



Role of laparoscopy in vaginal hysterectomy for nonprolapsed uterus

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OBJECTIVE(S) : To assess the role of laparoscopy in vaginal hysterectomy for nonprolapsed uterus.

METHOD(S) : Seventy eight cases requiring hysterectomy for benign gynecological disorders without uterine prolapse were studied over a period of 5 years from June 2001 to June 2006. In all cases laparoscopic assistance was taken either at the end of vaginal hysterectomy for diagnostic purpose or in difficult situations during surgery.

RESULTS : Vaginal hysterectomy could be done in 83.33% cases and laparoscopic assistance was required in the remaining 16.66% cases. The mean time taken for diagnostic laparoscopy was 6.5 minutes. Different intraabdominal pathologies and complications were detected in 36.76% cases.

CONCLUSION(S) : Laparoscopy is an important tool to detect undiagnosed complications and intraabdominal pathologies during vaginal hysterectomy on nonprolapsed uterus.

Key words : vaginal hysterectomy, vaginal hysterectomy for nonprolapsed uterus, laparoscopy

Introduction

Hysterectomy is the commonest major surgical procedure in gynecology. It can be performed by various ways namely abdominal, vaginal or with laparoscopic assistance. Superiority of hysterectomy by vaginal route is widely accepted.

Factors favoring abdominal route for hysterectomy viz., estimated uterine size in excess of 12 weeks, previous cesarean section or other surgery, need to perform oophorectomy, endometriosis, pelvic inflammatory disease, adenexal pathology, restricted mobility, and contracted bony pelvis with narrow vagina are no longer valid in the hands of experienced surgeons. The one situation in the present scenario where abdominal hysterectomy is almost exclusively the operation of choice is the presence of malignancy. Earlier

traditional contraindications to vaginal surgery automatically led to abdominal hysterectomy. Nowadays laparoscopic assistance helps in resolving the contraindications and provides the patients the benefits of vaginal hysterectomy.

Help of laparoscopy for vaginal hysterectomy involves additional cost and longer duration of operation. So we tried to assess the use of laparoscopy in a purely diagnostic fashion in all cases where hysterectomy was performed by vaginal route and assistance of laparoscopy was involved in removal of adenexal pathology, adhesions, and a cause of chronic pelvic pain, and to achieve postoperative hemostasis in complicated cases.

Methods

All 78 patients requiring hysterectomy for benign gynecological disorders without prolapse were studied from June 2001 to June 2006. We included all the cases of vaginal hysterectomy irrespective of uterine size, previous pelvic surgery, adenexal masses, restricted mobility, and associated surgical problems like appendicitis. The only exclusion criteria was gynecological malignancy.

In all cases preoperative ultrasonography of the entire

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abdomen and pelvis was done to estimate uterine volume and pathology, and adenexal pathology, and to look for the cause of chronic abdominal or pelvic pain when necessary.

All cases were operated under spinal anesthesia. After cleansing and draping, examination was done under anesthesia. Cervix was held with a volsellm. Circumferential incision was taken around it after saline infiltration. Pubovesicocervical ligament was cut and bladder pushed upward. Uterosacral and cardinal ligaments were clamped, cut and ligated. After clamping, cutting and securing uterine vessels different, techniques like uterine bisection, debulking, myomectomy, transection, and coring of the uterus were undertaken as required. Tuboovarian pedicles were secured and the uterus removed. A gentle traction was given on the tubovarian pedicles to see the ovaries and tubes through the vault and if required ovaries and tubes were removed by applying clamps on infundibulopelvic ligaments. If ovaries were >5 cm in size, they were punctured using monopolar cautery if cystic. If solid, clamp application was employed to enable removal of the ovaries. The vault was closed by continuous locking sutures.

After completion of vaginal hysterectomy a diagnostic laparoscopy was done in all cases using 10 mm umbilical port, and intraabdominal pressure of 10 mm of Hg. Vault was inspected for hemostasis, adenexas were visualized and the whole abdomen inspected to look for any other intraabdominal pathology. If during diagnostic laparoscopy any other intervention like appendicetomy or adhesiolysis were required then endotracheal intubation was done and two more ports of 5mm each were made and requisite operative procedure done laparoscopically.

Though we were attempting to complete hysterectomy vaginally if difficulty arose at any step we immediately introduced the laparoscope and took its assistance to complete the procedure instead of abandoning the vaginal route and resorting to abdominal procedure.

In cases where we found difficulty in securing uterine arteries vaginally the round ligaments and tuboovarian ligaments were coagulated and cut by using bipolar forceps laparoscopically, and after skeletonising the uterine arteries they were also coagulated and transected laparoscopically.

Results

Of the 78 cases, vaginal hysterectomy could be performed without laparoscopic assistance in 65 (83.33%) and with laparoscopic assistance in the remaining 13 (16.66%) (Table 1). Maximum number of patients undergoing hysterectomy were in the age group of 41-45 years (35/78; 44.87%). 92.3% patients had parity 2 or more favoring vaginal route of

surgery. Most common indication for doing hysterectomy was fibroid uterus (25/78; 32.05%), followed by dysfunctional uterine bleeding (17/78; 21.79%) (Table 2). Table 3 gives the uterine volume in our cases. Vaginal hysterectomy can be safety done even in uterii having a volume of more than 400 mL.

Table 1. Assistance by laparoscopy.

Assistance	Number	Percent (n=78)
After completing vaginal hysterectomy only as diagnostic procedure	65	83.33
Operative assistance	13	16.66
To separate bladder	5	6.41
In previous cesarean section	3	3.84
In previous myomectomy	1	1.28
In previous laparotomy	1	1.28
To facilitate removal of adenexa	3	3.84
To secure uterine arteries	5	6.41

Table 2. Patient characteristics (n=78).

Variable	Number	Percentage
Age (years)		
36-40	20	25.64
41-45	35	44.87
46-50	13	16.66
Above 40	10	12.82
Parity		
1	06	7.69
2	17	21.79
3	45	57.69
≥ 4	10	12.82
Menopausal status		
Menopausal	12	15.38
Premenopausal	66	84.61
Indication for hysterectomy		
Fibroids	25	32.05
Dysfunctional uterine bleeding	17	21.79
Adenomyosis	06	7.69
Pelvic inflammatory disease	10	12.82
Adenexal mass	11	14.10
Carcinoma in situ	4	5.12
Chronic pelvic pain	5	6.41.

Out of 78 cases, 62 (79.45%) had history of previous surgery, most common being tubectomy followed by cesarean section (Table 4).

Table 3. Preoperative uterine volume (n=78).

Uterine volume (mL)	Number	Percent
< 50	3	3.84
51-100	21	26.92
101-200	10	12.82
201-300	15	19.23
301-400	16	20.51
> 400	13	16.66

Table 4. History of previous surgery (n=78).

Previous surgery	Number	Percent
	62	79.45
Tubectomy	25	32.05
Previous one cesarean section	10	12.85
Previous two cesarean sections	06	7.69
Previous myomectomy	02	2.56
Previous laparotomy for intestinal perforation	05	6.41
Previous diagnostic laparoscopy for chronic pain in abdomen	03	3.84
Truncal vagotomy with gastrojejunostomy	02	2.56
Resection and anastomosis for ileocecal tuberculosis	01	1.28
Appendectomy	04	5.12
Cholecystectomy	03	3.84
Liver abscess drainage	01	1.28
Nil	16	20.65

When we did diagnostic laparoscopy at the end of vault closure in 65 cases we found omental adhesions at previous scar site in 11 (16.92%) cases. Postoperative bleeding from the vault was seen in two cases, one of which required laparotomy. Laparoscopic appendectomy was performed in two cases (3.07%). One needed laparotomy for bilateral chocolate cysts with dense pelvic and intestinal adhesions (Table 5). Thus out of 65 cases, in 20 cases (30.76%) laparoscopy helped us to detect various complications and intraabdominal pathologies.

Mean operative time for doing diagnostic laparoscopy after vaginal hysterectomy was 6.5 minutes and it could be successfully done under spinal anesthesia itself (Table 6). Trocar port complication occurred in eight cases (three developed infection and five had severe pain for a short duration).

Table 5. Results of diagnostic laparoscopy (n=65).

	Number	Percent
Vaginal cuff hematoma	2 ^a	3.07
Bleeding requiring laparotomy	1	1.53
Omental adhesions at previous scar requiring adhesiolysis	11	16.92
Appendicitis	2 ^b	3.07
Iliocecal tuberculosis	2	3.07
Bilateral chocolate cysts with dense pelvic and intestinal adhesions	1 ^c	1.53
Asymptomatic malrotation of gut	1	1.53

^a One needed laparotomy ^b Laparoscopic appendectomy done in both ^c Needed laparotomy

Table 6. Surgical time.

Operating time	Mean (minutes)	Range (minutes)
Vaginal hysterectomy	58.5	30 - 120
Diagnostic laparoscopy after vaginal hysterectomy	6.5	5-10
Laparoscopic assistance for hysterectomy	80.2	80-150
Laparoscopic assistance for hysterectomy and additional surgery like appendectomy and adhesiolysis	100.3	80-120

Discussion

We could perform vaginal hysterectomy in 83.33% (65/78) which is higher than 64% reported by Dewan et al ¹ but less than 95% reported by Kumar and Antony². In 13 other cases (16.66%) we were able to perform vaginal hysterectomy with laparoscopic assistance avoiding laparotomy. Kumar and Antony² opted for laparotomy in 5% cases. Das and Sheth³ prefer laparotomy over laparoscopy because of its advantages of speed and better access for dissection. In our experience uterine size, descent and mobility of the uterus, adenexal pathology, and previous surgery did not pose any problems in performing vaginal hysterectomy with laparoscopic assistance if required. Uterus could be removed vaginally in all the cases and only in two (2.56%) cases laparotomy was needed – in one case for bilateral chocolate cysts with dense omental and intestinal adhesions, and in another because of hemorrhage from uterine pedicle which could not be secured laparoscopically. Both these complications were detected at laparoscopy.

Fibroid uterus was the most common indication for hysterectomy in 32.05% comparable with 29.41% reported by Purohit and Pattnaik ⁴, 43.33% by Singh and Bansal ⁵, and 68% by Dewan et al ¹.

Previous surgeries are considered a relative contraindication for vaginal hysterectomy due to surgical adhesions and fear of traumatizing the bladder especially in cases of previous cesarean section. Using the concept of surgical window advocated by Das and Sheth ⁶ we were successful in separating the bladder vaginally in 72.22% (13/18) cases of previous one or two cesarean sections or myomectomy. In other 6.4% (5/18) cases bladder was separated laparoscopically. No injury to bladder occurred in our study where as it occurred in 2.5% cases of Kumar and Anthony ².

We used laparoscopy to secure uterine arteries in 6.4% (5/78) cases as in all these cases because of fibroids the angle between the cervix and body of the uterus was acute and it was difficult for us to have access for applying clamps vaginally. Singh and Bansal ⁵ advocate laparotomy when complications occur during vaginal hysterectomy in cases of enlarged uteri.

Though it is an accepted fact that laparoscopy is not required in cases of vaginal hysterectomy we felt secure by performing diagnostic laparoscopy in all our cases so that no unexpected pathology or complication was not missed. The mean time required to do diagnostic laparoscopy after vaginal hysterectomy was 6.5 minutes (Table 5) and the procedure was completed under spinal anaesthesia itself. But in 30.76% (20/65) cases we could detect abdominal pathologies like omental adhesions, appendicitis, and iliocaecal

tuberculosis (Table 5). None of these pathologies had prevented us from taking out the uterus vaginally.

Complications because of trocar port occurred in eight of our 65 cases (12.3%) - infection in three and severe pain at umbilical port in five. This is much lower than 54.1% reported by Agostini et al ⁷. If bleeding was suspected through ports, then ports were closed by us using port closing needle laparoscopically.

Conclusion

Laparoscopy is an important tool to detect undiagnosed complications and intraabdominal pathologies during or after vaginal hysterectomy.

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