ABDOMINAL SACROCOLPOPEXY VS VAGINAL SACROSPINOUS LIGAMENT FIXATION FOR VAGINAL VAULT PROLAPSES

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ABSTRACT

Objective: To compare the success rate and outcome of two operations for vaginal vault prolepses-Vaginal Sacrospinous Ligament Fixation (SSL) versus Abdominal Sacrocolpopexy (SCP).

Study Design: Prospective randomized controlled trial.

Place and Duration of Study: Department of Obstetrics and Gynaecology CMH Peshawar between Jan 99 to Sep 2003 and Department of Obstetrics and Gynaecology MH Rawalpindi between Sep 2003 to Feb 2008.

Patients and Methods: Thirty Women were randomly allocated to either procedure. There were a total of 15 patients in either arm. Follow up was at 3 and 6 months.

Results: Thirty women with vault prolapse were selected and out of these, 15 each were randomized to SSL and SCL. The mean age of women was 54 years (range 42 – 70), mean weight 68 Kg (range 50 – 95 Kg), the duration of surgery was longer for SCP (46.1 versus 75.3 min, ($p<0.001$) versus SSL. Average blood loss was also more for SCP versus SSL (320.2 versus 407 ml ($p<0.001$). Post Operative hospital stay was less for SSL (3.4 days) versus SCP (6.1 days) ($p<0.001$). Regarding symptoms of persistent prolapse at 3 and 6 months only one patient had symptoms in sacrocolpopexy arm due to cystocoele. There was no evidence of recurrent vault prolapse. Objective assessment of prolapse was superior for abdominal surgery, but patient satisfaction was equal. Anatomical result of abdominal procedure seemed superior with vault mean vaginal length (5.09 versus 6.8cm ($p<0.001$), but sexual function was preserved equally in both arms.

Conclusion: SSL is a patient friendly operation with shorter operation time and hospital stay. The anatomical results of SCP seem superior whereas functional results were equal in both arms.

Keywords: Vault prolapse, Sacrospinous Ligament Suspension, Sacrocolpopexy.

INTRODUCTION

The stability of vaginal anatomy is precarious, since it depends on a series of interrelationships between both dynamic and static structures. When the relationships between the ligaments and fascia at the vaginal apex or vault are impaired, vault prolapse ensues [1].

As this condition is so challenging to identify, many women undergoing anterior and/or posterior colporrhaphy are likely have undiagnosed vault prolapse. This may contribute to the 29.2% rate of re-operation in women who undergo pelvic floor reconstructive procedures [2]. Hysterectomy appears to contribute to genital tract prolapse. The incidence is about 1% at 3 years; 5% at 17 years [3]. It is interesting to note that equal number of vault prolapse occurs after vaginal and abdominal hysterectomies. However abdominal hysterectomy is a far more common procedure with only 20% of hysterectomies in UK/USA being performed vaginally. During the past two decades the number of hysterectomies performed have increased and consequently the number of women with vault prolapse [3].

The surgical goals are to normalize support of all anatomic compartments; alleviate clinical symptoms; and optimize sexual, bowel, and bladder function - without precipitating new support or functional problems.

Abdominal versus vaginal approach

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Most surgeons prefer a vaginal approach to pelvic reconstruction. However, this decision should be based on the patient's individual variables. This is usually based on tradition, training and low morbidity of vaginal approach.

If sexual function is critical to the patient, a sacrocolpopexy should be the primary option. Note that age does not always predict the importance of sexual function.

If the vaginal apex (dimples) reaches the ischial spines with ease, a vaginal procedure should suffice. If it does not reach the spines, or extends far above, an abdominal sacrocolpopexy or obliterative procedure may be more appropriate.

The traditional approach to treating vaginal vault prolapse has been to perform a pelvic floor repair. This is not a logical operation as it does not support the vault and leads to vaginal shortening. Alternative approach is sacrospinous ligament fixation originally described in 1951. Here the right side of vagina is transfixed to medial part of sacrospinous ligament complex Success rate varies from 70% to 97% [4].

Considered the gold standard, the sacralcolpopexy vaginal vault suspension technique has a consistent cure rate above 90% [5]. It may be the ideal procedure for pelvic floor muscle weakness and/or attenuated fascia with multiple defects, for women for whom optimal sexual function is critical, and for those with other indications for abdominal surgery.

A graft is placed between the vagina and the sacral promontory to restore vaginal support

PATIENTS AND METHODS

Women presenting with vault prolapse in CMH Peshawar between Jan 99 to Sep 2003 and to MH Rawalpindi between Sep 2003 to Sep 2008 were randomly allocated to SCP or SSL. Women 75 years or more and those who refused surgery were excluded from the trial.

Sacrospinous ligament fixation involved incising the posterior vaginal wall, dividing the rectal pillar, identifying the medial 2/3 of sacrospinous ligament complex (to prevent damage to sciatic nerve), using proline 1 suture. Two sutures were placed 2 cms medial to ischial spine through partial thickness of sacrospinous ligament to prevent damage to pudendal nerve. Miya's hook was not used which makes the placement easy. While the patient was in lithotomy position anterior / posterior repair was performed if desirable after completion of vault fixation.

Sacrocolpopexy was performed as described by Birnbaum. Patient was placed in supine trendlenberg position and low transverse incision was performed. Sterile piece of proline mesh around about 14 x 4 cm was sutured to vault after exposure .Sling is anchored over posterior vaginal wall allowing dissipation of tension evenly over a wide area. Next the peritoneum over anterior surface of sacral vertebrae 1 & 2 were incised and continued down to create peritoneal flaps over pelvic floor. At this point there is risk of damage to median sacral vessels. Mesh was sutured to anterior longitudinal ligament using Proline 01 suture and lay without tension on pelvic floor. Intra peritoneal drain was inserted where required. Patient was placed in dorsal position to review the need for pelvic floor repair at the end.

The outcome measures that were compared included intra operative variables, operation time, blood loss, intra operative complications (like visceral injury).

Post operatively duration of hospital stay and immediate post operative complications were also compared.

As a measure of satisfaction and success rate, symptoms of persistent prolapse (lump vulva / pressure perineum) were compared at 3 and 6 months. To make the assessment more objective pelvic examination was done to see if vaginal apex was above pelvic floor and no part of vaginal segment was below hymen.

Finally sexual function was assessed by direct questionnaire (dyspareunia, satisfaction) and also by digital examination to measure vaginal length.

STATISTICAL ANALYSIS

Data was analysed using the statistical package for social sciences (SPSS version 10). Descriptive statistics were used to describe the data. Independent samples t-test was applied for comparison of quantitative variables and chi-square test was applied for qualitative variables. P-value <0.05 was considered as significant.

RESULTS

Out of the 30 women only one lady in SSL arm was lost to follow up after discharge from hospital.

There was no significant difference between average age and weight of women in the two arms (Table-1). Hence the two groups were comparable. Amongst those randomized to SCP the average duration of operation was longer (p value < 0.001). Blood loss was also more in SCP group (p< 0.001), as extensive dissection of vault and pelvic floor peritoneum had to be performed (Table-2).

Regarding visceral damage, in three cases as dense adhesions of bladder were separated from vault, urine was blood stained, No rent in bladder could be identified and case was managed by retaining catheter till microscopic haematuria stopped.

In one patient in the SSL pudendal vessel bleeding occurred estimated between 500 – 700 ml, it was controlled successfully without damage to pudendal nerve. Barring this one case blood loss was less for this arm. In one case of SSL, peritoneum of pouch of douglus was inadvertently opened this was closed back immediately and operation continued.

After completing vault suspension patients were assessed for need for either anterior/ posterior repair, in each arm which was performed at the end of procedure (P value < 0.5) (Table-3).

Of the 15 women allocated to SSL the mean hospital stay was almost half of SCP (P<0.001). 3 patients in the later arm also developed symptoms of urinary frequency and urgency. One patient in this arm also developed post operative ileus and was managed conservatively by placing nasogastric tube for 24 hours.

Majority of women in both groups were satisfied with their operation. At 3 months there were no complaints but at 6 months follow up one woman in SSL and 2 in SCP reported of partial recurrence.

On objective assessment by pelvic examination a cystocoele was noted in 2 cases of SCP, one symptomatic and other asymptomatic rectocele was also noted (Table-4). There was no evidence of vault prolapse in either arm. There was luckily no case of mesh erosion in cases randomized to abdominal surgery. One case had recurrent wound infection followed by sinus formation at 2 months but healed spontaneously at 3 and 6 months on conservative management.

Similar level of sexual satisfaction was noted in both groups though some of the ladies were not sexually active.

The mean vaginal length on objective measurement was longer for SCP (Table-5). Also the vaginal axis was elevated to RT side in SSL compared to being in the dead centre of pelvis in SCL but these superior anatomical results were not duplicated in patient's subjective assessment of sexual function.

DISCUSSION

The optimal surgical approach to management of vault prolapse is highly variable and understudied. Vaginal surgery is near and dear to the hearts to all gynecological surgeons for this route is unique to our field. Recent review of literature found over 40 different procedures for vault prolapse. Superiority of one over the other in the form of safety and effectiveness is unproven [6]. To properly address the problem of vault prolapse recurrence we must first admit that there is a problem with the efficiency of our primary procedures.

An exhaustive literature search identified 22 randomized controlled trials with a total of more than 2000 cases. There are only two randomized controlled trials that compare the vaginal and abdominal routes for vault prolapse surgery. Surprisingly these trials

Table-1: Demographic Features

	SSL (n=15)	SCP (n=15)	P-value
Mean Age	53.2 ±4.24 Yrs	55. 1±3.08 Yrs	>0.05
Mean Weight	70.3±6.9 Kg	68.1±7.8 Kg	>0.05

Key: SSL (Sacrospinous ligament suspension), SCP (Sacrocolpopexy)

Table-2: Intra operative Variables

	SSL (n=15)	SCP (n=15)	P value
Mean Duration of surgery	46.1±18.1 min	75.3±39.5	<0.001
Blood Loss	320.2±42.9 ml	407±78.5 ml	<0.001
Visceral / vascular Injury	Pudendal Vessel Bleed 01(6.6%)	Blood Stained Urine (no rent in bladder Identified) 03(20%)	0.31

Table-3: Concomitant repair of Pelvic Floor

SSL (n=15)	SCP (n=15)	P value
8(53%)	6(40%)	0.5

Table-4: Immediate Post Op Variables

	SSL n=15	SCP (n=15)	P-value
Mean Hospital Stay	3.4±1.5 days	6.1±1.4 days	<0.001
Urinary Symptoms	Nil	3 pts (20 %)	0.5

Table-5: Long term variables

	SSL (n=14)*	SCP (n=15)	P-value
Symptoms of prolapse			
at 3 months	Nil	Nil	>0.05
at 6 months	01(7%)	02(13.3%)	>0.05
Objective assessment			
at 3 months	Nil	01 (Cystocoele)	>0.05
at 6 months	02(14%)	02 (13.3%)	>0.05
Sexual problems	n = 11 01(9%)	n = 10 01(10%)	>0.05
Mean Vaginal length	5.09±1.3 Cm	6.8 ±1.1Cm	<0.05

* One case lost to follow up

report on only 175 cases. One trial was done in USA by Benson et al [7] and the other in Australia by Maher et al [8]. We have critically compared our results with these.

SCP is probably the best procedure for recurrent prolapse as it is thought that vaginal may not be long enough to reach the sacrospinous ligament. In our study we did not find any case of vault prolapse where vagina was too short to be lifted up to the sacrospinous ligament.

Our study showed clearly the low short term morbidity of vaginal surgery. In the study by Whiteside [9] these benefits were offset by risk of prolapse recurrence. Damage to the sciatic nerve or pudendal nerve complex is also a risk with sacrospinous ligament suspension, but our limited study proves that with proper precautions both can be avoided. Benson found increased incidence of buttock pain due to vaginal dissection in SSL. We did not encounter this problem. Also Benson etal used bilateral SSL (which leads to vaginal tension and dyspareunia), a procedure which should be abandoned.

Evaluation of optimal outcome defined as no symptoms of prolapse were equal in both arms. Like the study by Benson et al [7] where abdominal approach was for superior like the study by Maher from Australia [8] we also felt that abdominal route had higher anatomical efficacy. This study followed up cases for 1 year unlike our study where follow up was limited to 6 months. By using an overall outcome included quality of life similar outcomes 92% success was reported in both groups. Similar results were duplicated in our study anatomical results were superior for

abdominal approach but functional were equal for both [8].

Hence selection of an optimal surgical outcome needs to have an anatomical functional and patient oriented outcome.

It is said that the superiority of SCP comes at the cost of increased morbidity of surgery and mesh related complications [10]. Sometimes it is difficult to find whether mesh erosion or infection has come first. Not placing the mesh under tension using a wider area to suture with multiple sutures prevents this complication .Bleeding from injured median sacral artery, bladder or bowel damage are common complications .Our study proves that if procedure is carried out using meticulous technique complications are very few. In our study only one patient had mesh related complications, and threatened to have mesh erosion but settled on conservative management. According to Cochrane group trials SCP was better than SSL in terms of lower rates of recurrence and dyspaurenia but the results were not statistically significant. SSL is quicker cheaper to perform with early return of daily activities [11].The latter finding are in complete agreement with our study. To fuel the argument laparoscopic and robotic assisted SCP has been shown to be safe and effective in the short term but long term results are awaited [12].

The optimal technique for repair of vault prolapse has not been studied adequately. It is clear that for anatomical restoration SCP is gold standard. Further research may challenge this opinion. The superiority comes at the cost of increased morbidity. The functional results of SSL are just as good. Considering concomitant medical morbidities, age and surgical risks it may become the operation of choice for vault prolapse.

CONCLUSION

Vault prolapse is the most challenging form of genital tract prolapse. From the results of this study we conclude that SSL is a patient friendly operation with low short term morbidity and gives functional results which are at par with the more formidable SCP. To settle the war between abdominal VS vaginal route we need to design bigger and longer term high quality clinical trials.

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