Original Article

Minilaparotomy Versus Conventional Laparotomy for Burch's Colposuspension: A Comparative Study

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Abstract

Objectives: To compare the safety, efficacy and cost effectiveness of minilaparotomy surgery for Burch's colposuspension with standard laparotomy method. **Study Design:** A retrospective study of 24 cases of genuine stress incontinence who were operated for Burch colposuspension by minilaparotomy (incision <6cm, n=16) and laparotomy (incision >6cm, n=8) in the two hospitals over the last seven years (June 1997 to December 2004) by the authors were evaluated. **Intervention:** Patient's history, clinical examination, investigations, preoperative, intraoperative and postoperative data were recorded and compared in minilaparotomy and laparotomy groups. **Results:** Mean operative time was significantly less in minilaparotomy (35 min) than in laparotomy group (42 min). Mean blood loss was equal in the two groups. Postoperative complications were fever in three (18.8%) and two (25%) cases, wound infection in one (6.3%) and two (25%) cases respectively and were significantly less in minilaparotomy group. Mean hours of mobility, starting normal diet and discharge from hospital were 8 and 24 hours; 1, 5 and 3 days; 5 and 7 days respectively in the two groups. Complete cure rate was 87.5%, in both the groups. **Conclusion:** Minilaparotomy Burch colposuspension appears to be a safe and feasible method for surgical management of genuine stress incontinence and is superior to conventional laparotomy as there are minimum perioperative and preoperative complications and the patients can be discharged early from the hospital without the need of expensive equipment.

Keywords: Burch colposuspension, conventional laparotomy, minilaparotomy

Introduction:

Genuine stress incontinence (GSI) is defined as the involuntary loss of urine when the intravesical pressure exceeds the intraurethral pressure in the absence of detrusor activity¹. Blaivas² classified GSI into three types: Type I, where there is hyper mobility of the bladder neck; Type II, where bladder neck hyper

mobility is less marked and failure of urethral sphincter is more apparent and Type III, where the urethra is fixed with failure of the intrinsic sphincter. The first line treatment is conservative with perineal floor exercises or mechanical devices but surgical treatment is often required as results of the conservative management are limited³. Out of all the operations, Burch's colposuspension in which the anterior vaginal wall with bladder neck and proximal urethra are suspended and stabilized in a retropubic position has become the gold standard treatment with highest long-term success.

Case Report:

This was a retrospective study between minilaparotomy Burch's colposuspension (Group I) and traditional

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Table 1:
Operative details in the two groups

Sr. No.	Characteristics	Group I (n=16)	Group II (n=8)	p value
1	Type of surgery	Minilaparotomy Burch	Laparotomy Burch	
2	Additional surgery			
	Abdominal hysterectomy	31	1	NS
	Vaginal hysterectomy	1		
3	Length of incision			
	4 cm	9	0	
	5 cm	5	0	p<0.01
	6 cm	2	0	
	7 cm	0	4	
	8 cm	0	2	
	9 cm	0	2	
4	Duration of operation(min)			
	Range	28-75	32-90	p<0.05
	Mean	35	42	
5	Blood loss (ml)			
	Range	80-300	90-400	p>0.05
	Mean	110	120	

Burch's colposuspension performed by laparotomy (Group II) for GSI over last seven years in the Gynaecology Department of two hospitals. The inclusion criteria were cases of GSI confirmed by urodynamic studies in which detrusor instability was excluded. Minilaparotomy (incision <6cm) was performed by making a transverse suprapubic incision with the patient in lithotomy position. Peritoneum was not opened and the cave of Retzius was dissected, and bladder, bladder neck, urethra were identified with the help of inflated bulb of a Foley's catheter which was kept under tension by an assistant standing on the vaginal side. The assistant took two deep sutures in the vagina at bladder neck on either side with nylon, with the help of pushing of vagina and the same were tied to the ipsilateral iliopectineal ligament (Cooper's).

Intraoperative blood loss was estimated by measuring blood in the suction bottles and by the number of packs soaked during the surgery. All the patients were given a course of ciprofloxacin (Ciplox, Cipla India Ltd, Mumbai) 500 mg parenterally for two days and orally for the next five days along with metronidazole. The Foley's catheter was kept for five days. Preoperative,

postoperative outcome and complications were compared in the two groups. The data were tabulated and analyzed using Chi-square test and Fischer's exact tests with p value of 0.05 taken as significant.

The mean age was 38.2 years and 39.1 years in group I and II respectively; mean parity 3.9 and 3.5 respectively. The duration of symptoms was 3.1 and 3.3 years in group I and II respectively. The operative details are given in Table 1. A total of 10 patients (62.5%) in group I and four patients (50%) in group II were given general anesthesia while the rest were given spinal anesthesia as per the choice of the patient or the anesthetist. Additional surgery in the form of abdominal hysterectomy was performed in three cases in group I - for fibroid uterus with stress urinary incontinence (SUI) in two cases and for dysfunctional uterine bleeding with SUI in one case, while it was performed for fibroid uterus with SUI in one case in group II. Vaginal hysterectomy with Burch's colposuspension was performed in one case in group I for third degree uterovaginal prolapse with SUI. The length of the incision was ≤ 6 cm in all cases of group I and was more than 6 cm in group II. The duration of operation was

Table 2:
Postoperative outcome and complications in the two groups

Sr. No	Characteristics	Group I (n=16)	Group II (n=8)	p value
1	Fever	3(18.8%)	2(25%)	p>0.05
2	Wound infection	1(6.3%)	1(12.5%)	p<0.05
3	Wound dehiscence	0	0	
4	Resuturing	0	0	
5	Paralytic ileus	0	1(6.3%)	p<0.05
6	Urinary tract infection	2(12.6%)	2(25%)	p<0.05
7	Voiding difficulty	4(25%)	2	p>0.05
8	Transitional hematuria	4(25%)	2	p>0.05
9	Mean hospital stay	5 days	7	p<0.05
10	Mean injectable analgesics	4.5	6.2	p<0.05
11	Cure Rate			
	Complete cure	14(87.5%)	7(87.5%)	p>0.05
	Partial cure	2(12.5%)	1(12.5%)	p<0.05
	No benefit	0	0	

longer in group II while the blood loss was equal in the two groups. The postoperative outcome and complications are given in Table 2. The incidence of fever, wound infection, urinary tract infection and paralytic ileus was higher in laparotomy group than in the minilaparotomy group. Voiding difficulties and transitional hematuria was equal in the two groups. Mean hours of mobility, starting normal diet and discharge from the hospital were eight and 24 hours, 1.5 and three days and five and seven days respectively in the two groups and were significantly less in the minilaparotomy group than in the laparotomy group ($p<0.05$). Complete cure rate was seen in fourteen (87.5%) and seven (87.5%) cases which was equal in the two groups. Complete cure rate was when the patient did not have any subjective or objective demonstration of SUI while partial cure rate was when the patient had subjective relief in symptoms but slight SUI was demonstrable on objective examination at one hour pad test. Before discharge, all the patients were questioned about the relief in symptoms and were objectively examined per vaginum in the room of the gynecological ward for any SUI. Postoperative cystometry was not performed in any case as per the protocol of the hospital.

The duration of follow up has been from one to three years; being three years for six patients in group I and

four patients in group II; two years for six patients and three patients respectively and one year for four patients and one patient respectively in the two groups. As a protocol, all the women were followed up six monthly for one year and then yearly for five years. Culdoplasty was not performed routinely in any of the patients as none of them had concomitant enterocele or vault prolapse. However, all the patients were examined in the postoperative period and six monthly for one year and later yearly examinations for development of any vault prolapse. None of the patients in the two groups developed any vault prolapse.

Discussion:

GSI is a distressing and common problem affecting one in ten women at some time in life. The type of surgery depends upon whether primary defect is the urethral hyper mobility or intrinsic sphincter deficiency. Burch's colposuspension is the operation of choice for hyper mobility. In a meta-analysis of results of various operations for GSI, Jarvis⁴ observed best success rate with Burch's colposuspension (89.8%) and Marshall-Marchetti Krantz (89.5%), bladder neck suspension (86.7%) while bladder buttress gave only 67.8% success and injectables had lowest success (45.5%). The American Urological Association⁵ also published a report on surgical management of female stress urinary

incontinence and found 84% success at two years and four years with retropubic suspension in contrast to 67% with transvaginal suspension; 85% and 61% with anterior repair and 82% and 83.5% with sling procedures respectively. Although Burch's colposuspension gives highest short term and long term success, it is a major operation and can cause voiding dysfunction in 5% of the women and urge incontinence in upto 11% of the women⁶. Hence a preoperative urodynamic investigation is recommended. The symptoms of stress incontinence may be produced by detrusor instability in the absence of anatomical disorder; and bladder neck surgery will not lead to any improvement in symptoms and may in fact worsen the underlying pathology. Recently tension free vaginal tape (TVT) and obturator tape have been introduced with good results and significantly lesser chances of detrusor instability and voiding dysfunction, but they are very expensive. Laparoscopic colposuspension in expert hands gives good results but overall results are lower than open Burch's colposuspension⁷. Minilaparotomy techniques have been used for sterilization operations, ovarian cysts, recanalization and tubal surgery and even hysterectomy operations with the advantage of easy training, less need of expertise and expensive equipments and shorter hospital stay and early recovery⁸. Traditionally Burch's colposuspension is performed by laparotomy which gives better access and is easy to perform, but is associated with slow recovery and longer stay in hospital. This is the first report to the best of our knowledge in which Burch's colposuspension has been performed by mini laparotomy (incision <6 cm) route and compared with laparotomy. The results of the present study are quite good and there are minimum postoperative complications, early ambulation and start of normal diet, less need of injectable analgesics, early recovery, discharge and return to work. Complications like paralytic ileus, urinary retention was less common in minilaparotomy group. The complete cure rate of 87.5% was equal in the two groups and is similar to the results of international studies on laparotomy for Burch's colposuspension⁹.

Conclusion:

To conclude, Burch's colposuspension by minilaparotomy appears to be a cost effective and safe alternative to standard laparotomy with the advantage of early recovery and discharge from the hospital and shorter learning curve and does not require expensive equipment.

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