

MAXIMAL URETHRAL CLOSURE PRESSURE AS A PREDICTOR OF OUTCOMES WITH AUTOLOGOUS FASCIAL SLINGS FOR SUI

Felicity Watson, Karen Guerrero, Stewart Pringle, Veenu Tyagi

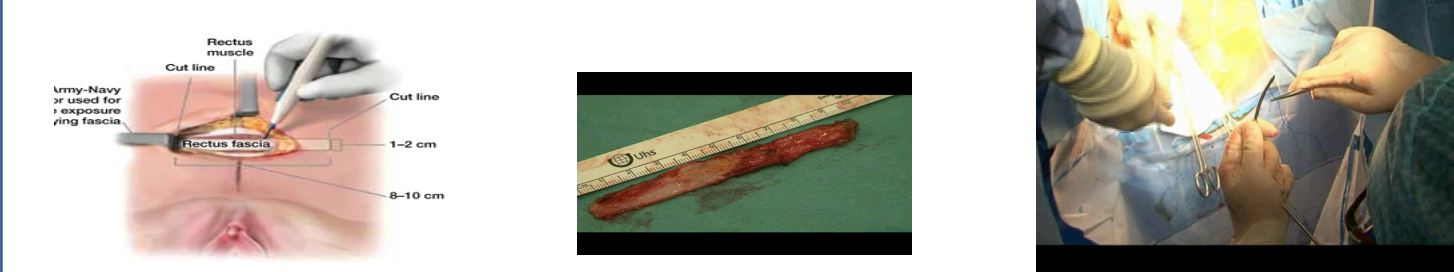
Queeb Eliabeth Universtiy Hospital, Glasgow

Introduction

AFS are traditionally used to treat SUI due to intrinsic sphincter deficiency (low mid-urethral closure pressures) or for secondary surgery in recurrent SUI. Given concerns about mesh-related complications from mid-urethral tapes, increasing numbers of our patients are choosing AFS for primary and secondary surgical treatment for SUI. Our aim was to assess the effect of maximum urethral closure pressure (MUCP) on the long-term success and complication rates of Autologous Fascial Slings (AFS) for SUI in clinical practice.

Methodology

Retrospective analysis of data for AFS performed from 2010- 2017 was carried out by review of electronic patient records. All patients had a "sling-on-a-string" procedure¹, placed mid-urethrally (non-obstructive) or at the bladder neck (obstructive).



Women were grouped on MUCP- low (<30cm H2O), borderline (30-40cm H2O) or normal (>40cm H2O) MUCP. Primary outcome was patient reported improvement on the 4-point scale: 'cured, improved, no change, worse' utilised by the British Society of Urogynaecologists. Success was defined as patient-reported resolution of symptoms (cured) and significant improvement when women felt they had improved symptoms but were not symptom free. Secondary outcome was to assess complications particularly voiding dysfunction, overactive bladder and need for further treatment.

Results

96 AFS procedures were identified - All patients were >1 year post-operative and 23.9% (21) were >5 years post-operative. **MUCP** was recorded for 89.8% (79/88) patients

- Low MUCP 19.3% (17)
- Borderline MUCP 17.7% (14)
- Normal MUCP 60.8% (48)

54% (26) of women with normal MUCP had primary procedures for SUI (all non-obstructive AFS bar one patient who chose obstructive AFS) accounting for 1/3 of our patient cohort. 82.4% (14/17) patients with low MUCP and 57.1% (8/14) with borderline MUCP had AFS for secondary/recurrent SUI.

Success: At 1 year 72/79 patients (91.1%) were cured requiring no further treatment for SUI. Cure rates were the same at 5 years. 4/79 patients (5.1%), though not completely dry, reported significant improvement in their symptoms.. Two of these women opted for sling adjustment and two opted for bladder neck injections and all were subsequently cured of SUI.

Overall obstructive AFS had higher success whether performed for primary or recurrent SUI. All women who had obstructive AFS with low or borderline MUCP were cured (100 % successful). In women with normal MUCP, those having AFS for primary SUI (26) had a slightly lower success rate - 84.6% (23) compared to those who had AFS as a secondary surgery (22) for SUI with a 90% (19) cure rate.

Table 1: Continence Outcomes for Non-obstructive and Obstructive AFS in women with low, borderline and normal MUCP

MUCP	Primary	Secondary	All	Overall	Sling type	Cured	improvement	No better
Low (17)	Primary (3)	Secondary (14)	All (17)	Overall (17)	Obstructive (3)	100.0% (3)	Nil	0.0%
					Non-obstructive (7)	85.7% (6)		14.3% (1)
	Obstructive (7)	100.0% (7)	0.0%					
	Non-obstructive (7)	85.7% (6)	14.3% (1)					
	Obstructive (10)	100.0% (10)	0.0%					
Borderline (14)	Primary (6)	Secondary (8)	All (14)	Overall (14)	Non-obstructive (4)	100.0% (4)	Nil	0.0%
					Obstructive (2)	100.0% (2)		0.0%
	Non-obstructive (6)	83.3% (5)	16.7% (1)					
	Obstructive (2)	100.0% (2)	0.0%					
	Non-obstructive (10)	90.0% (9)	10.0% (1)					
Normal (48)	Primary (26)	Secondary (22)	All (48)	Overall (48)	Non-obstructive (25)	92.0% (23)	10.4% (5)	4.0% (1)
					Obstructive (1)	0.0%		100.0% (1)
	Non-obstructive (18)	88.9% (16)	11.1% (2)	0.0%				
	Obstructive (4)	75.0% (3)	25.0% (1)	0.0%				
	Non-obstructive (43)	90.7% (39)	7.0% (3)	2.3% (1)				
Obstructive (5)	60.0% (3)	40.0% (2)	0.0%					

Results -Complications

Failure: No women reported worsening SUI. All AFS failures occurred within the first postoperative year. 3 patients were "no change". 2 of these women and 2 women with some improvement opted for further surgery.

- **Low MUCP-** Extensive scarring from previous surgery prevented urethral mobilisation and awaits ileal conduit.
- **Borderline MUCP-** One patient had repeat AFS and was cured.
- **Normal MUCP-** Three women were not cured and had further surgery. One woman reported no benefit and the sutures were found to have pulled off the sling. She had repeat AFS and was cured. Two women opted for AFS tightening within a few weeks of initial surgery and were cured.

Perioperative complications:

- Bladder injury - 2 (2.5%) – both noted intraoperatively and successfully treated conservatively. There were no bowel injuries.
- 26.5% (21) required antibiotics and 5.1% (4) of women required inpatient management of infection.

Worsening Over Active Bladder symptoms

21.1% (19) experienced worsened or new onset OAB. Women with normal MUCP were less likely to experience this -12.5% (6) vs women with low- 47% (8)- or borderline -35.7% (5) MUCP as they almost all had non-obstructive AFS.

Clean Intermittent Self Catheterisation (CISC)

59% women were discharged performing CISC. Rates dropped at each follow-up with the biggest fall between 1 and 3 months. Those doing CISC at 6 months generally continued long-term. As expected, obstructive AFS had a higher rate of ongoing CISC beyond 12 months, irrespective of MUCP (31.6% versus 11% with non-obstructive slings). Higher rates of CISC beyond 12 months post-operatively were seen with low (23.5%) or borderline (20%) MUCP because of a greater proportion of obstructive procedures.

19 women had additional risk factors for CISC

- 5 of them performed CISC pre-operatively
- 9 had pre-existing voiding dysfunction
- 2 had received Botox previously and 5 commenced Botox post-operatively for new or worsening OAB.

The 60 women without risk factors had lower rates of CISC. 49 had non-obstructive procedures with 6 performing CISC at 3 months (12.3%) and 3 at 12 months (6.2%). 11 had obstructive procedures with 3 at 3 months (25%) and 1 at 12 months (8.3%) needing CISC.

Table 2: Duration of CISC, MUCP and type of sling procedure

Sling type	MUCP	Discharged with catheter/ doing CISC	CISC >1 month	CISC >3months	CISC >6 months	CISC > 12 months
Non-obstructive (60)	Low (7)	42.9% (3)	28.6% (2)	14.3% (1)	14.3% (1)	14.3% (1)
	Borderline (10)	63.6%(7)	36.4%(4)	9.1%(1)	9.1%(1)	9.1%(1)
	Normal (43)	51.2%(22)	44.2%(19)	23.3%(10)	14%(6)	11.6%(5)
	Overall (60)	53.3% (32)	41.7%(25)	20%(12)	13.3%(8)	11.7%(7)
Obstructive (19)	Low (10)	70.0% (7)	50.0% (5)	40.0% (4)	40.0% (4)	30.0% (3)
	Borderline (4)	75.0% (3)	75.0% (3)	50.0% (2)	50.0% (2)	50.0% (2)
	Normal (5)	40% (2)	40% (2)	40% (2)	20% (1)	20% (1)
	Overall (19)	63.2% (12)	52.6% (10)	42.1% (8)	36.8% (7)	31.6% (6)

Discussion

Autologous fascial slings offer a good cure rate in all groups. Obstructive AFS provide the best cure rates as expected but with higher rates of long-term CISC. Proportionately more obstructive slings were performed for women with low or borderline MUCP which may contribute to the higher overall cure rate in these women vs. those with normal MUCP, where more had non-obstructive AFS.

Women with normal MUCP had a higher cure rate with non-obstructive AFS and lower rate of CISC. Long term rates of CISC in women with no pre-existing voiding dysfunction are low with both obstructive and non-obstructive slings.

Conclusions

Despite small numbers, this case series seems to support the use of AFS for women seeking surgical management of SUI with low, borderline or normal MUCP as either a primary or secondary procedure. Women with low or borderline MUCP should be counselled about the increased success rate of obstructive AFS with the associated increased risk of short term CISC.

References

1. A Randomised controlled trial comparing two autologous fascial sling techniques for the treatment of stress urinary incontinence in women: short, medium and long-term follow-up. Guerrero K, et al. Int Urogynecol J Pelvic Floor Dysfunct. 2007 Nov;18(11):1263-70.