

## DIFFERENCES IN BACTERIOLOGICAL ANALYSIS OF EXPLANTED TRANSVAGINAL MESH.

### Hypothesis / aims of study

Vaginal mesh has been used in surgical management of women with pelvic organ prolapse (POP). The development of vaginal mesh related infectious complications is based on various factors such as the kind of mesh used, the type of procedure, the age and the underlying co-morbidity of the treated patient. (1) Subclinical contamination of mesh has been demonstrated by bacteriological studies during mesh implantation and explantation. The incidence of mesh related infections is 0 – 8% in published studies and various pathogens have been implicated including gram positive, gram negative, aerobic and anaerobic bacteria. (2) Previous studies have shown that bacterial contamination is found in all removed mesh at low quantification and therefore its exact role is not clear. (3) Subclinical mesh infection acquired during initial implantation may result in wound separation with subsequent mesh exposure. When vaginal mesh erosion is detected, it raises the question of mesh colonization as a risk factor for erosion or whether erosion exposes the mesh to vaginal bacteria. The aim of this study is to perform bacteriological analysis of eroded and non-eroded transvaginal mesh to detect if there is a difference in microbiology.

### Study design, materials and methods

We retrospectively reviewed medical records of 13 patients who presented with mesh related symptoms / complications requiring transvaginal removal of the mesh from the vagina or lower urinary tract. The excised mesh was sent for bacteriological analysis for aerobic, anaerobic and fungal analysis in the microbiology department. Vaginal swabs for culture were obtained in all patients prior to mesh explantation

### Results

13 patients underwent 14 surgical mesh explantations through transvaginal approach. Age ranged from 35 to 86 years, (mean 56.8; median 54). Duration from initial procedure to mesh explantation was 1 – 11 years (mean: 5.1 years). Mesh placement was performed for pelvic organ prolapse (n=6) and stress urinary incontinence (n=9) or both these conditions (n=2). Indications for mesh removal included painful mesh (n=5; 35.7%), mesh erosion (n=7; 50%) of which included extrusion/ exposure into vagina (n=4; 28.5%) and erosion into lower urinary tract (n=3; 21.4%), recurrent SUI (n=1; 7.1%), and urinary obstruction (n=1; 7.1%). Pelvic/vaginal pain (n=7; 53.8%) was the most common presenting symptom followed by dyspareunia (n=3; 23%), urinary incontinence (n=2; 15.3%), lower urinary tract symptoms (LUTS) (n=1; 7.6%), vaginal bleeding (n=1; 7.6%), and back pain (n=1; 7.6%). Positive mesh cultures were found in 10 (71.4%) patients and no bacterial growth was seen in 4 patients (28.5%). *Enterococcus faecalis* was the only pathogenic organism and *staphylococcus*, *Lactobacillus*, and *Propionibacterium* were the most common non-pathogenic organisms. Vaginal swabs (n=13) sent for culture showed growth of indigenous organisms in 61.5% of patients and one swab (7.6%) grew a single colony of *Staphylococcus*. The patients with painful mesh had a positive culture (60%), erosion into urinary tract (100%) and vaginal erosion (50%).

### Interpretation of results

Regardless of the intra-operative sterility procedures used, a majority of the patients had vaginal colonization with indigenous organisms. Half the patients with vaginal mesh extrusion/ exposure had a positive culture and all the patients with erosion into the lower urinary tract had a positive culture, indicating that mesh colonization may be a risk factor for mesh erosion into the lower urinary tract or vaginal mesh exposure/ extrusion.

### Concluding message

Colonization of vaginally implanted mesh occurs frequently and bacterial infection may account for pelvic pain in patients with painful mesh and dyspareunia as well as for lower urinary tract mesh erosion or vaginal mesh exposure/ extrusion.

Table 1:

Type of complication	No. of mesh (14)	Negative culture	Positive culture	Pathogenic organisms	Non-pathogenic organisms
Painful mesh	5 (35.7%)	2 (40%)	3 (60%)	-	3 (100%)
Vaginal extrusion/ exposure	4 (28.5%)	2 (50%)	2 (50%)	1(50%)	1 (50%)
Erosion into urinary tract	3 (21.4%)	-	3 (100%)	-	3 (100%)
Recurrent SUI	1 (7.1%)	-	1 (100%)	-	1 (100%)
Obstruction	1 (7.1%)	-	1 (100%)	-	1 (100%)

### References

1. Vollebregt, A. et al. "Bacterial colonisation of collagen-coated polypropylene vaginal mesh: are additional intraoperative sterility procedures useful?" *Int Urogynecol J* (2009) 20:1345–1351
2. Falagas ME., Mesh-related infections after pelvic organ prolapse repair surgery. *Eur J Obstet Gynecol Reprod Biol.* 2007 Oct;134(2):147-56. Epub 2007 Apr 24.

3. Boulanger L., Bacteriological analysis of meshes removed for complications after surgical management of urinary incontinence or pelvic organ prolapse. *Int Urogynecol J Pelvic Floor Dysfunct*. 2008 Jun;19(6):827-31. doi: 10.1007/s00192-007-0537-z.

Disclosures

**Funding:** None **Clinical Trial:** No **Subjects:** NONE