

# Minimal Invasive Gynaecological Surgeries in Dhulikhel Hospital: One and Half Decade Long Experience

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## ABSTRACT

### Background

One of the greatest achievements in the surgical fields is the paradigm shift from open surgery to minimal invasive surgery. Dhulikhel Hospital is one of the very few institutions in Nepal where minimal invasive gynaecological surgeries are being regularly performed since early years of its establishment. There are very few publications related to experiences of minimal invasive gynaecological surgeries published in Nepal.

### Objective

To review the varieties of minimal invasive gynaecological surgeries and find out the different milestones those were crossed in this field.

### Method

This is retrospective study of minimal invasive gynaecological surgeries performed from January 1, 2004 to June 30, 2018.

### Result

A total of 1849 cases were performed by mid 2018. Almost half of the cases were of Brahmin/Chhetri caste (49.9%). Mean age of the patients who underwent gynaecological minimal invasive surgeries in DH was  $36.70 \pm 10.60$  years (with range 12-81 years). More than half of the patients were from Kavre (58.2%). Abnormal uterine bleeding, ovarian lesions and chronic pelvic pain were the most common indications for these procedures. Among these procedures, hysteroscopy (769 cases), diagnostic laparoscopy with or without chromotubation (385 cases), operative laparoscopy (419 cases) and LAVH/TLH (242 cases) were performed. In this study, 34 minimal invasive surgeries cases (1.8%) were converted to laparotomy for certain reasons. Of them eight cases were of laparoscopic hysterectomies. Only very few major and minor complications were experienced during this period.

### Conclusion

Varieties of minimal invasive surgeries for various gynaecological problems were performed with minimal complications. We scaled up these minimal invasive surgeries over the period.

## KEY WORDS

*Ectopic pregnancy, Fibroids, Hysteroscopy, Laparoscopy*

## INTRODUCTION

One of the greatest achievements in the surgical fields is the paradigm shift from open surgery to minimal invasive surgery (MIS).<sup>1</sup> Minimal invasive surgery has become increasingly popular among both surgeons and patients since early 1970s.<sup>2</sup> Minimal invasive surgeries have moved from being just a diagnostic procedure to operative interventions as well.<sup>3</sup> Hysteroscopy, laparoscopy assisted vaginal hysterectomy (LAVH) and total laparoscopic hysterectomy (TLH) are frequently performed minimal invasive gynaecological surgeries.<sup>4</sup> Varieties of minimal invasive gynaecological surgeries are being done for diagnostic and therapeutic purposes.<sup>5</sup>

Dhulikhel Hospital (DH) is one of the very few institutions in Nepal where minimal invasive gynaecological surgeries are being regularly performed since early years of its establishment. Though diagnostic hysteroscopic procedures were frequently done in the initial period, now varieties of minimal invasive gynaecological surgeries are being done for therapeutic purpose as well.

There are very few publications related to experiences of minimal invasive gynaecological surgeries published in Nepal.<sup>6-9</sup> This study will help in providing the institutional data related minimal invasive gynaecological surgeries from DH. Main objective of this study is to review the varieties of minimal invasive gynaecological surgeries.

## METHODS

This is a study of minimal invasive gynaecological surgeries performed from January 1, 2004 to June 30, 2018. This study is carried out in Department of Obstetrics and Gynaecology reviewing all the OPD/inpatient and Operation Theatre (OT) records (including electronic). All the patients who underwent minimal invasive gynaecological surgeries are included in the study.

Ethical clearance was taken from the IRC-KUSMS. All data were analyzed by SPSS 16 packages. Frequency and mean were calculated. Chi-square test was used to analyze certain outcomes.

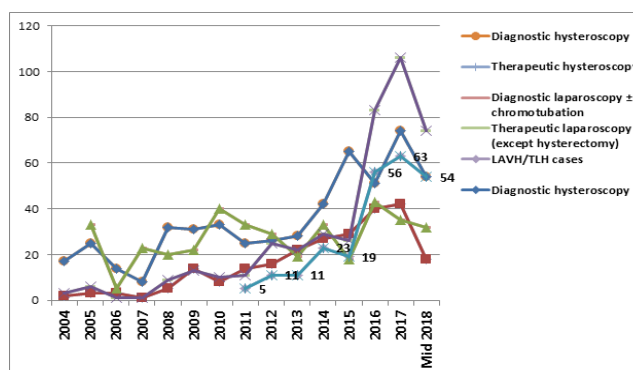
## RESULTS

Mean age of the patients who underwent gynaecological MIS in DH was 36.70±10.60 years (with range 12-81 years) (Table 1). And 115 cases of diagnostic laparoscopy with/without chromotubation were infertility cases with mean age of 28.47±6.27 (with range of 17-51).

More than half of the patients were from Kavre (58.2%), followed by Kathmandu valley (particularly Bhaktapur) (22.3%), neighbouring districts like Sindhupalchowk, Dolakha, Ramechhap, Sindhuli (13.4%) and other districts (6.1%).

**Table 1.** Distribution of mean age of gynaecological MIS cases

Cases	Percent	Mean age (years)	Range (years)
Overall cases (n=1849)	100	36.70±10.60	12-81
Hysteroscopy (n=769)	41.6	40.92±9.85	19-81
Diagnostic laparoscopy with/without chromotubation (n=385)	20.8	29.98±7.08	12-51
Laparoscopy (therapeutic) (n=419)	22.7	29.76±7.78	14-56
LAVH/TLH (n=242)	13.1	46.18±6.76	22-70



**Figure 1.** Year-wise different gynaecological MIS cases

## Co-morbid condition

Two hundred and seventy five patients were presented with another gynaecological pathology and/or additional medical or surgical problems (hypertension, hypothyroidism, diabetes, anemia, urinary tract infection, depression, dyslipidemia, cholecystolithiasis etc.). Laparoscopic cholecystectomy (15 cases), pelvic floor repair (9 cases), adhesiolysis (52 cases), trans vaginal taping (one case) and laparoscopic appendectomy (7 cases) were performed along with LAVH or TLH.

There was year-wise increment in all sort of gynaecological MIS cases in DH, noticeably from 2014 (fig. 1).

Several gynaecological problems were evaluated and managed through MIS. The indications for performing gynaecological MIS were tabulated (Table 2 and 3).

## DISCUSSION

Patients are privileged from innovative developments in gynaecological MIS. Today uterine lesions (myomas, polyps, septae) are routinely treated by hysteroscopy. And symptomatic myomas and most of the benign adnexal (including ovarian) pathology can be managed by laparoscopic procedure.<sup>10</sup>

Hysteroscopy can be used as first line diagnostic method for cases of abnormal uterine bleeding (AUB) (n=50). This procedure is reliable method for evaluating cases of AUB and it can be used as first line diagnostic method for benign lesions.<sup>8</sup> We performed 525 (68.33%) diagnostic and 244 (31.7%) therapeutic hysteroscopy. Abnormal

uterine bleeding, cervical or endometrial polyp and fibroid/adenomyosis were the common indications for hysteroscopic procedures (Table 3).

In a study of 217 laparoscopic procedures by Bajracharya et al., majority of patients 53(24.4%) were in age group 26-30 years.<sup>9</sup> In this study, mean ages of the patients who underwent hysteroscopy procedures, diagnostic laparoscopy and therapeutic laparoscopy procedures (except LAVH/TLH) were 40.92±9.85, 29.98±7.08 and 29.76±7.78 years (Table 1).

Saha et al. performed 115(38.33%) diagnostic and 185(61.7%) operative laparoscopy, with infertility and ovarian lesions were commonest indications.<sup>7</sup> Likewise Subedi et al studied 25 diagnostic and 75 operative laparoscopy procedures and found infertility and adnexal/ovarian pathology were the most common indications.<sup>11</sup> In this study, there were 385 diagnostic and 661 therapeutic laparoscopy procedures performed (Table 1). Ovarian causes 245(58.5%), tubal sterilization 75(17.9%), and

**Table 2. Indication of gynaecological MIS (n=1849)**

Indication	Frequency	Percent
Abnormal uterine bleeding	486	26.3
Ovarian lesions	320	17.3
Chronic pelvic pain/endometriosis	274	14.8
Polyp (cervical/endometrial)	170	9.2
Fibroid/adenomyosis	138	7.5
Infertility	130	7.0
Uterine pathology other than fibroid	90	0.5
Complete family	75	4.1
Adnexal/tubal pathology (ectopic)	52	2.8
Missing/displaced Copper T	27	1.5
Cervical pathology	25	1.4
Premalignant lesions	22	1.2
Endometrial hyperplasia	20	1.1
Amenorrhoea	11	1.2
Malignant lesions	5	0.6
Congenital anomalies	4	0.2

**Table 3. Distribution of mean age of gynaecological MIS cases**

Indication	Diagnostic hysteroscopy (n=525)		Therapeutic hysteroscopy (n=244)		Therapeutic laparoscopy (other than LAVH/TLH) (n=419)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Abnormal uterine bleeding	348	66.3	37	15.2	2	0.4
Infertility	21	4.0	5	2.0	19	4.5
Complete family	2	0.4	7	2.9	75	17.9
Polyp (cervical/endometrial)	35	6.7	141	57.8	2	0.5
Chronic pelvic pain/endometriosis	9	1.7	1	0.4	36	8.6
Fibroid/adenomyosis	48	9.1	3	1.2	-	-
Uterine pathology other than fibroid	6	1.1	1	0.4	7	1.7
Adnexal/tubal pathology	1	0.2	-	-	19	4.5
Ovarian lesions	2	0.4	-	-	245	58.5
Premalignant lesions	7	1.3	1	0.4	-	-
Malignant lesions	4	0.8	-	-	-	-
Co-morbid conditions	1	0.2	2	0.8	-	-
Miscellaneous	41	7.8	46	18.9	6	1.4

chronic pelvic pain or endometriosis 36(8.6%) were the common indications for other than diagnostic laparoscopy and hysterectomy. And, 25 tubal sterilization procedures were performed during some other operative laparoscopy. Abnormal uterine bleeding and fibroids were the most frequent indications for LAVH/TLH (n=242) (Table 3).

Parker et al. found that planned laparoscopic procedures were successful in 95.2% and the commonest indication was laparoscopic cystectomy in 75.3% of cases.<sup>12</sup> We have also experienced the very much encouraging success rate of 99.2% (of whole MIS cases) with laparoscopic cystectomy, and this is the leading indication of therapeutic laparoscopy (other than LAVH/TLH) in 58.5% of cases.

Parker et al and Yuen et al suggested that operative laparoscopy should become the preferred mode of treatment for benign adnexal masses.<sup>12,13</sup> In this study, 245 ovarian lesions and additional 19 adnexal pathologies were managed through operative (therapeutic) laparoscopy (Table 3).

A comparative study done by Mohammed et al. showed that laparoscopic surgeries for ectopic pregnancies are the safest and efficient procedure.<sup>14</sup> Odejumi et al. suggested that laparoscopic surgery as the gold standard procedure in the surgical management of ectopic pregnancy.<sup>15</sup> We followed same strategy and managed 52 cases of ectopic pregnancy (35.7%) with laparoscopy.

A study by Yuen et al. showed endometriosis and dermoid cysts were the two common benign ovarian tumors.<sup>13</sup> Endometriotic cysts (195, 22.7%) were commonest non neoplastic ovarian lesions and mature cystic teratoma (193, 22.4%) were the commonest benign ovarian tumour in DH.<sup>16</sup> Infertility, endometriosis and chronic pelvic pain were the main indications for performing diagnostic laparoscopy.<sup>7,17</sup>

Jansen et al. found complication rate of 4.5% for diagnostic procedure and 17.9% for operative laparoscopy.<sup>18</sup> Hasson et al. in their series of 15,622 cases found the complication rate of 4%.<sup>19</sup> In our study, as a major complication, one case required re-laparotomy for pelvic hematoma following LAVH and another case required ureteric injury repair following TLH. Other minor complications were requirement of blood transfusion (at most three pints), spotting per vaginum, port site infection and hematoma but the numbers were very few.

Bajracharya et al. noticed laparoscopy conversion to open (laparotomy) with 3.6%.<sup>9</sup> A study (n=300) by Saha et al. experienced twelve cases of laparoscopic cystectomy conversion to laparotomy.<sup>7</sup> Two LAVH were converted to TAH. Laparotomy was performed in another two cases in postoperative period for bladder injury and vault bleeding.<sup>7</sup> In our study, 34 MIS cases (1.8%) were converted to open (laparotomy). Of them 8 cases were of laparoscopic hysterectomies. These cases with fibroids (five cases), dermoid cysts (two cases) and grade IV endometriosis (one case) were turned to laparotomy due to huge sized fibroids, limited mobility and dense adhesions respectively.<sup>20</sup>

There were significant changes in surgical approaches (open to MIS) in the field of gynaecological surgeries (p value < 0.0001).<sup>21</sup> A total of 756 hysterectomy cases with 461 of open hysterectomy and 295 of laparoscopic hysterectomy were done between 2011 and 2018. There

was no significant difference in mean ages of patients underwent different hysterectomy (46.29±6.50 and 45.52±8.15 years, p=0.6829). The indications of different type of hysterectomy were almost comparable; with fibroids/adenomyosis (49.7%) followed by abnormal uterine bleeding (19.7%) were common indications in both groups. There was significant difference in operation duration, blood loss and hospital stays between open and laparoscopic hysterectomy cases with 143.63±43.25 vs 67.56±25.75 minutes, 294.78±51.37 vs 470.24±102.99 ml and 2.61±0.66 vs 5.64±0.69 days respectively (all p<0.0001). There were 30 major and 10 major complications occurred in open and laparoscopic hysterectomy respectively with nine minor complications in both. Eleven laparoscopy cases (3.7%) were converted to laparotomy.<sup>22</sup>

There were no systemic data storage (electronically) prior to 2010 hence there was difficulty in collecting all the information from files from different places. Likewise records on operation duration, blood loss, other complications and hospital stay etc. were not kept well in earlier days.

## CONCLUSION

Varieties of minimal invasive surgeries for various gynaecological problems were performed with minimal complications. We scaled up these minimal invasive surgeries over the period. For these adequate laparoscopic experiences of surgeons and careful selection of the cases were the obligatory prerequisites.

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