Abstract 20652

The MiniArc Sling System for Female Stress Urinary Incontinence A Comparison of Techniques

Joella Ang, Eugene Huang, Jolene Peh, Han How Chuan
Department of Urogynaecology, KK Women's and Children's Hospital, Singapore

KK Women's and Children's Hospital
SingHealth

AIMS OF STUDY

The MiniArc has been used to treat female stress urinary incontinence (SUI) in our hospital since July 2014. It is comparatively less invasive than the established mid-urethral tapes and reported to reduce the risk of complications e.g. bladder perforation, injuries to structures in the true pelvis, groin pain (1). Placement techniques of the sling vary without consensus until the IUGA Conference in June 2015 where a 4-step technique (2) was introduced by Astora Women's Health (AWH). Outcome data and technique comparisons are still scarce. We report our experience and two year outcomes with the MiniArc sling system.

STUDY DESIGN, MATERIALS, METHODS

Single operator performed all MiniArc surgeries in our hospital.
Total 87 patients from 3 July 2014 to 30 Nov 2015.

Group A – 46 patients, from 3 July 2014 to 4 June 2015
Group B – 41 patients, from 18 June 2015 to 30 Nov 2015

Data collection: Demographics, Preoperative and postoperative urodynamic evaluation, operative details, complications, outcomes

SURGICAL TECHNIQUES

Group A

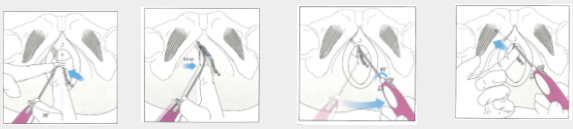
Initial Technique (3)

- Insert the needle and aim towards the medial edge of the obturator foramen approximately 45 degrees off the horizontal plane.
- Once beyond the ischiopubic ramus, the handle is pivoted and tip advanced into the obturator internus muscle

Group B

New AWH Technique (2)

- Advance the trocar tip into the endopelvic fascia at 30 degrees from the midline
- Drift the trocar shaft 0.5cm cephalad to arc around the rami,
- Rotate the tip 45 degrees aiming for the superior aspect of the obturator foramen
- Penetrate into the obturator internus muscle



Differences – angle of insertion, cephalad drift in Group B

RESULTS

- Table 1 summarises the baseline demographic data.
- The two groups were similar in age, parity, menopausal status and BMI.

- Preoperative urodynamic studies showed Group A patients had worse SUI than Group B patients
  - (mean leakage: 56.1g±95.6 vs 12.4g±33.4, p=0.037).
- MiniArc surgery duration was shorter in Group A
  - (13.4min±4.8 vs 23.4min±14.7, p=0.01).
- The estimated blood loss was similar
  - (3.4ml±2.2 vs 6.0ml±6.0).

Table 1 Baseline Demographic Characteristics of the Patients

Parameters	Group A (n = 46)	Group B (n = 41)	All patients (n = 87)	p value
Age (years) (Mean ± SD; range)	57.9 ± 8.2 (38 – 74)	59.5 ± 8.3 (44 – 82)	58.6 ± 8.2 (38 – 82)	**0.363**
Parity (Mean ± SD; range)	2.6 ± 1.1 (0 – 7)	2.9 ± 1.4 (0 – 9)	2.7 ± 1.3 (0 -9)	**0.187**
Nulliparous (n; %)	1 (2.2)	1 (2.4)	2 (2.3)	**1.000**
Vaginal/Instrumental Delivery (n; %)	43 (93.5)	39 (95.1)	82 (94.3)	**1.000**
Pure LSCS (n; %)	2 (4.3)	1 (2.4)	3 (3.4)	**1.000**
Menopause (n; %)	35 (76.1)	30 (73.2)	65 (74.7)	**0.755**
Menopause (years) (Mean ± SD; range)	9.5 ± 7.1 (1 – 34)	9.3 ± 6.9 (1 – 30)	9.4 ± 6.9 (1 – 34)	**0.730**
HRT (n; %)	2 (4.3)	1 (2.4)	3 (3.4)	**1.000**
Sexual Activity (n; %)	22 (47.8)	20 (48.8)	42 (48.3)	**0.929**
BMI (kg/m²) (Mean ± SD; range)	26.0 ± 4.1 (17.6 – 35.7)	26.6 ± 5.0 (19.6 – 40.3)	26.3 ± 4.5 (17.6 – 40.3)	**0.789**

- Perioperative complications as shown in Table 2
- Similar rates of bladder perforation and urinary tract infection
- Postoperative complications were similar between the groups
- Similar rate of voiding difficulties >7 days required catheterisation
- Group A: 1 patient required tape cutting on POD 20
- Mean duration of catherization was similar between the groups
  - 3.1±7.0 days
  - Group A: 0-53 days
  - Group B: 0-19 days

Table 2 Perioperative Complications

Parameters	Overall	%	Group A n=46	%	Group B n=41	%	p value
Blood Transfusion	3	3.4%	2	4.3%	1	2.4%	1.000
Intraoperative Complications	6	6.9%	3#	6.5%	3*	7.3%	1.000
Postoperative Complications	10	11.5%	4&	8.7%	6^	14.6%	0.506
Urinary Tract Infection	0	-	0	-	0	-	-
Thigh Discomfort	0	-	0	-	0	-	-
Voiding Difficulties > 7 days@	8	9.2%	4	8.7%	4	9.8%	1.000
Tape Loosening	0	-	0	-	0	-	-
Tape Cutting	1	1.1%	1	2.2%	0	-	1.000

- Outcomes as shown in Table 3
- Cure rates at 24 months not statistically significant
  - 81.6% vs 97.1% p=0.063
- Vaginal mesh extrusion and dyspareunia not statistically significant

Table 3 Outcomes

Parameters	12 months				24 months			
	Overall n=87	Group A n=46	Group B n=41	p value	Overall n=87	Group A n=46	Group B n=41	p value
Follow-up	85 (97.7%)	46 (100%)	39 (95.1%)	0.219	72 (82.8%)	38 (82.6%)	34 (82.9%)	0.592
SUI								
Cured	76 (89.4%)	38 (82.6%)	38 (97.4%)	**0.035**	64 (88.9%)	31 (81.6%)	33 (97.1%)	0.063
Improved	9 (10.6%)	8 (17.4%)	1 (2.6%)	**0.035**	8 (11.1%)	7 (18.4%)	1 (2.9%)	0.063
De novo U/UI	2 (2.4%)	2 (4.3%)	0	0.497	0	0	0	-
Wound dehiscence	0	0	0	-	0	0	0	-
Mesh extrusion	1 (1.2%)	0	1 (2.6%)	0.459	1 (1.4%)	0	1 (2.9%)	0.457
Dyspareunia	3 (3.5%)	1 (2.2%)	2 (5.1%)	0.591	1 (1.4%)	0	1 (2.9%)	0.464
Thigh pain	0	0	0	-	0	0	0	-
Reoperation	0	0	0	-	0	0	0	-
Readmission	0	0	0	-	0	0	0	-

INTERPRETION OF RESULTS

- Our experience shows that the MiniArc sling system surgery is a safe and effective treatment for female SUI with a high 2-year cure rate.
- Rates of postoperative complications such as failed trial-off-catheter may be related to the better tension and hold of the MiniArc system with the new technique.
- Higher rates of bladder perforation in Group B may be related to the cephalad drift of the handle prior to insertion.
- Rates of mesh extrusion and dyspareunia were low in our population.

CONCLUDING MESSAGE

While the production of the MiniArc sling system has been ceased, there may still be a role in single incision mini-slings. Success rates for the new technique was higher at 12 months but similar after 24 months.

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