

Outcomes of surgically treated mesh erosions secondary to mid-urethral sling surgery

AHMET AKIN SIVASLIOGLU, ASLIHAN ALP OZTURK, DILEK UYSAL, ÇETIN AYDIN

Izmir Katip Çelebi University Atatürk Training and Research Hospital - Obstetrics and Gynecology

Abstract: Objective: Mesh erosion is a bothersome complication of mid urethral sling surgery and the aim of this study is to scrutinize the risk factors and results of mesh erosion surgery. **Materials and methods:** This retrospective study evaluates the patients who have had partial removal of mono-filament polypropylene tape due to the mesh erosion between the dates of July 2012 to July 2015. The data were analyzed with the SPSS package programme. **Results:** The total number of the cases who have had partial removal due to mesh erosion was 28. The majority of cases had had transobturator tape surgery (89.3%). The mean of the time from index mid urethral sling surgery to mesh erosion surgery was 31.2 (24.8) months. The most common presenting symptom was stress urinary incontinence (SUI). The mean of follow up period after the mesh erosion surgery was 14.5 (8.8) months. The number of incontinent and continent patients before the mesh erosion surgery was 10 and 18, respectively. The number of the incontinent patients after surgery increased to 12 patients and the rest of the study population (16) have remained continent. **Conclusion:** Mesh erosion could be seen as late as 102 months after the index operation. Partial removal of mesh is easy and usually does not have a considerable negative impact on continence. Follow ups are essential for patients who have had mid urethral sling surgery.

Keywords: Mesh erosion; Partial mesh removal; Stress urinary incontinence.

INTRODUCTION

Several new techniques have been developed for the surgical treatment of stress urinary incontinence (SUI). Currently, most of the literature are favouring the use of midurethral tapes¹. However, mesh erosion is a bothersome complication of this surgical treatment and the incidence varies widely (0% vs. 20%)². The presenting symptom of the patients who have erosion can vary such as SUI, persistent vaginal discharge, stinging feeling, voiding dysfunction, vaginal burning sensation, vaginal bleeding, dyspareunia of partner or urgency. Diagnosis is confirmed by visual inspection or palpation of the tape in the vagina. Care must be taken to exclude urethral and bladder erosions that are potentially serious complications and necessitate immediate surgical removal.

The vaginal erosion is caused by multiple factors including inappropriate vaginal dissection, wound infection, bad healing, scarring, markedly atrophied vaginal wall, estrogen deficiency, diabetes mellitus, postoperative urinary retention, postoperative traumatic catheterization, or urethral dilatation^{3,4}. The placement of tape under the pubocervicovaginal fascia would prevent erosion formation⁵. This study aims to identify the outcomes of surgically treated mesh erosions in women who have had mid urethral sling surgeries for SUI.

MATERIALS AND METHODS

This retrospective study evaluates the data between the dates of July 2012 to July 2015. All the files of the patients who had had surgically treated mesh erosion were scrutinized with respect to age, parity, menopausal status, symptoms, type of sling surgery, comorbidity and followups. Only the patients who had been operated with the mono-filamentous polypropylene slings were included in the study. The data were analyzed with the SPSS package program.

RESULTS

The total number of the cases who had surgically treated mesh erosion was 28. Twenty-six midurethral sling surgeries were performed at other units and two at our centre. During the study period (3 years) the total number of mid

urethral sling surgeries was 147. Hence the erosion rate of our centre was 1,3%. The demographic parameters of the study group are given (Table 1).

We found that the mean duration from mid urethral surgery to erosion diagnosis was 31.2 (24.8) months. Interestingly, one mesh erosion was diagnosed in a patient 102 months after index surgery.

The majority of cases had transobturator tape surgery (89,3%) (Figure 1). A small amount of cases with erosion was seen after TVT (10.7%). The mean of the time from index mid urethral sling surgery to mesh erosion surgery was 31.2 (24.8) months. The most common presenting symptom was stress urinary incontinence (SUI). The mean of follow up period after the mesh erosion surgery is 14.5 (8.8) months. The data have been given (Table 2).

The number of incontinent and continent patients before the mesh erosion surgery was 10 and 18, respectively. The number of the incontinent patients after surgery increased to 12 patients and the rest of the study population (16) have remained continent.

We found that the mean duration from mid urethral surgery to erosion diagnosis was 31.2 (24.8) months. Interestingly, one mesh erosion was diagnosed in a patient 102 months after index surgery.

The most common presenting symptom was stress urinary incontinence, stinging feeling, leucorrhoea, emptying difficulty, vaginal burning sensation, dyspareunia of partner and urgency in descending order in our study.

TABLE 1. The demographic parameters of the study population.

Variable		
Age (years)	54.2 ± 11.6 (min. 32 - max. 78) years	
Parity	Multiparity 28 Nulligravid 1	
Reproductive status	Menopausal 18 Perimenopausal 10	
Comorbidity	No comorbidity	17 (60,7%)
	Hypertension	7 (25%)
	Diabetes + Hypertension	3 (10,7%)
	Diabetes	1 (3,6%)

TABLE 2. Data related to the midurethral sling surgery.

Variable		
Type of sling surgery	TOT	25 (89,3%)
	TVT	3 (10,7%)
Passed time from the index surgery to the application for treatment (months)	31.2 ± 24.8 (min. 3 - max. 102) months	
Presenting symptoms	SUI	10(35,7%)
	Leucorrhea	5 (17,9%)
	Voiding difficulty	4 (14,2%)
	Stinging feeling	3 (10,8%)
	Vaginal burning sensation	3 (10,8 %)
	Dyspareunia of partner	2 (7,1%)
	Urgency	1 (3,5%)
Follow up period after mesh erosion surgery (months)	14.5 ± 8.8 (min. 1- max.33) months	

The cases were followed up with a mean of 14.5 (8.8) months (min.1- max 33 months).

De novo stress urinary incontinence occurred in two patients. The total number of cases who have had stress urinary incontinence was 12. Four cases out of 12 opted for Burch colposuspension and these cases are continent. Eight patients were given anticholinergic treatment plus extra-corporal magnetic innervation therapy. Four patients out of eight were happy with the treatment modality because they were almost dry, however the other four patients rejected any further treatment and they were incontinent.

The most common presenting symptom was stress urinary incontinence, stinging feeling, leucorrhea, emptying difficulty, vaginal burning sensation, dyspareunia of partner and urgency in descending order in our study.

The cases were followed up with a mean of 14.5 (8.8) months (min. 1-max 33 months).



Figure 1. – Mesh erosion due to transobturator sling surgery.

De novo stress urinary incontinence occurred in two patients. The total number of cases who have had stress urinary incontinence was 12. Four cases out of 12 opted for Burch colposuspension and these cases are continent. Eight patients were given anticholinergic treatment plus extra-corporal magnetic innervation therapy. Four patients out of eight were happy with the treatment modality because they were almost dry, however the other four patients rejected any further treatment and they were incontinent.

Informed patient consent was obtained from the patients and the study was approved by the local ethical committee of the hospital.

DISCUSSION

All of the patients (28) had partial removal of mesh. Complete removal of mesh has not been tried because of two reasons: 1) the tissue integration of monofilament polypropylene meshes is increased, making its complete dissection nearly impossible without any complication to the surrounding structures such as urethra, bladder or connective tissue of the pelvic floor 2) the complete removal of mesh may lead to recurrence of stress urinary incontinence after the surgery.

During the early period of sub urethral sling surgery; the prevalence of mesh erosion was as high as 10-40%. However with improvements in surgical technique and mesh technology, the rate of erosion has dropped to 3%⁶. The management of mesh erosion is either medically or surgically. If the erosion is < 5mm, spontaneous healing within 6-12 weeks can be seen⁷. However, if the conservative treatment fails or the longest distance of erosion is larger than 1 cm; the exposed part of the mesh is incised and the healthy vaginal mucosa is sutured under local anaesthesia. Topical estrogen usage should be offered to all postmenopausal patients. This study entails the patients who have had partial sling removal due to mesh erosion and all the cases were operated under local anaesthesia and their healthy vaginal tissue was sutured once the partial removal of the mesh had been completed. There was one recurrent case out of 28 cases after the partial removal of mesh (3.5%).

A review of TOT and TVT procedures for SUI found that mesh erosion was more common following TOT procedures compared with TVT procedures⁸. Our result is in accordance with the literature.

In order to get rid of the mesh erosion problems, the pubocervicovaginal fascia should be plicated over the mesh so that mesh would stay under the pubocervicovaginal fascia during mid urethral sling surgery⁵.

In the literature, concomitant surgery for SUI and POP has not been found to be associated with an increase in mesh related complications⁹. On the other hand, previous vaginal scar tissue may lead to erosion due to damaged vascularity. Elderly age, BMI >30 kg/m², menopausal status, diabetes mellitus, smoking, length of vaginal incision > 2 cm, recurrent vaginal incision for postoperative complications and previous vaginal surgery for pelvic organ prolapse or incontinence were also found to be risk factors for mesh erosion¹⁰.

CONCLUSION

Mesh erosion could be seen as late as 102 months after the index operation. Partial removal of mesh is easy and keeps patient continent. Follow ups are essential for patients who have had mid urethral sling surgery.

DISCLOSURE STATEMENT

There was no conflict of interest.

REFERENCES

1. Ogah J, Cody JD, Rogerson L. Minimally invasive synthetic suburethral sling operations for stress urinary incontinence in women. *Cochrane Database Syst Rev.* 2009 Oct 7; (4): CD006375. doi: 10.1002/14651858.CD006375.pub2.
2. Siegel AL. Vaginal mesh extrusion associated with the use of Mentor transobturator sling. *Urology.* 2005; 66: 995-9.
3. Chen H, Ho M, Hung Y, Huang LC. Analysis of risk factors associated with vaginal erosion after synthetic sling procedures for stress urinary incontinence. *Int Urogynecol J Pelvic Floor Dysfunct.* 2008. 19 (1): 117-21.
4. Jonsson Funk M, Siddiqui NY, Pate V, Amundsen CL, Wu JM. Sling revision/removal for mesh erosion and urinary retention: long-term risk and predictors. *Am J Obstet Gynecol.* 2013. 208 (1): 73.e1-7.
5. Sivaslioglu AA, Unlubilgin E, Dolen I. The multifilament polypropylene tape erosion trouble: tape structure vs surgical technique. Which one is the cause? *Int Urogynecol J Pelvic Floor Dysfunct.* 2008. 19: 417-420.
6. Mesens T, Aich A, Bhal PS. Late erosions of mid-urethral tapes for stress urinary incontinence – need for long-term follow-up? *Int Urogynecol J Pelvic Floor Dysfunct.* 2007. 18 (9): 1113-4.
7. Kobashi KC, Govier FE. Management of vaginal erosion of polypropylene mesh slings. *J Urol.* 2003. 169: 2242-3.
8. Latthe PM. Review of retropubic and transobturator tapes in stress urinary incontinence. *Current Opinion in Obstet Gynecol.* 2008. 20: 331-336.
9. Maher C, Feiner B, Baessler K, Schmid C. Surgical management of pelvic organ prolapse in women. *Cochrane Database Syst Rev.* 2013 Apr 30; 4: CD004014. doi: 10.1002/14651858.CD004014.pub5.
10. Kokanali MK, Doğanay M, Aksakal O, Cavkaytar S, Topçu HO, Özer İ. Risk factors for mesh erosion after vaginal sling procedures for urinary incontinence. *Eur J Obstet Gynecol Reprod Biol.* 2014. 177: 146-50.

Correspondence to:

Ahmet Akin Sivaslioglu - Seferihisar Cad. - IZMIR - Turkey
akinsivaslioglu@gmail.com

Multidisciplinary Uro-Gyne-Procto Editorial Comment

To improve the integration among the three segments of the pelvic floor, some of the articles published in **Pelvipерineology** are commented on by **Urologists, Gynecologists, Proctologists/Colo Rectal Surgeons** or **other Specialists** with their critical opinion and a teaching purpose. Differences, similarities and possible relationships between the data presented and what is known in the three or more fields of competence are stressed, or the absence of any analogy is indicated. The discussion is not a peer review, it concerns concepts, ideas, theories, not the methodology of the presentation.

Uro... Implantation of a synthetic midurethral sling is the most common anti-incontinence procedure in women worldwide. A major problem is the absence of controlled studies on the real incidence of complications, particularly mesh erosions, whose incidence varies from 0% to 41%. Factors for slings erosion fall into three main categories: patient and intraoperative conditions and mesh characteristics. The careful selection of patients and surgical accuracy can reduce the occurrence of this complication and minimize the possibility of a partial sling removal. The effectiveness of partial sling removal on continence needs a long-term follow-up because at the moment there is an absence of evident results in this matter, although the “absence of evidence is not evidence of absence”.

SALVATORE SIRACUSANO
Department of Urology Università di Verona, Italy
salvatore.siracusanov@univr.it

Procto... As well as Urinary Incontinence also Fecal Incontinence can be treated with a sling implant (Pelvipерineology 2007;26:108), mostly if associated with rectal prolapse. It's very interesting that, in our personal experience (Pelvipерineology 2013;32:9), similar results are obtained. Erosions and dislocations may occur but removal is easy. The internal circular scar following the removal allows a residual continence as well as described in this paper. Infection in posterior slings occurs more frequently and it needs a more important attention.

FILIPPO LA TORRE
Department of Surgery, Università di Roma La Sapienza, Italy
filippo.latorre@uniroma1.it