https://doi.org/10.22502/jlmc.v7i2.282

Original Research Article

Paradigm Shift in Gynecological Surgeries Over Eight Years in Dhulikhel Hospital

Suman Raj Tamrakar,[a,c] Bhagirathi Kayastha[b,c]

ABSTRACT

Introduction: One of the greatest achievements in the surgical fields is the paradigm shift from open surgery to minimal invasive surgery. Hysteroscopy, laparoscopy, laparoscopy assisted vaginal hysterectomy and total laparoscopic hysterectomy are frequently performed minimal invasive gynecological surgeries. Theses surgeries are being regularly performed in Dhulikhel hospital. This study aims to review the changes in surgical approaches in the field of gynecological surgeries in this institute. **Methods:** This was a retrospective study of changes in surgical approaches from conventional to minimal invasive surgery in the field of gynecological surgeries from 2010 to 2018. Demographic characteristics of patients and indication for various minimal invasive surgeries were compared over this time period. **Results:** There were significant changes in surgical approaches from conventional open surgeries to minimally invasive approach through the years. There was no obvious difference in demographic characteristics of the cases and the indications for hysterectomy and endometrial sampling were comparable. **Conclusion:** There was definitely paradigm shift in conventional method to minimal invasive methods for major gynecological surgeries like hysterectomy, ovarian cystectomy, salpingectomy for ectopic pregnancy and endometrial samplings.

Keywords: Ectopic, Endometrial sampling, Hysterectomy, Ovarian cystectomy, Paradigm shift

INTRODUCTION:

One of the greatest achievements in the surgical fields is the paradigm shift from open surgery to minimal invasive surgery (MIS). MIS has become increasingly popular among both surgeons and patients since early 1970s.Hysteroscopy, laparoscopy, laparoscopy assisted vaginal hysterectomy (LAVH) and total laparoscopic hysterectomy (TLH) are frequently performed minimal invasive gynecological surgeries. Varieties of MIS in gynecology are being done for diagnostic and therapeutic purposes.[1] There are ample of publications in MIS globally but very limited Nepalese publications related to different gynecological minimal invasive surgeries are found. [2,3,4,5,6]

Minimal invasive gynecological surgeries are being regularly performed in Dhulikhel Hospital (DH) since early years of its establishment. Over the period we have noticed the shifting of surgical approaches from conventional to minimal invasive mostly in benign gynecological cases. MIS services in gynecology in the form of diagnostic hysteroscopies were started in DH since January 2004. Operative hysteroscopy was started for polypectomy in August 2004.Operative laparoscopy such as ovarian cystectomy and tubal sterilization were performed since May 2004. Diagnostic laparoscopy with or without chromotubation were started for infertility

Submitted: 14 March, 2019
Accepted: 21 November, 2019
Published: 31 December, 2019

a - Associate Professor, Department of Obstetrics & Gynaecology
b - Lecturer, Department of Obstetrics & Gynaecology
c- Dhulikhel Hospital, Kathamandu University of School Medical Sciences, Dhulikhel

Corresponding Author:
Suman Raj Tamrakar
e-mail: drsuman3947@gmail.com
ORCID: https://orcid.org/0000-0002-4735-6851

How to cite this article:
Tamrakar SR, Kayastha B. Paradigm Shift in Gynecological Surgeries over Eight Years in Dhulikhel Hospital. Journal of Lumbini Medical College. 2019;7(2):70-75. DOI: https://doi.org/10.22502/jlmc.v7i2.282 Epub: 2019 December 31.

since May 2005 and laparoscopic salpingectomies for ectopic pregnancy since January 2010. Laparoscopy assisted vaginal hysterectomy started since February 2011, total laparoscopic hysterectomy since June 2015 and laparoscopic myomectomy since 2017.

This study aims to review the changes in surgical approaches in the field of gynecological surgeries in this institute.

METHODS:

This is a retrospective study of changes in surgical approaches from conventional to minimal invasive surgery in the field of gynecological surgeries from 2010 to 2018. This study was undertaken in Department of Obstetrics and Gynecology after reviewing all the patient record files and electronic record from outpatient and inpatient departments and operation theatre. Ethical clearance was taken from the hospital research committee.

For analysis purpose initial 100 cases each of hysterectomy, ovarian cystectomy, endometrial sampling and 50 ectopic pregnancies managed surgically from 2010 to 2015 were compared respectively with the same number of cases performed in 2018.

Demographic variables like age, caste, parity and indications for various MIS were compared through the years. Analysis was done using SPSS™ Version 16. Descriptive data were presented as frequency, percentage and mean. Non parametric Chi square test was used to analyze relationship between categorical data. P value less than 0.05 was considered statistically significant.

RESULTS:

The mean age of patients undergoing different operative procedures in the previous years and in 2018 were comparable with no statistically significant differences. The mean ages of hysterectomy cases were 45.14±7.41 and 45.46±6.6 years (p=0.7474) and of ovarian cystectomy cases were 30.58±11.70 and 29.52±8.90 years (p=0.4717) in the two time periods. Likewise the mean ages of surgically managed ectopic cases were 26.74±5.57 and 28.36±5.88 years (p=0.1604); and endometrial sampling cases were 39.02±9.96 and 41.12±9.07 years (p=0.1206).

There was no difference in caste distribution of the cases except for the group janajati other than Newar. This group underwent hysterectomy less but underwent more of endometrial sampling over the period (Table 1). Likewise there was no difference in address of cases coming for different gynaecological surgeries from different parts of Nepal. Patients coming for hysterectomy and endometrial sampling from other districts were increased while those undergoing ectopic surgery from Kavre district were decreased (Table 2). Indications for hysterectomy and endometrial sampling were also comparable though there were few significant differences (Table 3).

Parity and gestation age of the ectopic cases were also comparable (Table 4). Dermoid cysts were the commonest benign ovarian lesions with 29 and 30 in initial and latest cases respectively. Forty seven

Table 1: Caste of operated cases.

	Hysterectomy		Ovarian cystectomy		Ectopic		Endometrial sampling	
	Initial (n=100)	Latest (n=100)	Initial (n=100)	Latest (n=100)	Initial (n=50)	Latest (n=50)	Initial (n=100)	Latest (n=100)
Brahmin/ Chhetri	37	50	36	35	24	18	52	38
Madheshi	3	5	-	1	1	1	2	4
Lower caste	1	6	2	6	2	3	6	2
Newar	35	30	34	30	8	13	26	29
Other janajati	24	9	28	28	15	15	14	27

Table 2: Address of operated cases

	Hysterectomy		Ovarian cystectomy		Ectopic		Endometrial sampling	
	Initial (n=100)	Latest (n=100)	Initial (n=100)	Latest (n=100)	Initial (n=50)	Latest (n=50)	Initial (n=100)	Latest (n=100)
Kavre	50	45	59	55	35	23	67	55
Sindhupalchowk/ Dolakha/ Ramechhap/ Sindhuli	17	10	12	11	7	15	15	13
Kathmandu Valley	27	30	26	24	6	11	14	20
Other districts	6	15	3	10	2	1	4	12

Table 3: Indication of open and laparoscopic hysterectomies and endometrial sampling

Indications	Hysterectomy			Indications	Endometrial sampling		
	Initial	Latest	p value		Initial	Latest	p value
AUB	33	34		AUB	64	47	**0.0156**
Chronic pelvic pain/ endometriosis	6	4	0.515	Abortion/molar pregnancy	10	2	**0.0172**
Ovarian lesions	12	2	**0.005**	Polyp*	15	19	0.4515
Fibroids/ adenomyosis	35	51	**0.022**	Fibroids/adenomyosis	4	29	**<0.0001**
Cervical lesions	9	4	0.151	Cervical lesions	3	2	
Polyp*	5	5		Infertility	2	-	
				Chronic pelvic pain/ endometriosis	2	1	

* cervical / endometrial

initial and 53 latest ovarian lesions were other than dermoid cysts. Likewise, 10 initial and seven latest ovarian lesions were of endometriotic cysts. We have found 14 initial and 10 latest ovarian lesions were twisted per operatively.

There were significant changes in surgical approaches from conventional open surgeries to minimally invasive approach. Abdominal hysterectomies performed in the early years were 84 Vs 24 in the recent years. This was significantly different in the recent years where laparoscopy assisted hysterectomy performed in the early years were 16 Vs 76 in the recent years. ($X2=72.464$, $df=1$, $P<0.0001$).

Similarly cystectomies performed via open route were 69 Vs 25 in the previous and latest years whereas laparoscopic cystectomies were 31 Vs 75.

Table 4: Parity and gestational age of ectopic pregnancy

Parity		Initial	Latest
1.	Primigravida	10	14
2.	Multigravida	32	34
3.	Unknown	8	2
Period of gestation			
1.	Up to 5 weeks	12	14
2.	6 weeks	9	11
3.	7 weeks	12	11
4.	8 weeks	7	8
5.	9 weeks	1	3
6.	≥ 10 weeks	1	1
7.	Unknown	8	2

(X2=38.860, df=1, P<0.0001).

Conventional method of endometrial sampling was used in 63 Vs 8 cases in initial and later years whereas hysteroscopy was used in 37 Vs 92 cases in initial and latest years. (X2=66.055, df=1, P<0.0001).

DISCUSSION:

One of the most remarkable innovations in surgery has been the changeover from laparotomy to laparoscopy. The first reported laparoscopic hysterectomy was in 1989 by Harry Reich, for endometriosis.[7] Since then, laparoscopic hysterectomy has been considered as an alternative to abdominal hysterectomy.The aspiration for minimal invasive surgery and the capacity of surgeons to update surgical skills has contributed to the significant recent developments in laparoscopic surgery.[7]

Beside mean age, caste and address of the patients, indications of initial and latest gynecological surgery in DH were almost comparable except that for fibroids/adenomyosis. Patients have benefitted from innovative developments in gynecological MIS. Today uterine lesions (myomas, polyps, septae) are routinely treated by hysteroscopy. Symptomatic myomas and most of the benign adnexal (including ovarian) pathology can be managed by laparoscopic procedure.[8] This might be the reason for increment of MIS for fibroid/adenomyosis in DH.

The indications of MIS in gynecology were similar to that of other hospitals of Nepal. In a study, Shakya B compared the accuracy of hysterosalpingography (HSG) with hysteroscopy (HSC) while evaluating uterine pathology in patients with infertility. [2] Hysteroscopy correctly diagnosed atrophic endometrium, polyp and endometrial cancer which was also confirmed by histopathology finding. Sharma J et al concluded hysteroscopy was reliable method for evaluating cases of abnormal uterine bleeding (AUB), first line diagnosing method for benign lesions. [3] Hysteroscopy guided biopsy was most accurate in diagnosing pathology. Though all hysteroscopy cases were done for different forms of AUB, ultrasound diagnosis were myoma, endometrial polyp and carcinoma in 14, 6 and 2% respectively.[3] And 47% (n=47, N=100) latest cases underwent endometrial sampling (mostly hysteroscopy guided) for AUB while 29% (n=29, N=100) for fibroids/adenomyosis and 19% (n=19, N=100 for polyp in this study.

In a study by Saha R et al, altogether 300 patients successfully underwent laparoscopy. Of which 115 cases were diagnostic laparoscopy and 185 cases were operative laparoscopy. Subfertility was the most common indication for diagnostic laparoscopy (65) followed by that for chronic pelvic pain (42). Of the 115 operative laparoscopy, 88 cases were done for ovarian lesions with laparoscopic cystectomy were being the most common indication (65 cases) followed by that for LAVH (60 cases). [4] And indications of hysterectomies and operative procedures for initial and latest operative cases of this study were shown in Table 3 and 5 respectively. Subedi S et al., studied 100 patients who underwent laparoscopic (25 cases of diagnostic and 75 cases of therapeutic) procedures. Fifty-three patients with an ovarian mass underwent laparoscopic cystectomy. Laparoscopic salpingectomy was done in 11 patients with ectopic pregnancy.[5] Bajracharya N et al, shared an experience of 217 laparoscopic procedures over seven and half years. Lap cystectomy 97(46%), lap salpingectomy 27(13%), TLH 33(16%), diagnostic laparoscopy 32 (15%), lap oophorectomy 10(5%), LAVH 7(3%) and bilateral tubal ligation 3(2%) cases were done in that period.[6]

The variation of each method should be explored more clearly to make the proper choice of surgical method for each individual case. In DaeJeon St. Mary's Hospital of Korea, the hysterectomy method has changed based on the recent shift from laparotomy to multi port access (MPA)-TLH. [7] Similar to this study, hysterectomy approach in DH has also changed over the period. With the widespread use of laparoscopic surgery, the rate of laparoscopically-assisted surgery increased from 0.3% in 1990 to 14% in 2005 [9]Laparoscopic assisted or MIS in gynecological lesions are significantly increased in DH over eight years.

Laparoscopic procedure has various important advantages over laparotomy; hence it has become preferred surgical method. In parallel with the advancements in laparoscopic surgery and increased experiences with LAVH, TLH has become a common alternative to abdominal hysterectomy. The benefits of laparoscopic surgery, i.e. decreased pain, better cosmetic results, faster recovery, shorter hospital stay, and earlier return to normal activities increased the popularity of this route.[10] We have

also experienced same in DH.

While we prefer MIS to conventional gynecological surgeries, we are anxious about its complications. Of the 261 laparoscopic hysterectomies, eight cases (3.07%) turned into open in our study. Fibroid (five cases), dermoid cyst (two cases) and grade IV endometriosis (one case) were the reasons for turning into laparotomy. 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), minimal bleeding per vaginum, port site infection and hematoma but the numbers were very few.[11] As such there is less incidence of surgical site infection in not only in MIS but also in conventional surgeries in DH. Shrestha S et al conducted study at DH from February to April, 2014 and found overall surgical site infection (SSI) was 2.6% (n=17, N=638) while SSI in Gynecology Department was 1.8% (n=1, N=54).[12]

Reasons given for deliberate implementation of gynecological MIS are complications, operative time, highly developed procedure with a long learning curve and higher cost.[13] Another reason for the slow implementation is the long learning curve of the procedure which impacts on operating time, blood loss, complications and cost. Several studies discuss the learning curve of LH as completed after approximately 30 procedures.[14]

Minimal invasive procedures are equally safe and learnable in due course of time, which we have experienced. As one of the reasons for delay implementation of gynecological MIS is operative time with a long learning curve, future scope includes analysis of duration of surgery and experience of surgeons.

CONCLUSION:

Minimal invasive gynecological surgeries are being regularly performed in DH since 2004 and laparoscopic hysterectomies since 2011. We reviewed the shifting of surgical approaches in the field of gynecological surgeries over 8 years. There was definitely paradigm shift in conventional method to minimal invasive methods for major gynecological surgeries like hysterectomy, ovarian cystectomy, salpingectomy for ectopic pregnancy and endometrial samplings.

Acknowledgement:

I would like to thank all staffs of Department of Obstetrics and Gynecology of Dhulikhel Hospital.

Competing interests:

The authors declare that no competing interest exists.

Source of funds:

No funds were available.

REFERENCES:

1. Tomov S, Gorchev G, Tzvetkov Ch, Tanchev L, Iliev S. Laparoscopic hysterectomy - brief history, frequency, indications and contraindications. Akush Ginekol (Sofiia). 2012;51(4):40-4. PMID: 23234025.
2. Shakya B. Hysterosalpingography vs hysteroscopy in the detection of intrauterine pathology in infertility. J Nepal Health Res Counc. 2009;7(14):6-9. DOI: http://dx.doi.org/10.3126/jnhrc.v7i1.2271
3. Sharma J, Tiwari S. Hysteroscopy in abnormal uterine bleeding vs ultrasonography and histopathology report in perimenopausal and postmenopausal women. J Nepal Medical Assoc. 2016;55(203):26-8. DOI: https://doi.org/10.31729/jnma.2834
4. Saha R, Shrestha NS, Thapa M, Shrestha J, Bajracharya J, Karki SC. Experiences of gynecological laparoscopic surgeries in a teaching hospital. J Nepal Health Res Counc. 2013;11(23):49-2. PMID: 23787526
5. Subedi S, Narayan GC, Lamichhane S, Chhetry M. Initial experiences of laparoscopic surgery at Nobel Medical College Teaching Hospital: A learning curve. Journal of Lumbini Medical College. 2016;4(1):20-3. DOI: https://doi.org/10.22502/jlmc.v4i1.77
6. Bajracharya N, Dangal G, Karki A, Pradhan H, Shrestha R, Bhattachan K, et al. Experience of Laparoscopic Gynecological Surgeries at Kathmandu Model Hospital. Nepal Journal of Obstetrics & Gynaecology. 2017;12(1):22-5. DOI: http://dx.doi.org/10.3126/njog.v12i1.18988
7. Kim SM, Park EK, Jeung IC, Kim CJ, Lee YS. Abdominal, multi-port and single-port total laparoscopic hysterectomy: eleven-year trends comparison of surgical outcomes complications of 936 cases. Arch Gynecol Obstet. 2015;291(6):1313-9. PMID: 25488157. DOI: https://doi.org/10.1007/s00404-014-3576-y
8. Steiner RA, Fehr PM. Minimal invasive surgery in gynaecology. Ther Umsch. 2005;62(2):127-38. PMID: 15756923. DOI: https://doi.org/10.1024/0040-5930.62.2.127
9. Jacoby VL, Autry A, Jacobson G, Domush R, Nakagawa S, Jacoby A. Nationwide use of laparoscopic hysterectomy compared with abdominal and vaginal approaches. Obstet Gynecol. 2009;114(5):1041-8. PMID: 20168105. DOI: https://doi.org/10.1097/AOG.0b013e3181b9d222
10. Dolanbay M, Kutuk MS, Ozgun MT, Uludag S, Sahin Y. Laparoscopically-assisted vaginal hysterectomy for enlarged uterus: operative outcomes and the learning curve. Ginekol Pol. 2016;87(5):333-7. PMID: 27304647. DOI: https://doi.org/10.5603/GP.2016.0003
11. Tamrakar SR, Dongol A, Shakya S, Kayastha B. Minimal invasive gynaecological surgeries in Dhulikhel Hospital: One and half decade long experience. Kathmandu University Medical Journal. 2018;16(4):333-7. Available from: http://www.kumj.com.np/issue/64/333-337.pdf
12. Shrestha S, Wenju P, Shrestha R, Karmacharya RM. Incidence and risk factors of surgical site infections in Kathmandu Univeristy Hospital, Kavre, Nepal. Kathmandu Univ Med J. 2016;14(54):107-11. PMID: 28166064
13. Hunter EK. Evidence-based implementation and increase in the rate of laparoscopic hysterectomy. Aust NZ J Obstet Gynaecol. 2015;55(2):112-5. PMID: 25537260. DOI: https://doi.org/10.1111/ajo.12280
14. Tunitsky E, Citil A, Ayaz R, Esin S, Knee A, Harmanli O. Does surgical volume influence short-term outcomes of laparoscopic hysterectomy? Am J Obstet Gynecol. 2010;203(1):24.e1–6. PMID: 20430354. DOI: https://doi.org/10.1016/j.ajog.2010.01.070