tubal cannulation and polycystic ovarian drilling was done for 15 patients. Pelvic tuberculosis was suspected upon surgical findings among 12 patients with infertility and were started with anti tuberculosis category I treatment.

Among all the cases in phase II, there were 50 (15.3%) patients who had previous surgeries. Out of them previous lower segment cesarean section, in 38 patients, was the commonest previous surgery. We encountered some degree of adhesions in all those patients of previous surgery. Technique of primary trocar entry was closed technique in 260(80%) patients and in 32(9.8%) open method was used. Open method was used in all cases of previous surgery. In another 33 (10.1%) patient with previous surgery particularly previous midline laparotomy Jain point¹² was used to insufflate the abdomen and under vision with 5mm telescope through same point, 11 mm umbilical trocar was introduced (figure 3).

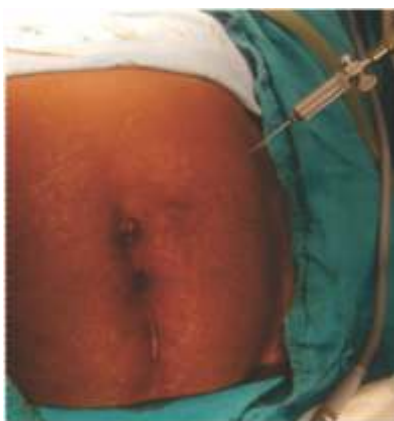


Figure 3: Patient have midline vertical scar. Veress needle inserted through Jain Point

Laparoscopic surgery was successfully accomplished among 310 (95.3%) patients and rest required conversion to laparotomy. Overall 12(3.7%) patients had major complications in our series in phase II as shown in Table 2. There was two case of bladder injury diagnosed intraoperatively. Both of them had previous abdominal surgery and bladder adhesion was seen. Both of them had to be converted to laparotomy and bladder was repaired. There were two case of bowel injury; both of them were post operative diagnosis. Both of the patient developed sepsis so exploratory laparotomy was done. There was electrosurgical injury in both diagnosed case on re exploration. One of them had good recovery but eventually another could not survive. No case of excessive blood loss or need of blood transfusion was seen. There was one case of ureterovaginal fistula following TLH and was managed by ureteric reimplantation. There were two case of post operative peritonitis managed conservatively. Five patients developed port site infection managed by local dressing. There was no report of major complications in phase I. There were 4.6%(n=15) conversion rate to laparotomy. Two conversions were because of bladder injury for need of repair, eight because of severe adhesions where laparoscopy was aborted, other conversions was for technological problems like insufflations and problem with camera or monitor.

Table 2. Complications of laparoscopic surgeries in phase II N(%)

Complication	N(%)
Bladder Injury	2(16.6)
Bowel Injury	2(16.6)
Ureter Injury	1(8.3)
Peritonitis	2(16.6)
Port Site Infection	5(41.6)
Total	12(100)

The entire patients except those having intra operative and post operative complications had uneventful post operative period. Oral diet started at 4-6th hour post-operatively, and mobilization started after 24 hours. Seventy percent cases had a hospital stay of 2 days and 30% cases stayed for 3 days.

DISCUSSION

With the rising experience and also the demand from patient the number of laparoscopic surgeries is on the uphill. As we see in the results, there was 43% rise in number of laparoscopic cases from phase one to two. Also the operative laparoscopy was performed more frequently than diagnostic laparoscopy in phase II of our experience.

Few reports of GL surgery done at different hospital and medical college of Nepal are available.⁴⁻¹⁰ Saha R et al reported experience of gynaecological laparoscopy among 300 patients at Department of Gynecology and Obstetrics, Kathmandu Medical College, Sinamangal, Kathmandu.⁵ Their series reported operative laparoscopic procedures performed in 185 (61.66%) and diagnostic procedures in 115 (38.33%). Bajracharya N et al published experience of laparoscopic gynecological surgeries at Kathmandu Model

Hospital.⁵ In their series, operative laparoscopic procedures were comparatively more 185 (85.2%) than diagnostic procedures 32 (14.7%). Both the series has similar trends as of our series. Neupane BB et al reported on laparoscopic management of 89 dermoid cysts among 82 patient in a medical college in eastern Nepal.⁹ Karki GMS et al published an retrospective article of a large series of 1012 patient undergoing total laparoscopic hysterectomy in two year period at Birat Hospital which is to our knowledge is the largest series of laparoscopic surgery in gynaecology from Nepal.¹⁰ We could not find any publications from Nepal reporting laparoscopic surgery in gynaecologic oncology or urogynecology.

In the series by Saha R et al, most common indication of operative laparoscopy was ovarian cystectomy in 65 (35.13%) patients.⁵ Similarly Bajracharya N et al in their series of 217 patients reported 111(51.1%) of ovarian cyst surgery.⁶ In our series, laparoscopic cystectomy was also the commonest indication of laparoscopic surgery which was among 155(47.6%) patients.

Regarding complications, the main complication noted in series by Saha R et al⁵ was port site (umbilical infection) in about 20 (6.6%) of the cases.⁵ This was comparatively quite high then our series where this was 1.5%. Also Bajracharya N et al reported the common complication in their series being port site infection in about 10(4.6%) of the cases.⁶ Our method of umbilical preparation before port placement may have contributed to less port site infection. Jansen et al, found complication rate of 4.5% for diagnostic procedure and 17.9% for operative laparoscopy.¹³ Overall complication rate in our series was 3.7%. This is because we have not started more advance laparoscopy surgery like oncology and urogynaecology.

Our series had 4.6% of conversion to laparotomy. In the study by Shah R et al they reported conversion in 12 (4%) patients most common reason being adhesions.⁵ This was similar to our experience. As the rate of conversion and complication improves with the learning curve we have experienced less conversion and complications as we get more experienced. Maximum number of complication occurs in first ten cases,¹⁴ and learning curve of thirty laparoscopic assisted vaginal hysterectomy,¹⁴ was necessary to reach low level of complications.^{14,15} We have similar experience as there is decrease in operating times and less complication occurred after first ten operative laparoscopy cases.

CONCLUSION

Despite the entire parenthesis, advance gynaecologic laparoscopic surgeries are being performed at BPKIHS. Our experience is limited but the initial steps are encouraging to leave no stone unturned in the field of gynaecologic laparoscopy at Nepal in future. The Rising trend in operative laparoscopy in gynecology is in par with the learning curve at BPKIHS. We are facing less complication with more experience and are learning from each case. We have plans to get new gadgets and expand services in coming days. This study definitely demonstrates a shift in the use of laparoscopic surgery in Nepal particularly in the field of benign gynecology like ovarian surgery, hysterectomy and ectopic pregnancy.

RECOMMENDATIONS

Laparoscopic surgery need to be encouraged by the state as well as hospital administration to provide its benefits to common people of Nepal in different tertiary care hospitals of Nepal. Owing to more expenses of this technology, surgery by laparoscopy should be included in the national insurance policy of Nepal.

LIMITATIONS

Retrospective nature of this study is limitations as we are not able to follow up our patients to know long term outcome after surgery. Also the total operating time was not recorded in case sheet to analyse if there was decrease with increasing number of cases.

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CONFLICT OF INTEREST

None

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