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A case series of laparoscopic Pectopexy in management of apical prolapse in Indian patients

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Abstract

Background: Uterovaginal prolapse is a common problem seen in Indian women affecting women in both young as well as old age. It may also occur in post hysterectomy cases. Laparoscopic pectopexy is a proposed new technique of apical prolapse repair. There are no Indian studies being done on this latest technique till date.

Objective: To present a case series of laparoscopic pectopexy, a new technique of apical prolapse repair in Indian patients in a tertiary centre and assess its efficacy.

Materials and Methods: Twelve patients of apical prolapse either uterovaginal or vault prolapse were included in study. Laparoscopic cervico- or colpopectopexy was done using iliopectineal ligaments on both sides of pelvic side walls. The perioperative and short term results were observed and recorded.

Results: Laparoscopic pectopexy was done in our twelve cases which included 8 uterovaginal and 4 vault prolapse. The mean effective blood loss was less than 10 ml and average operative time was around 96 minutes. There were no intraoperative complications in any of our patients. In no case conversion to laparotomy was needed. In follow up there were no major gastrointestinal, urinary complications with no de novo cystoceles or recurrence or stress urinary incontinence with excellent patient satisfaction.

Conclusion: Laparoscopic pectopexy is a new technique in a surgeon's armamentarium that can be used more safely, effectively and easily as compared to sacrocolpopexy in management of apical prolapse.

Keywords: Apical prolapse, pectopexy, vault prolapse, iliopectineal ligament

Introduction

Pelvic organ prolapse is a common health problem affecting about 30% of women between 20-59 years of age and more than half of this are over 50 years of age which may lead to unnecessary increase in hysterectomies [1, 2, 3]. Pelvic organ prolapse may seriously influence the physical, psychological and social well-being of affected women. This condition may present with symptoms of pelvic heaviness, protrusion of vagina or dyspareunia. Women may also have associated altered bowel and bladder symptoms like constipation, urinary incontinence or retention. Incidence in Indian women is underreported because of hesitancy in discussing problems like urinary incontinence and prolapse uterus by our women.

Surgery is the definitive treatment for symptomatic apical prolapse. The goals for surgical management of apical prolapse are to relieve all symptoms and restore normal functional anatomy with no recurrence.

Sacrocolpopexy either done abdominally or laparoscopically is being considered the gold standard technique for repair of apical prolapse for both uterovaginal and vault prolapse till now [4, 5]. Laparoscopic route is definitely better as it provides advantage of minimal invasion, less blood loss and rapid postoperative recovery.

In sacrocolpopexy a mesh is placed between the sacrum and vagina or cervix which narrows the pelvis due to post op adhesions. Many studies have clearly mentioned that sacropexy is associated with defecation disorders, constipation, small bowel obstruction [5, 6]. Pelvic organ prolapse is more common in obese patients in which this technique may be less feasible due to restricted accessibility in posterior compartment [7]. Moreover technically this technique require high surgical expertise as it require dissection close to vital structures leading to injury of right ureter and sometimes life threatening bleeding from presacral vessels [8, 9].

In 2007, Guntner Noe introduced a new technique of pectopexy which uses iliopectineal ligaments which are being used over a long time for Burch operation and the iliopectineal ligament is considered stronger than anterior longitudinal ligament [10, 11].

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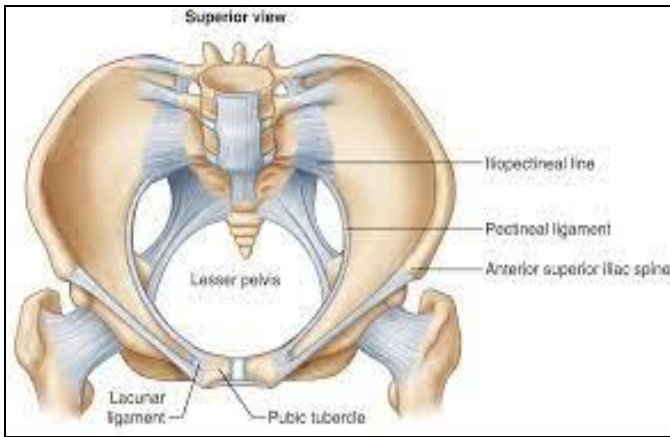


Fig 1: Anatomy of pectineal ligament

This new technique provides better physiological axis as it involves cervix or vagina fixed to lateral parts of IP ligaments on both sides like a hammock whereas in sacropexy uterus is Unidirectionally pulled up. This technique is technically easy to perform and does not reduce pelvic outlet. This technique have very few chances of any complication as it remain away from vital structures and also more feasible in obese patients where accessibility for more elaborate dissections near rectum and sigmoid may be feasible [10, 12]. Studies on short term and intermediate term post-op results of pectopexy shows no de novo stress urinary incontinence and de novo lateral or anterior cystoceles [12, 13]. We are presenting our first series of prolapse cases repaired by this new technique in our Indian patients.

Aims and Objectives

To share the results of a new surgical technique, laparoscopic pectopexy in a series of 12 patients of apical prolapse.
To evaluate the efficacy of the procedure.

Materials and Methodology:

We performed laparoscopic pectopexy in twelve patients of uterovaginal or vault prolapse between June 2017 to July 2019 at Vivekanand polyclinic and institute of medical sciences. We included all patients who had symptomatic prolapse and on examination were found to have more than grade 2 prolapse. Grading was done on the basis of POP-Q System. Patients were also asked about urinary symptoms like incontinence or retention or bowel complaints. Patients with previous operations for correction for prolapse, pelvic inflammatory disease or suspected massive adhesions due to previous surgery were excluded. Written informed consent was obtained from all patients after explaining the surgical steps in detail. All patients who consented were analyzed for age, BMI, Effective blood loss, operative time, intraoperative complications, conversion to laparotomies and postoperative complications. All patients were followed up at 1 week, 6 weeks and 6 months postoperatively and evaluated for any relapse or de novo recurrence of anterior or lateral cystocele.

Surgical Procedure: [10].

All surgeries were performed by same surgeon, using same standard endoscopic equipment and instruments. After pneumoperitoneum a 10mm optical device inserted through supraumbilical primary port and three 5mm accessory ports established. In all patients with intact uterus uterovesical fold was opened and extended laterally on right side following just medial to round ligament towards lateral pelvic wall (Figure 2).

Dissection is done considering in mind important landmarks of external iliac vein as lateral extent, obliterated umbilical artery medial limit and approximately 4 cm of right iliopectineal ligament appearing glistening white is exposed (Figure 3). This segment is situated at S2 level. The same steps are repeated on left side. In patients of vault prolapse separation of anterior and posterior peritoneum from vagina may be difficult due to fibrosis. After exposing both IP ligaments a microporous PVDF polyvinylidene fluoride monofilament mesh 3x15 cm was inserted in abdominal cavity. One end of the mesh is fixed to IP ligament using nonabsorbable Ethibond no 2 suture (Figure 4). Then the cervical area or vaginal apex was elevated for tension free position and mesh fixed on it taking 6-8 sutures (Figure 5). Lastly mesh is fixed on other side IP ligament with any redundant mesh being cut if required (Figure 6). Lastly whole mesh was peritonised using vicryl no. 2-0 in continuous suture technique (Figure 7, 8). Patients with rectocele and lax perineum were corrected by combining with posterior colpoperineorrhaphy. Low dose vaginal estriol given postoperatively for 6 weeks.



Fig 2: Dissection of Uterovesical fold on both sides.



Fig 3: Exposing white glistening Iliopectineal ligament on both sides between obliterated Umbilical ligament medially and external iliac vein laterally.



Fig 4: Figure showing fixing polypropylene mesh on left side using two sutures of Ethibond -2

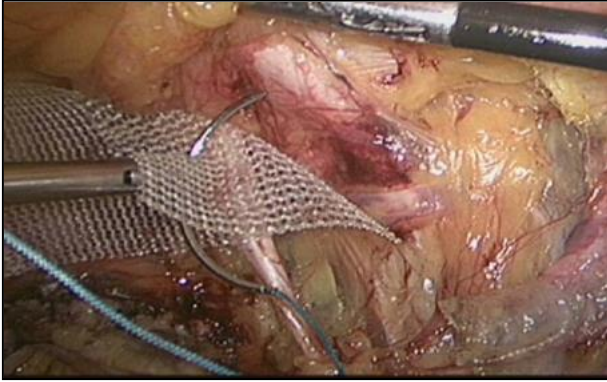


Fig 5: Fixation of mesh on right side iliopectineal ligament.



Fig 6: Fixation of mesh on cervix in case of intact uterus and vaginal wall in case of vault prolapse by 6-8 stiches.

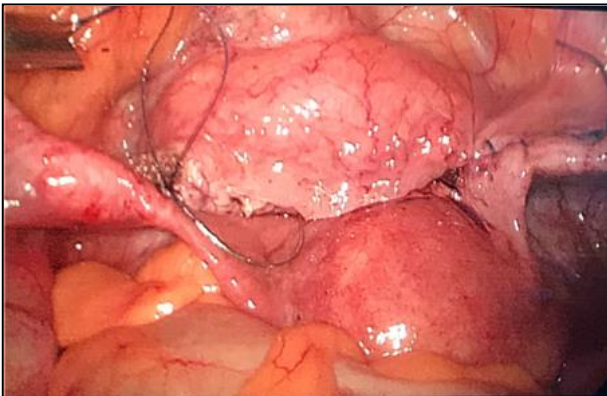


Fig 7: Figure is showing laparoscopic view after peritonisation of mesh in case of hysterocervicopexy.

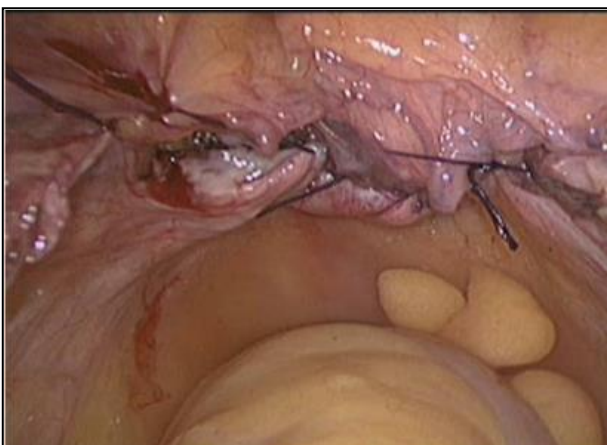


Fig 8: Figure showing laparoscopic view in case of vault prolapse at the completion of colpopexy.



Fig 9: This figure is showing third degree prolapse before surgery.



Fig 10: This figure is showing vaginal picture with cervix drawn up after laparoscopic colpophysteropexy.

Results

We operated 12 patients of symptomatic apical prolapse over a span of 2 years, out of them 8 were uterovaginal prolapse and 4 had presented with vault prolapse. Out of 8 patients of UV prolapse 4 had accompanied cystocele and rectocele in 2 patients, with no stress urinary incontinence in any. Almost all patients of vault prolapse had lax introitus. The mean effective blood loss was less than 10 ml and average operative time was around 96 minutes. Laparoscopic pectopexy was performed in all patients with posterior colpoperineorrhaphy in 8 patients. There were no intraoperative complications in any of our patients. All patients were discharged in 2-3 days and followed up at 1 week, 6 weeks and 6 months. Patient acceptability for the procedure was wonderful. In no case conversion to laparotomy was needed. In follow up there were no major gastrointestinal, urinary complications with no de novo lateral cystoceles or recurrence.

Discussion

Sacrocolpopexy is considered the surgery of choice for the management of apical prolapse. According to studies it provides very good anatomical and functional outcomes. But despite that there has been a constant search for some other better surgical procedure because the literature also states that it has more gastrointestinal complications varying from 17 -37% most common being constipation because of reduced space in pelvis due to fibrosis as technique involves dissection in posterior part of pelvis in close proximity with sigmoid colon and rectum. Also while preparing the presacral area for mesh fixation, hypogastric nerve bundle may get damaged^[12, 13]. Sir Guntner, who introduced a new laparoscopic technique

where mesh was fixed on iliopectineal ligament isn't expected to have these complications as the mesh is fixed laterally, quite far from posterior compartment. A randomized clinical trial comparing the two laparoscopic techniques with good sample size in both groups came out with significantly increased constipation 19.5% in sacrocolpo / cervicopexy whereas none patient of pectopexy group developed constipation^[14, 15]. In our case series only one patient has complained significant constipation.

Studies have also reported high de novo SUI (stress urinary incontinence) rates as high as 37.6% in patients of sacrocolpopexy^[16, 17]. But in contrast with these studies the comparative study by Gunter Noe found almost similar de novo SUI rates of about 5% in both groups. In our case series we did not get any patient of denovo SUI, till the short term follow up of 6 months.

As far as de novo lateral cystoceles are concerned previous study has shown about 12.5% incidence in sacropexy group, though none is found in our case series of pectopexy. It is presumed that this low recurrence of anterior lateral defects is due to lateral hammock like support provided by mesh in pectopexy.

Site specific repair or concomitant repair of rectocele along with pectopexy is always a better option to prevent de novo rectocele. We didn't observe any de novo rectocele in any of our patients. Another important concern about use of mesh is erosion, studies have reported about 2.7% erosion rates in sacrocolpopexy^[18].

We did not notice any erosion in our cases as the whole mesh is peritonised properly. Intraoperative complications like injury to ureter, bladder, rectum or sacral veins are more in sacrocolpopexy as it involves dissection near these structures & learning it has a long learning curve.

Laparoscopic pectopexy is expected to give better anatomical and surgical outcomes especially in cases with anticipated difficult access to posterior compartment as in this mesh is fixed at S2 level whereas in sacrocolpopexy fixed on promontory which is higher level. The surgery results were evaluated by noting dyspareunia and any relapse in follow ups by examination and finding descend =>II degree on POPQ Scale. There were no recurrence in any of our patients, though study by Gunter has resulted in 9.8% relapse in sacropexy as compared to 2.3% in pectopexy grp. Rather Alper Biler has suggested no statistically significant difference in recurrence or any intraoperative complications between laparoscopic sacrocolpopexy and pectopexy^[14, 19].

So on the basis of available past literature, and short term results of our case series of twelve patients of apical prolapse in our Indian patients, the new technique of laparoscopic pectocolpopexy seems promising as it is technically feasible with short learning curve, provides almost comparable anatomical and physiological outcome with less chances of intraoperative injuries and definitely less associated postoperative de novo gastrointestinal symptoms, SUI, and lateral defects.

Table 1: Table Showing Results of 12 Patients of Apical Prolapse with Laparoscopic Pectopexy

S. No.	Type of Prolapse	Age (Yrs)	BMI	OT Time (Min)	Effective Blood Loss (ml)	Intra-Op Complication	Post-Op Complication
1	Vault Prolapse	62	25.6	110 min	12 ml	nil	nil
2	Vault Prolapse	56	29.5	190 min	15 ml	nil	nil
3	Vault Prolapse	50	32.5	120 min	10 ml	nil	severe constipation
4	Vault Prolapse	52	23.8	146 min	10 ml	nil	nil
5	Uterovaginal Prolapse	26	24.9	94 min	14 ml	nil	nil
6	Uterovaginal Prolapse	32	29	90 min	05 ml	nil	nil
7	Uterovaginal Prolapse	30	24	86 min	10 ml	nil	nil
8	Uterovaginal Prolapse	24	26	124 min	05ml	nil	nil
9	Uterovaginal Prolapse	42	27.3	76 min	10 ml	nil	nil
10	Uterovaginal Prolapse	40	23	84 min	08 ml	nil	nil
11	Uterovaginal Prolapse	35	24.1	118 min	08 ml	nil	nil
12	Uterovaginal Prolapse	26	26	98 min	12 ml	nil	nil

Conclusion

Laparoscopic pectopexy can be a good alternative surgery in patients of apical prolapse. Though we need to do comparative trials in large sample size in our Indian patients and results followed for a long duration

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