ORIGINAL ARTICLE

Laparoscopic Burch Colposuspension Versus Transobturator Tape Placement in Stress Urinary Incontinence at Kathmandu Model Hospital

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ABSTRACT

Introduction: Stress urinary incontinence is the involuntary leakage of urine due to increased intra-abdominal pressure. The pathological causes include urethral hypermobility and weakness of intrinsic urethral sphincter. Laparoscopic Burchcolposuspension is the valuable meshless alternative to transobturator tape placement and now is the current gold standard treatment for stress urinary incontinence. This study aimed to determine the efficacy of laparoscopic Burch colposuspension and transobturator tape placement in stress urinary incontinence.

Methods: A retrospective study was carried out at the department of Obstetrics and Gynaecology at Kathmandu Model Hospital Institute of Health Sciences during the period of two year from December 2022 to November 2024 among all patients with stress urinary incontinence undergoing transobturator tape placement and laparoscopic Burchcolposuspension.

Results: Majority of the patients belonged to age group 40-50 years in both laparoscopic Burch colposuspension (58.5%) and transobturator tape (60%) groups. Majority of the patients were multiparous which was 90.2% in laparoscopic Burch colposuspension and 95%in transobturator tape groups. Majority of the patients were postmenopausal in both groups. Total blood loss was minimal in both groups. The success rate was 90.2% in laparoscopic Burch colposuspension and 95% in transobturator tape placement.

Conclusion: Laparoscopic Burch colposuspension is safe and effective long-term treatment for patients with stress incontinence with low failure rates and minimal adverse outcomes. It has favorable outcome in terms of continence, cost, intraoperative and postoperative complications.

Keywords: Laparoscopic Burch colposuspension; stress urinary incontinence; transobturator tape

INTRODUCTION

Stress urinary incontinence is involuntary leakage of urine due to increased intra- abdominal pressure. The underlying pathological causes are urethral hypermobility and muscle weakness of intrinsic urethral spinchter.[1,2] It is a common but debilitating problem to the affected individuals with regards to their quality of life.[2]It affects one quarter of the women between 30 and 60 years of age and it constitutes 77% of all types of incontinence.[3] Pelvic floor exercise strengthens pelvic supports and is the first line treatment of stress urinary incontinence. However, when conservative treatment fails, surgery is the mainstay of treatment.[4] Transobturator tape was first introduced by Delorme in 2001 with an aim to avoid bowel, bladder and major vascular injuries

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which had been reported by other retropubic sling procedures.[5] Laparoscopic Burch colposuspension was first performed by Vancaillie and Schuessler in 1991 to avoid mesh related complications. It has less morbidity and 70-80% cure rate.[6]

METHODS

This study was carried out at the department of Obstetrics and Gynaecology at Kathmandu Model Hospital Institute of Health Sciences during the period of two years from December 2022 to November 2024.All patients with stress urinary incontinence undergoing transobturator tape placement and laparoscopic Burch colposuspension were included in this study. Exclusion criteria were patients presenting with pregnancy, urge Incontinence, urinary tract infection, neurogenic bladder, genital prolapse stage III and IV and on prolonged drug therapy like antipsychotics, diuretics, calcium channel blocker, sedative hypnotics, anti-depressants, etc.

All patients included in this study were informed about the study and its objectives. Written informed consent was taken. Privacy and confidentiality were maintained. Data collection was started after getting letter of permission from Institutional Research Committee of Kathmandu Model Hospital-Institute of Health Sciences. All patients undergoing transobturator tape or laparoscopic Burch colposuspension were followed up for successful treatment and postoperative complications. The analysis was done in terms of age, parity, menopause status, success rate, intraoperative and postoperative complications. All data were analyzed manually and with the help of SPSS 16 and comparison of variables was done.

RESULTS

In this study, 61 patients presenting with stress urinary incontinence were taken into study. Among 61 patients, 41 patients underwent laparoscopic Burch colposuspension and 20 patients underwent transobturator tape placement. Majority of the patients belonged to age group 40-50 years in both laparoscopic Burch colposuspension (58.5%) and transobturator tape (60%) groups. Majority of the patients were multiparous which was 90.2% in laparoscopic Burch colposuspension and 95%in transobturator tape groups. Majority of the patients were postmenopausal which was 68.3% in laparoscopic Burch colposuspension group and 70% in transobturator tape groups.

Table 1: Distribution according to age, parity and menopausal status

	Laparoscopic Burch colposuspension (n=41)			Transobturator tape (n=20)		
		n	%		n	%
Age	<40 years	4	9.8	<40 years	-	-
	40-50 years	24	58.5	40-50 years	12	60
	51-60 years	11	26.8	51-60 years	6	30
	>60 years	2	4.9	>60 years	2	10
Parity	Parity one	4	9.8	Parity one	1	5
	Multiparous	37	90.2	Multiparous	19	95
Meno-pausal status	Menopause	28	68.3	Menopause	14	70
	Menstruating	13	31.7	Menstruating	6	30

Total blood loss was minimal in both groups. The duration of operation time, hospital stay and cost was longer in laparoscopic Burch colposuspension than transobturator tape groups. The success rate was 90.2% in laparoscopic Burch colposuspension and 95% in transobturator tape placement.

Table 2: Success rate of Laparoscopic Burch colposuspension versus Transobturator tape

	Laparoscopic Burch colposuspension (n=41)	
Success rate n (%)	37	90.2%
	Transobturator tape (n=20)	
	19	95%

In laparoscopic Burch colposuspension groups, one patient (2.4%) had bladder injury during intraoperative period, it was repaired and catheter was kept for 10 days, 2 patients (4.8%) developed urinary tract infection during postoperative stay, one patient (2.4%) developed hematuria for which catheter was kept for 7 days and one patient (2.4%) developed acute retention of urine on second postoperative day and catheter was kept for 7 days. In transobturator tape groups, one

patient (5%) developed urinary tract infection and one patient (5%) developed acute urinary retention during postoperative stay.

In Laparoscopic Burch colposuspension groups, 3 patients (7.3%) had mild stress incontinence, one patient (2.4%) had intermittency and dribbling. In transobturator tape groups, one patient (5%) had mild stress incontinence, one patient (5%) had incomplete voiding of urine and one patient (5%) had urgency. One patient underwent laparoscopic Burch colposuspension for failed transobturator tape placement. One patient underwent transobturator tape placement for failed laparoscopic Burch colposuspension.

Table 3: Intraoperative and postoperative complications in Laparoscopic Burch colposuspension versus Transobturator tape

Complications	Laparoscopic Burch colposuspension (n=41)	Transobturator tape (n=20)
Bladder injury	1	0
Hematuria	1	0
Acute retention of urine	1	1
Urinary tract infection	2	1
Intermittency and dribbling	1	0
Incomplete voiding	0	1
Urgency	0	1
Mild stress incontinence	3	1

DISCUSSION

Stress urinary incontinence is the involuntary leakage of urine during efforts that increase intra-abdominal pressure such as coughing. The prevalence varies of stress urinary incontinence varies among different studies, it may be as high as 25%.[7] Burch colposuspension was first described in 1961, which aims to support urethro-vesical junction and laparoscopic approach was first performed in 1991 by Vancaille and Schuessler. It has many potential advantages, including minimal blood loss, shortened hospital stay and speedy recovery and a better approach to retropubic space. In 1990s, Burch colposuspension was considered as gold standard for treatment of stress incontinence.[8] Laparoscopic Burch colposuspension is the procedure done by inserting the sutures into the paravaginal tissues on either side of the bladder neck which are then attached to the iliopectineal ligaments in the same side.

Due to their cure rate between 65% to 90% that were maintained over 10 years, Burch colposuspension has become the gold standard in the treatment of stress urinary incontinence.[9] Transobturator tape is performed by inserting the tape through obturator foramina exiting in the groin area.[10,13] In 2001, French urologist Delorme developed minimal invasive technique, transobturator tape placement.[11] Laparoscopic Burch colposuspension provides more anatomical support, requires greater surgical skills and may lead to longer operative time.[12] Transobturator tape is commonly performed, minimally invasive procedure for stress incontinence that has advantages of high cure rate up to 94% and low risk of postoperative complications like visceral injuries and urinary retention.[13]

In this study, the most common age of presentation was age group of 40-50 years, parity and menopausal status was similar in both transobturator tape and lap Burch colposuspension groups which is similar to the study done by Shaltout et al[1], Bandarian et al[3], Conrad et al[4], Asıcıoglueta[7], Unal et al[8], Elmohamady et al[12], Seckin et al.[14] This is explained by more prevalence of stress incontinence in 40-50 years, multiparous and postmenopausal women. In postmenopausal women, due to decline in estrogen level, there is weakening of pelvic floor muscles and loss of support to the bladder and urethra. The mean operation time was longer in laparoscopic Burch colposuspension groups than transobturator tape groups which is similar to the study done by Shaltout et al[1], Bandarian et al[3], Sivaslioglu[5], Asıcıoglueta[7], Elmohamady et al[12], Katherine et al[1 4] which was in contrast to the study done by Seckin et al.[14] The cause may be surgical complexity, laparoscopic set-up, dissection and suturing.

The Intraoperative blood loss was minimal in both laparoscopic Burch colposuspension and transobturator tape groups which was similar to study done by Shaltout et al[1], Pitrea et al[6], Asıcıoglueta[7], Seckin

et al.[14] The duration of hospital stay for laparoscopic Burch colposuspension was 3-4 days and it was longer than transobturator tape placement which was similar to the study done by Bandarian et al[3], Sivaslioglu[5], Pitrea et al[6], Asıcıoglueta[7], Katherine et al.[14] This could be explained due to longer anesthesia time, operation time and more tissue manipulation and dissection. The functional outcome or success rate of transobturator tape (95%) is slightly more than laparoscopic Burch colposuspension (90.2%) in our study which is similar to the study done by Shaltout et al[1], Silva et al[2], Conrad et al[4], Sivaslioglu[5],Cerniauskiene[11], Effat et al[13], Novara et al[16] but it was in contrast to the study done by Bandarian et al.[3] The success rate of laparoscopic Burch colposuspension depends on surgeon's experience and it is technically more challenging than transobturator tape placement.

Hematuria and acute retention of urine was seen in one patient (each) in laparoscopic Burch groups which was also seen in study done by Pitrea et al[6] which was in contrast to the study done by Elmohamady et al.[12] It was because of the manipulation and dissection of bladder during Burch colposuspension. Bladder injury was seen in one patient in Burch colposuspension group which was similar to the study done by Asıcıoglueta[7]and it was managed by foleys' catheterization for 10 days. This is possibility due to bladder dissection and suturing in close proximity to the bladder. It could also be due to limited experience and surgical skills of surgeons in the initial days of performing the surgery. In transobturator tape groups, one patient developed urinary tract infection, one patient had mild stress incontinence, one patient had incomplete voiding of urine and one patient (5%) had urgency which was similar to the study done by Wierzhowska et al.[10] It is better explained due to catheterization, manipulation of urethra, improper placement of tape and mesh erosion. The cost of laparoscopic Burch colposuspension was more than transobturator tape placement which is similar to the study done by Pitrea et al[6], Katherine et al[14] but in contrast to the study done by Shaltout et al[1] which is because of the longer hospital stay and higher equipment cost.

This study is a retrospective one with not a very large number of patients and with a shorter follow up. So, it is desirable that a larger trials with a bigger sample size and longer duration of follow up for evaluating long term success rate of laparoscopic Burch colposuspension and transobturator tape placement.

CONCLUSION

Laparoscopic Burch colposuspension has been demonstrated to be practical, safe and effective in providing positive early functional outcome in case of stress incontinence. It is the valuable mesh less alternative to transobturator tape placement and now is the current gold standard treatment for stress urinary incontinence. However, expertise and equipments are the limiting factors for laparoscopic Burch colposuspension. The outcome and complications were comparable in both transobturator tape and laparoscopic Burch colposuspension groups.

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