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### Introduction

Stress urinary incontinence is a common condition with significant effect on the quality of life. Current evidence suggests mid-urethral tape (MUT) are more effective than Burch colposuspension (OC) for treatment of stress urinary incontinence (SUI). However, mesh complications represent significant problem and are on the rise. In June 2014, Scottish Government advised Health Boards to suspend the use of mesh procedures for treatment of both prolapse and urinary incontinence. Surgical alternatives to mesh tape are needed that maintain the day-surgery advantage for a quicker return to normal activities of daily life. Traditionally, prior to development of the MUT procedures, open colposuspension (OC) was the gold standard surgical treatment, however, hospital stay and recovery is longer due to the laparotomy approach. LC would potentially be a good surgical alternative as it has good success rates with short hospital stay, however long term follow up data are not available as yet as only 5 years follow up is published to date.

### Aim

To compare the short- and medium-term outcomes of laparoscopic colposuspension (LC) and mid-urethral tape (MUT) procedure for treatment of stress urinary incontinence (SUI) in women.

### Method

This study used an anonymised dataset, obtained from the online surgical database of the British Society of Urogynaecologists (BSUG).

From January 2010 to December 2017, 40 women received LC and 145 women received MUT.

Standard validated symptom questionnaire (ICIQ-UI SF) was used for patient-reported efficacy outcomes.

The two groups were compared with regard to the incidence of post-operative complications and length of hospital stay.

The average length of follow-up after surgery for LC group was 5.8 months (range 2.8-8.8) compared to 4.1 months for MUT group (range 1.6-6.6).

### Results

	MUT (n=145)					LC (n=40)					P value (95% CI)
	Mean	SD	Min	Max	Missing	Mean	SD	Min	Max	Missing	
Age	52.2	11.4	32	80	4	47.1	8.0	30	65	0	<0.01 (5.1± 3.8)
Parity	1.1	1.3	0	4	43	2.3	1.1	0	5	0	<0.01 (-1.2± 0.5)
BMI	29.8	5.8	20	48	45	29.2	4.4	21	39	0	0.53
Pre-op ICIQ-UI score	14.6	4.6	0	21	64	17.0	2.9	10	21	5	<0.01 (-2.3± 1.7)

There was no difference between the groups in Body Mass Index (BMI) (P= 0.53), however women in the MUT cohort were significantly older (P<0.01; 95%CI 5.1± 3.8) and had lower parity (P<0.01; 95% CI -1.2± 0.5) than women in LC cohort. Pre-operative ICIQ-UI score was significantly lower in MUT group comparing to LC group (P<0.01; 95%CI -2.3± 1.7).

### Results

	MUT			LC			P value (95% CI)
	Mean fall in score	SD	N	Mean fall in score	SD	N	
Change in ICIQ-UI score	12.5 <sup>†</sup>	5.8	30	10.8 <sup>†</sup>	5.8	31	0.26*

Table 2: Comparative efficacy

Both procedures were similarly effective in treating stress urinary incontinence in women. The ICIQ-UI score reduced significantly in both cohorts following the surgical treatment. The statistical analysis of the change between pre- and post-operative ICIQ-UI score in the two groups there were no significant group differences (p=0.26).

Adverse events	MUT	MUT missing data	LC
intra op Ureteric injury	1	1	0
Bladder injury Vaginal	0	1	3
Button-holing	1	55	0
Vascular injury	0	1	1
Blood loss > 500ml	1	1	0
<b>Total</b>	<b>3/90 (3.3%)</b>		<b>4/40 (10%)</b>

The adverse events rate was 3.3% (3/90) for the MUT group and 10% (4/40) for the LC group.

The difference between groups is not significant (P = 0.13; Fisher exact test)

The risk ratio for LC against MUT is 3.0 (95% CI 0.70, 12.8).

Both cohorts were very similar in the length of postoperative hospital stay. Around 25% were day cases, 45% of cases stayed one day, 25% stayed two days and 5% stayed longer than two days. There was no significant difference in length of stay between the two groups (Fishers exact test, p =0.38).

There were no episodes of the return to theatre for the procedure-related event within 72 hours. Only two women returned to hospital within 30 days for procedure related event and a further 2 women were readmitted to hospital within 30 days for procedure related event.

### Conclusion

The laparoscopic colposuspension is comparable to Mid urethral tape procedures for the treatment of SUI in women in short- to medium-term.

Larger randomised trial should be considered.

This treatment should be considered as a viable minimal access alternative to offer for women with bothersome SUI.

Longer follow up of larger randomised study is required to provide further evidence on efficacy and safety