



## Sacrospinous fixation: an efficient technique for prevention and treatment of vault prolapse

Rajshree dayanand katke<sup>1</sup>, Usha kiran.<sup>2</sup>

1M.D.(Obstetrics & Gynecology), FICOG, FMAS, Medical Superintendent, Associate Professor & unit chief, Obstetrics & Gynecology Department, Cama & Albless Hospital, Grant Government Medical College & Sir J. J. Group of Hospitals, Mumbai, Maharashtra, INDIA.

**Corresponding Address:** Dr Rajshree Dayanand Katke, Medical Superintendent, Associate Professor & unit chief, Obstetrics & Gynecology Department, Cama & Albless Hospital, Grant Government Medical College & Sir J. J. Group of Hospitals, Mumbai, Maharashtra, INDIA. Email: [drrajshrikatke@gmail.com](mailto:drrajshrikatke@gmail.com) Blog : [drrajshreekatke.blogspot.com](http://drrajshreekatke.blogspot.com).

### Abstract:

A Sacrospinouscolpopexy, introduced by randall and Nichols in 1971, has become a favored method for restoring vaginal support in women with vault prolapse, massive eversion of the vagina and procidentia. Defects in apical vaginal support are crucial to recognize and address when undertaking surgery for prolapse. The upper third of the vagina (level i) is suspended from the pelvic walls by vertical fibers of the paracolpium, which is a continuation of the cardinal ligament.

**Key words:** Sacrospinouscolpopexy, vault prolapse

### Introduction:

A Sacrospinouscolpopexy, introduced by randall and Nichols [1] in 1971, has become a favored method for restoring vaginal support in women with vault prolapse, massive eversion of the vagina and procidentia. Defects in apical vaginal support are crucial to recognize and address when undertaking surgery for prolapse. The upper third of the vagina (level i) is suspended from the pelvic walls by vertical fibers of the paracolpium, which is a continuation of the cardinal ligament [2]. the uterosacral and sacrospinous ligament suspension seek to restore the level 1 vaginal support. In the present study, transvaginalsacrospinous ligament fixation technique was used as part of the vaginal repair procedure for marked uterovaginal prolapse and vault prolapse. Injury to the pudendal nerve, internal pudendal artery and vein, ureter and rectum is a possible complication [3]. Exposure and direct visualization of the sacrospinous ligament coccygeus muscle complex require adequate dissection of the pararectal space, avoiding injury to the rectum. Injury to the pudendal nerve and the internal pudendal vessels is avoided by placing the fixation suture minimally 1.5 cm medial to ischial spine

Vaginal prolapse is associated with weakness of pelvic floor due to childbirth and postmenopausal atrophy. The upper vagina is suspended in the pelvis by the caudal portion of the cardinal uterosacral ligament

complex. These ligaments attach the cervix and upper vagina to the pelvic wall in the area of the greater sciatic foramen. When these suspensory fibers are damaged, the cervix, upper vagina prolapses downward away from the greater sciatic foramen, and fall below the normal position at the level of the ischial spine. Women who have undergone hysterectomy and in whom the suspensory apparatus was not reconstructed are at increased risk for vaginal eversion [4]. The true incidence of vaginal vault prolapse following hysterectomy is approximately 0.5 percent of patients [5]. Numerous operative techniques are described for the correction of vaginal prolapse [6]. fixation of the vaginal apex to the sacrospinous ligament has many advantages. By using a transvaginal approach, the incumbent potential complications of laparotomy are avoided and hospital stay as well as recovery to normal activity is shortened as well as maintenance of sexual potency [7]. The purpose of this study was to evaluate if simple sacrospinous fixation, if done routinely with massive uterovaginal and vault prolapse, helps in long term follow up without any recurrence.

### Material and methods:

The retrospective study was conducted in the department of obstetrics and gynecology at cama and albless hospital (sir j.j. groups of

hospitals),mumbai.cases of sacrospinous fixation from january 2013 to december 2015 were studied.(figure 1) A total of 20 women were included in the present case series. Prior to surgery, written informed consent was taken from all patients . Simple frequency table were used for the interpretation of results.

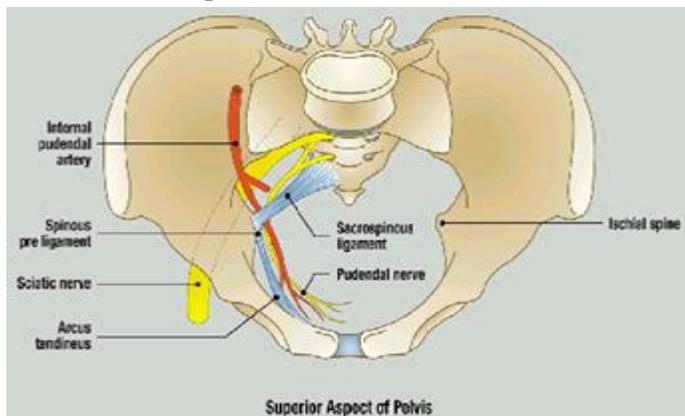


Figure1: Anatomy of sacrospinous ligament

#### Inclusion criteria

1) women more than 40 years with huge prolapse with ,massive eversion of vaginal wall, and vault prolapse after hysterectomy.

#### Exclusion criteria

1)women more than 40 years with pelvic organ quantification i, ii (pop-q) stage,  
2)less than 40 years with iii, iv (pop-q) stage and women with serious medical disorder or not fit for anaesthesia. .( FIGURE 2)

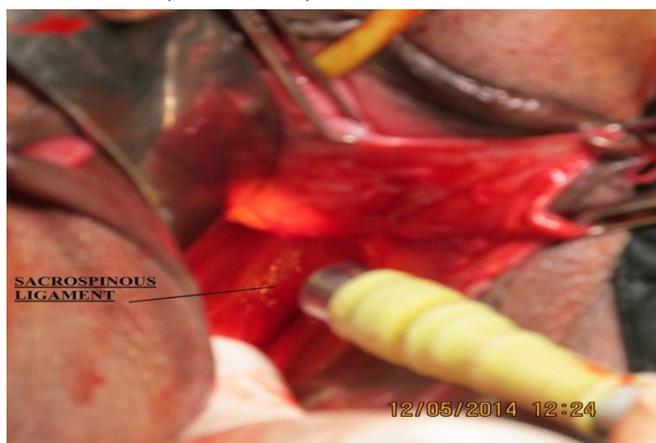


FIGURE 2- Picture showing anatomy of sacrospinous ligament

#### Operative technique

patients were operated under general anesthesia in lithotomy position. Vaginal hysterectomy was done as an initial step in patients of marked uterovaginal prolapse.

For sacrospinous fixation, a longitudinal incision is given in the posterior vaginal wall to expose the

rectovaginal space. The epithelium is dissected laterally and the pararectal space opens on the right side.

The suspension is most often done to the patient's right because retraction of the rectum is easier and a right-handed surgeon can pass a suture forehanded. By blunt finger dissection, a window is created between the rectovaginal space and ischial spine.

If correctly identified, the plane will usually develop without any difficulty. Dissection is done until ischial spines are reached.

Using the ischial spine as a prominent landmark, the sacrospinous ligament is palpated; this ligament passes from the ischial spine to the lower part of the sacrum. Now, three narrow malleable retractors are used to retract the peritoneum and rectum, to visualize clearly the sacrospinous ligament

The upper border of the ligament will now be clearly defined. In all cases, a delayed absorbable suture vicryl no1 used for this procedure. With a twelve inch long needle holder, the suture is placed through the sacrospinous ligament coccygeus muscle complex starting from the superior border in an upside down direction, it should be 2 cm medial to the ischial spine, so that neurovascular bundle is not injured.

When this suture is retrieved, as it is a loop, now it is divided to establish two sutures. Thus, two suture pairs are established with one pass. After enterocele closure and anterior colporrhaphy (if indicated), sacrospinous sutures are placed through the full thickness of vaginal muscularis at the point of new vaginal apex.

vaginal cuff is now sutured and closed. The sutures of sacrospinous ligament are now tied.

This tying of sutures brings the sacrospinous ligament in direct contact with the vaginal epithelium. When healing occurs, vaginal epithelium is fused with the sacrospinous ligament and vault remains suspended up nicely thereafter. Postoperatively women were given broad-spectrum antibiotic for five days. ( FIGURE 3)

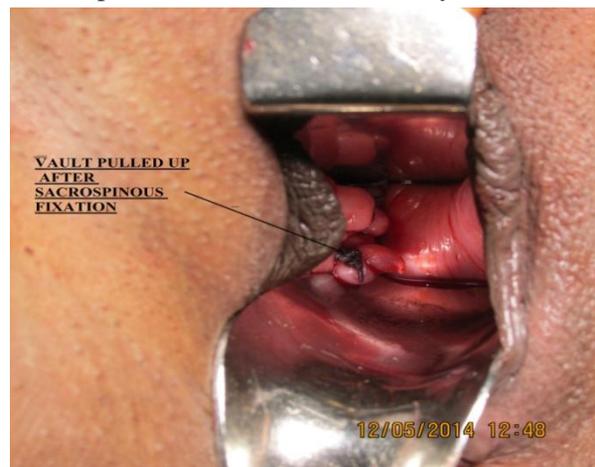


FIGURE 3- Picture showing vault pulled up after sacrospinous fixation.

## Result

Table 1: clinical spectrum and symptomatology.

Symptoms of patient	Frequency	Percentage
Uti	4	20%
Sui	2	10%
Bowel disturbance	2	10%
Incomplete emptying of bladder	2	10%
Total	10	50%

Table 2: types of prolapse

Total no cases	Frequency	Percentage
lil uv massive prolapse with eversion of vaginal walls	15	75%
Vault prolapse	5	25%
Total	20	100%

Table 3: Distribution of age

Age in years	Frequency	Percentage
<40yrs	5	25%
40-50yrs	7	35%
>50-60yrs	2	10%
Above 60 yrs	6	30%
Total	20	100%

Table 4: according to parity

Parity	Frequency	Percentage
Nullipara	0	0%
Multipara	20	100%
Total	20	100%

Table 5: No of years following hysterectomy in vault prolapse

No of years	Frequency	Percentage
1-2yrs	2	10%
2-3yrs	1	5%
3-4yrs	1	5%
>4yrs	1	5%

Table 6: Precipitating factor

Precipitating factor	Frequency	Percentage
Constipation	2	19%
Birth trauma	0	0
Cough	2	19%
Total	4	38%

Five women had vault repair with sacrospinous fixation and 15 had vaginal hysterectomy with sacrospinous fixation. No major complications were reported. Immediate complications such as mild hemorrhage occurred in two women who responded well to compression during surgery. Uti was developed in one woman after 2 month. Both were treated with suitable antibiotic and the patients recovered. Mild febrile condition developed in 3 patient. All 3 responded well with antibiotics and no other major complications were reported. Follow-up examinations were performed monthly for 6 & 3 monthly for 1yr in all patients. Out of the five patients with previous vault prolapse, one had recurrences. Out of the 15 patients with previous marked uterovaginal prolapse, only one had a small cystocele after 6 months following the operation. This patient was asymptomatic. Vaginal vault prolapse was not observed in any of these patients. None of women complained of dyspareunia, cuffcellulitis, ischioirectalfoss abscess after 6 months..

Pelvic organ prolapse was characterized and staged according to the international continence society pelvic organ quantification (ics pop-q) staging system. Surgical procedures and outcome measures included anatomical and functional assessment of pelvic floor defects, according to pop-q evaluation. Preoperatively, 12 had pop-q stage iv and 3 had pop-q stage iii prolapse.

All women were treated with sacrospinous ligament suspension of the vaginal vault. 15 women had marked uterovaginal prolapse, and 5 had vault prolapse following hysterectomy. The mean age of the patients was between 40-50 years and the mean parity was 2-4. 5 women had some systemic medical problems, but the operative procedure was not contraindicated in any of them after full evaluation. Out of five patients with vault prolapse, two had a previous vaginal hysterectomy and three had abdominal hysterectomy, which was done 1, 2, 3 and more than 4 years back respectively. Out of the 15 patients with marked uterovaginal prolapse, 2 had previous pelvic surgeries. 4 patients had cesareansections . 4 had interval ligation.

patients with marked uterovaginal prolapse underwent vaginal hysterectomy with obliteration of the enterocele sac, anterior and posterior vaginal repair if required, and sacrospinouscolpopexy.

## Discussion

There are different schemes to describe the extent of prolapse. The pelvic organ prolapse quantification (pop-q) is most commonly used staging system.

Surgical procedure	Vault prolapse	Pop-qiii	Pop-q iv
Sacrospinous fixation	5	3	12
Anterior colporrhaphy	4	3	12
Enterocele repair	2	3	10
Tot tape	2	-	3
Total	13	9	37

List of complications:

Intraoperative complications

Intraoperative complication	No cases	Percentage
Haemorrhage	2	10%
Nerve injury	0	0%
Haematoma	0	0%
Total	2	10%

Postop complication	Total no cases
Uti	1
Cuff cellulitis, ischiorectal abscess	0
Febrile morbidity	2
Cystocele	1
Enterocele	0
Dysparunia	0
Total	4

In our study, only one woman had cystocele as recurrence which did not require any surgical intervention. The rates of anatomic failure in published studies vary significantly. Beer and kuhn reviewed the literature and found that the failure rates ranged from 3% to 37% [8]. the variation in outcome led to a systematic review to explain the differences in failure rates. Failure rates were higher in the anterior compartment and lower in the posterior and apical

compartments. A meta-analysis illustrates that uterosacral ligament suspension is a highly effective procedure in restoring apical vaginal support [9]. in the present study, only one woman had a mild cystocele recurrence, which did not require any reoperation. The assessment of subjective symptoms is limited by the variation between studies on the outcome measures used. The relief from “vaginal pressure” or “bulge” symptoms were relieved by 82% to 100% of women [2]. in the present study, this pressure symptom was relieved in 100% of women.

most common complications were febrile morbidity due to fever or abscess in 4.1% and hemorrhage and transfusion in 1.9% of patients. Two women had mild hemorrhage related to cystocele repair, which responded to compression. In a study by Nicholas [3], damage to the femoral and sciatic nerves were reported in 1.8%, gluteal pain, bladder pain, or unclassified pain in 0.8% and with the development of vaginal adhesions or rectovaginal fistula in 0.5% of patients respectively. None of our patients had any neurovascular injury. In a study by pasley [10]. 94% percent of the patients who underwent sacrospinous suspension for uterovaginal prolapse and vaginal vault prolapse had no persistence or recurrence of vaginal vault prolapse 6 to 12 months after the procedure. This is similar to the cases in the present study. Our patients had the lowest complication rates compared with previous studies, which could be due to small sample size. In a study by linda et al. [10], it was concluded that burchcolposuspension significantly reduced postoperative symptoms of stress incontinence

## Conclusion

Transvaginal sacrospinouscolpopexy is an effective procedure and can be performed together with vaginal hysterectomy for prevention of huge prolapsed cases and in the treatment of vault prolapse.

**Source of Funding:** Nil

**Source of Conflict:** Nil

## Acknowledgement

The authors are grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

## References

1.Randall cl, nichols dh. Surgical treatment of vaginal inversion.obstet gynecol.

- 1971;38:327-32. Pubmed pmid: 5094313.
2. Persu c, chapple cr, cauni v, gutue s, geavlete p. Pelvic organ prolapse quantification system (pop-q) - a new era in pelvic prolapse staging. *J med life*. 2011;4:75-81. Pubmed pmid: 21505577; pubmed central pmcid: pmc3056425.
  3. Nichols dh, randall cl. *Vaginal surgery*. 3rd ed. Baltimore: williams and wilkins; 1989. P. 339-48.
  4. Gray h, clemente cd. *gray's anatomy*. 13th ed. Philadelphia: lea and febiger; 1985. P. 756-1233.
  5. Delancey ol. Vaginographic examination of the pelvic floor. *inturogynec j*. 1994;5:19-24. Doi: 10.1007/bf00451707.
  6. Morley gw, delancey jo. Sacrospinous ligament fixation for eversion of the vagina. *Am j obstet gynecol*. 1988;158:872-81. Doi: 10.1016/0002-9378(88)90088-9. Pubmed pmid: 3364499.
  7. Monk bj, ramp jl, montz fj, lebherz tb. sacrospinous ligament fixation for vaginal vault prolapse: complications and results. *J gynec. Surg*. 1991;7:87-92. Doi: 10.1089/gyn.1991.7.87.
  8. Beer m, kuhn a. Surgical techniques for vault prolapse: a review of the literature. *Eur j obstetgynecolreprod biol*. 2005;119:14455. Doi: 10.1016/j.ejogrb.2004.06.042.
  9. Silva wa, pauls rn, segal jl, rooney cm, kleeman sd, karram mm. Uterosacral ligament vault suspension: five-year outcomes. *Obstet gynecol*. 2006;108:255-63. Doi: 10.1097/01.aog.0000224610.83158.23. Pubmed pmid: 16880293.
  10. Pasley ww. sacrospinous suspension: a local practitioner's experience. *Am j obstet gynecol*. 1995; 173:440-5. Doi: 10.1016/00029378(95)90264-3. Pubmed pmid: 7645619.