

## ROLE OF MESH REPAIR IN PELVIC ORGAN PROLAPSE, WITH PARTICULAR REFERENCE TO VAULT PROLAPSE & NULLIPAROUS PROLAPSE

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### ABSTRACT

#### BACKGROUND

Pelvic organ prolapse is a common complaint in gynaecological practice. Nulliparous prolapse is seen in 2% of female population and vault prolapse in 0.5% following hysterectomy. Various surgical procedures have been described for the repair of vault prolapse e.g. transvaginal sacrospinous colpopexy, transabdominal sacral colpopexy, Le Forte's operation, colpocleisis, posterior intravaginal sling plasty etc. The introduction of synthetic mesh like Prolene, Mersilene for the repair of vault prolapse have the advantage of tensile strength. In nulliparous prolapse and uterovaginal prolapse also, the supports of uterus are weakened, so there seems to be a definite advantage of mesh repair over sling surgeries.

#### MATERIALS AND METHODS

A prospective study done in 50 patients with vault prolapse, Nulliparous prolapse and patients with UV prolapse who want to retain their menstrual and reproductive function were identified and repair of defects were done. 2 cases who underwent both hysterectomy and sacral colpopexy in two sittings were included in the study. They were followed up for a period of 6 weeks - 29 months.

#### RESULTS

In the present study, the mean age for vault prolapse was 52.14 years, mean parity was 3.36. Vault prolapses were found to be more common after abdominal hysterectomy 60.97% compared to vaginal 39.02%. Common indication for hysterectomy is pelvic organ prolapse followed by DUB in this study. The mean time between the hysterectomy and vault prolapse in this study was 5.46 years. Importance should be given to proper enterocoele repair and vault suspense time of primary surgery. In this study incidence of smoking in vault prolapse cases was 34.14% significant. In cases of sacral colpopexy for vault prolapse in this study there were no major mesh related complications and the cure rate was 97.5%. So, sacral colpopexy with prolene mesh i.e. abdominal mesh repair can be employed as the primary surgery for vault prolapse. The safety and efficacy of hysterectomy and sacral colpopexy in the same sitting needs further evaluation. In this study of abdominal surgery with prolene mesh for conservative management of uterine prolapse, there was recurrence in 1 case, no mesh complications, no intraoperative complications, and 1 patient had abdominal discomfort.

#### CONCLUSION

In the present study, the safety and efficacy of abdominal mesh repair for vault prolapse and for conservative management of uterovaginal prolapse is proved.

#### KEYWORDS

Vaginal Vault Prolapse, Nulliparous Prolapse, Mesh Repair, Abdominal Hysterectomy.

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#### BACKGROUND

Pelvic organ prolapse is a common complaint in gynaecological practice. Nulliparous prolapse is seen in 2% of female population and vault prolapse in 0.5%, following hysterectomy.<sup>1</sup> The current incidence of vault prolapse in 3-

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6 per 1000 is increasing on account of longer survival of women.<sup>2</sup> These women suffer from various forms of urinary, anorectal & sexual dysfunction.

Various surgical procedures have been described for the repair of vault prolapsed e.g. transvaginal sacrospinous colpopexy, transabdominal sacral colpopexy, Le Forte's operation, colpocleisis, posterior intravaginal sling plasty etc..<sup>3</sup> As there is some inherent weakness in the native pelvic connective tissues of older women there is a chance of recurrence of vault prolapse following surgery. The introduction of synthetic mesh like Prolene, Mersilene for the repair of vault prolapse which have the advantage of tensile strength could solve this problem. But there are complications associated with mesh like erosion, infection,

adhesion formation, intestinal obstruction, etc., which may necessitate its removal. In nulliparous prolapse and uterovaginal prolapse also, the supports of uterus are weakened, so there seems to be a definite advantage of mesh repair over sling surgeries<sup>4</sup> in which the patient's rectus sheath or other fascia (which are of doubtful strength) are used.

So, the aim of this study is the safety and efficacy of mesh repair in pelvic organ prolapse is being evaluated especially in Nulliparous prolapse, Uterovaginal prolapse in young women who want to retain their menstrual and reproductive function and Vaginal vault prolapse.

**MATERIALS AND METHODS**

This is a prospective study conducted on women attending the Gynaecology department of KGH, Visakhapatnam from May 2015 to April 2017 after obtaining permission from institutional ethical committee. Preoperative evaluation was done and after obtaining fitness for anaesthesia cases were posted for surgery. Any aggravating factors like cough, and local genitourinary tract infections were treated. Informed written consent was taken.

Prerequisites Dilatation and curettage and pap smear in cases where uterus and cervix are conserved- to rule out malignancy. Inclusion criteria - Patients with Vault prolapse who are fit for surgery, Nulliparous prolapse, Uterovaginal prolapse who want to retain their menstrual and reproductive function. Patients who are unfit for surgery, Presence of pelvic inflammatory disease, For nulliparous prolapse and uterovaginal prolapse, in addition to the above criteria, any cervical or uterine pathology revealed with D&C and pap smear, Pregnancy and puerperium are excluded from study. Procedures done, for vault prolapse are, Transabdominal sacral colpopexy, Laparoscopic sacral colpopexy, Vaginal mesh repair- prolift technique. For conservative management of uterovaginal prolapse Purandare's cervicopexy, Laparoscopic sacrohysteropexy, Synthetic mesh used, is Prolene mesh for all the cases. Routine post-operative check-up was conducted 6 weeks later for any Signs and symptoms of recurrence/failure, Mesh related complications and treatment of local infections and precipitating factors.

**RESULTS**

Total of 52 cases were included in the study. Of these, 41 were cases of post hysterectomy vaginal vault prolapse which underwent mesh repair, 2 cases underwent concomitant abdominal hysterectomy for III degree uterovaginal prolapse along with sacral colpopexy, 9 cases were for uterine preservation with mesh by Purandare's cervicopexy, laparoscopic sacrohysteropexy. Categorical data was represented as frequencies and percentages as follows.

**Results for Vault Prolapse-**  
(Total No. of Cases n= 41).

Age in Years	No. of Cases	Percentage
41-45	10	24.39
46-50	12	29.26
51-55	6	14.63
56-60	9	21.95
61-65	3	7.31
66-70	1	2.43

**Table 1. Distribution of Cases of Vault Prolapsed in Relation to Age**

In this study 29.26% cases were in the age group of 46-50 years. Range was from 42-68 years. Mean age was 52.14 years.

	No. of Cases	Percentage
Smoker	14	34.14
Non-Smoker	27	63.85

**Table 2. Distribution According to History of Smoking**

In this study 34.14% patients were smokers.

Parity	No. of cases	Percentage
Para 2	11	26.82
Para 3	14	34.14
Para 4	10	24.39
Para 5	4	9.75
Para 6	1	2.43
Para 7	-	-
Para 8	1	2.43

**Table 3. Distribution According to Parity**

In this study majority of cases were para 3, 34.14%. Mean parity is 3.36.

Route	No. of Cases	Percentage
Abdominal	25	60.97
Vaginal	16	39.02

**Table 4. Route of Previous Hysterectomy**

Route of hysterectomy in this study was abdominal in 60.97% of the cases, vaginal in 39.02%.

Indication	No. of cases	Percentage
Pelvic organ prolapse	14	34.14
DUB	11	26.82
Fibroid uterus	8	19.51
Chronic cervicitis	5	12.19
Ovarian mass	2	4.87
PID	1	2.43

**Table 5. Indication for hysterectomy**

In this study vault prolapse was common after hysterectomy for pelvic organ prolapse, seen in 34.14% of cases.

Procedure	No. of Cases
Abdominal sacral colpopexy	38
Laparoscopic sacral colpopexy	2
Vaginal tension free mesh repair (Prolift)	1

**Table 6. Procedure Employed**

Incisional hernia was observed in 2 cases and concurrent mesh repair was done for them.

Intraoperative Complications	No. of Cases	%
Blood loss requiring blood transfusion	1	2.43
<b>Postoperative</b>		
Febrile morbidity	2	4.87
Anaesthetic complications (spinal headache)	3	7.31
Wound infection	2	4.87
Lower abdominal pain	3	7.31

**Table 7. Incidence of Intraoperative and Postoperative Complications**

In the present study there were no major intraoperative complications. Blood loss requiring blood transfusion was there in 1 case. This case underwent Prolift surgery.

Lower abdominal pain was encountered in 3 cases (7.31%), there was no associated clinical pathology in these cases.

All the cases were followed up for a time period ranging from 6 weeks to 29 months. Mean follow up period was 13.31 months.

	No. of Cases	%
Recurrence	1	2.43
Mesh related complications like erosion, infection, intestinal obstruction etc.	Nil	Nil

**Table 8. Recurrences and Mesh Related Complications**

In this study, no major mesh related complications were encountered. Relief of the presenting symptoms is seen all the cases. Recurrence was seen in only one case (2.43%), this was due to technical problems.

In 2 cases, total abdominal hysterectomy was done along with mesh repair.

**Results for Conservative Management of Uterovaginal Prolapse**

(Total No. of Cases n=9).

Parity	No. of Cases
Nullipara	5
Parous women	4

**Table 9. Distribution According to Parity**

Age in years	No. of Cases
16-20	1
21-25	4
26-30	2
31-35	2

**Table 10. Distribution According to Age**

Degree of Prolapsed	No. of Cases
I	-
II	4
III	5
IV	-

**Table 11. Degree of Prolapse**

In this study, all the cases were 2<sup>nd</sup> and 3<sup>rd</sup> degree prolapses. There were no neurological symptoms or menstrual disturbances in the cases included in this study. In 1 case, prolapse was caused by obstetrical trauma.

Procedure	No. of cases
Purandare's cervicopexy	7
Laparoscopic sacrohysteropexy	2

**Table 12. Surgical Procedure Employed**

In this study, there were no major intraoperative or postoperative complications. In 1 case, there was 16 weeks size ovarian mature teratoma which was removed. 1 case had abdominal discomfort in no clinical pathology could be identified.

Cases were followed up for a period ranging from 6 weeks to 29 months. Mean followup period being 12.61 months.

Recurrence is seen in one case. No major mesh related complications were encountered.

**DISCUSSION**

In the present study, 52 patients with various types of pelvic organ prolapsed (41 with vault prolapse, 9 with uterovaginal prolapse who want to retain their uterus) were identified and repair was done using prolene mesh. The common surgical procedures used are sacral colpopexy and Purandare's cervicopexy. They were followed up as long as possible to assess the safety and efficacy of mesh repair.

Of the 40 cases of vault prolapse a cure rate of 97.57% is seen following sacral colpopexy. Mean follow up period was 13.43 months. No major mesh related complications are seen.

Parameter	Present Study	Jean pierre et al <sup>5</sup>
Mean age	51.94	55.42
Parity Range	2 - 8	0 -5
Mean	3.31	2.54
Interval between hysterectomy and vault prolapse Range	6 mon- 14 yrs.	1 - 37 yrs.
Mean	5.47 yrs.	17.92 yrs.
Most common indication for hysterectomy	Prolapse	Fibroids
Post-op febrile morbidity	4.87%	20%
Mean follow up period	13.54 months	10.5 yrs.
Mesh complications	Nil	Nil
Recurrence	2.43%	2.35%

**Table 13. Comparison with Study by Jean Pierre et al<sup>5</sup> 2001**

The study by Jean Pierre et al<sup>5</sup> was a long-term study contested from 1978-1998 in 85 patients. Mean age and parity were similar in both the studies. Post-operative febrile

morbidity was 2.35% in the present study and is less than that in the study by Jean Pierre et al<sup>5</sup>. There were no major mesh related complications in both the studies. Recurrence rates were also similar and lower at 2.43% and 2.35%.

Mesh erosion rates were at 5.4% (6.9% in post hysterectomy vault prolapse cases versus 4.7% in cases with concomitant hysterectomies) in a study by Jennifer et al<sup>6</sup>. In

the present study 2 cases underwent concomitant hysterectomy for UV prolapse. There was no recurrence and no complications in these 2 cases.

Kohli and colleagues<sup>7</sup> reported in 1996, 7% incidence of mesh recurrence.

Sl. No.	Study	Duration of follow Up (Months)	No. available for follow up	% cured
1.	Present Study	1.5 — 29	42	97.57
2.	Scarpero HM et al <sup>8</sup>	6-27	22	100
3.	Valaitis et al(1994) <sup>9</sup>	3-91	38	93
4.	Iosif (1993) <sup>10</sup>	12 — 120	40	96
5.	Creighton et al (1991) <sup>11</sup>	3 — 35	23	91
6.	Angilo et al (1989) <sup>12</sup>	2 — 36	18	97

**Table 14. Comparative Analysis of Cases for Follow up**

In the present study 1 case underwent vaginal mesh repair, there was severe blood loss and patient required per op and post op blood transfusions. No other complications occurred and there was no relapse in this case.

In the present study 9 cases underwent uterine preservation surgery by using mesh. Of these patients 5 were nulliparous. No intraoperative and postoperative complications or major mesh related complications were seen in any of these patients.

They were followed up for 6 weeks to 29 months. There was only 1 recurrence.

### CONCLUSION

In the vaginal tension free mesh repair of vault prolapse by Prolift which was done in one case there was excessive blood loss requiring transfusions. The sail efficacy of vaginal mesh has to be evaluated in detail.

Sacral colpopexy with prolene mesh i.e. abdominal mesh repair can be employed as the primary surgery for vault prolapse.

The safety and efficacy of hysterectomy and sacral colpopexy in the same sitting needs further evaluation.

In the present study the safety and efficacy of abdominal mesh repair for vault prolapse and for conservative management of uterovaginal prolapse is proved.

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