



Inflammation and infection

## Late-presenting with a tumor-like mass giant cell reaction related to retropubic midurethral sling

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### ABSTRACT

Stress urinary incontinence (SUI) is a condition that most commonly affects aging women. Synthetic mid-urethral slings (MUS) have become the most common surgical treatment for SUI; however, complications such as mesh erosion and dyspareunia have been reported. This case report describes an 84-year-old female who presented with a tumor-like mass giant cell reaction surrounding the MUS and the management of this mass.

### 1. Introduction

Stress urinary incontinence (SUI) is a common condition affecting aging women. Midurethral slings (MUS) using synthetic mesh have become the most common surgical treatment for SUI due to their safety and effectiveness. MUS have been shown to have high success rates with low rates of complications compared to other surgical options.<sup>1</sup> While MUS are generally safe and effective, complications related to the use of mesh have been reported, such as mesh erosion, infection, and dyspareunia.<sup>1</sup> Despite its use in many types of surgeries, only a few reported cases have suggested the possible carcinogenicity of synthetic mesh, and definite carcinogenic potential has yet to be established in humans.<sup>2</sup>

This case report describes a patient who presented with a giant cell foreign body reaction causing a tumor-like mass surrounding the retropubic MUS sixteen years following implantation and discusses the histopathological features and conservative clinical management of the lesion. To the authors' knowledge, the only similar case reported in the literature presented a patient with a vaginal mass four years following MiniArc sling placement that was managed with excision.<sup>3</sup>

### 2. Case presentation

An 84-year-old Black female patient presented to the clinic due to a long history of urinary incontinence and approximately one year of intermittent hematuria. Her medical history was significant for hypertension, hyperlipidemia, open-angle glaucoma, osteoarthritis, atopic

dermatitis, and gastroesophageal reflux disease. Her surgical history was significant for retropubic MUS placement for SUI sixteen years prior to presentation, remote abdominal hysterectomy with ovary preservation, remote appendectomy, remote cholecystectomy, and several ophthalmologic surgeries. Prior to presentation, the patient reported an unremarkable cystoscopy completed at an outside hospital. During the initial examination, her post-void residual volume (PVR) was 467 mL, and ulcerations were noted on the clitoral hood and right labia majora. There was no obvious pelvic organ prolapse as measured by the Pelvic Organ Prolapse Quantification System (POP-Q) and no palpable masses. A 4 mm punch biopsy was performed of the ulcerated vulvar lesions, which showed only granulation tissue. Urinalysis and urine culture were within normal limits. Due to her complaints of urinary urgency and frequency, a urodynamics study was obtained, which was positive for SUI. A subsequent CT revealed a 3.3 × 2.2 cm hyperenhancing mass within the expected location of the urethra with extension into the urinary bladder concerning for urothelial neoplasm (Fig. 1).

Due to the imaging findings, the decision was made to proceed with a transurethral resection of bladder tumor (TURBT). At the time of surgery, urine cytology was negative for cytologic features of malignancy. The bladder was examined thoroughly and showed squamous metaplasia of the trigone. There was diffuse chronic inflammation but no obvious papillary or malignant lesions. There appeared to be some degree of extraluminal compression anteriorly with 70-degree lens, but no lesion was present to be resected intraluminally. Due to the inability to biopsy the lesion of interest during the TURBT, the decision was made to

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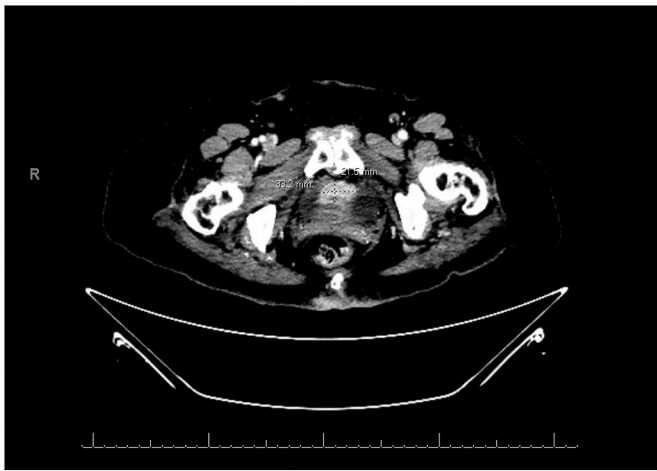
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**Fig. 1.** A 3.3 x 2.2 cm hyperenhancing mass is identified within the expected location of the urethra with extension into the urinary bladder.

proceed with CT-guided biopsy of the mass.

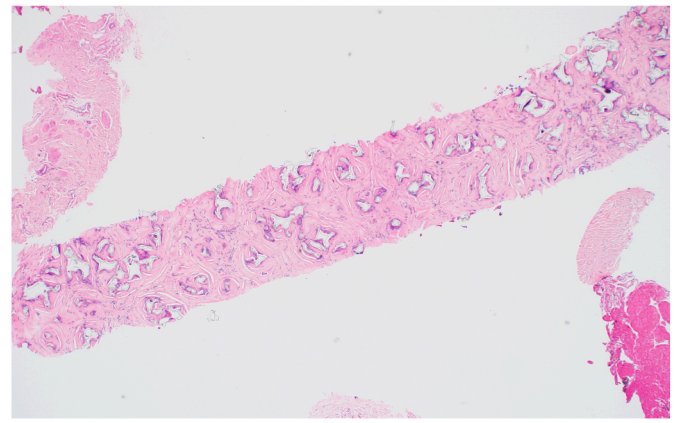
Biopsy of the mass showed dense fibrosis with abundant foreign material and a foreign body giant cell reaction (Figs. 2 and 3). The material was translucent and refractile in appearance but did not demonstrate birefringence under polarized light. No neoplasia was identified histologically.

Due to the patient's advanced age and decreased functional status, the patient and her family opted for conservative management with timed voiding rather than excision of the sling and associated mass. Clean intermittent catheterization was discussed with the patient; however, her PVR was within normal limits with timed voiding, so this was deferred.

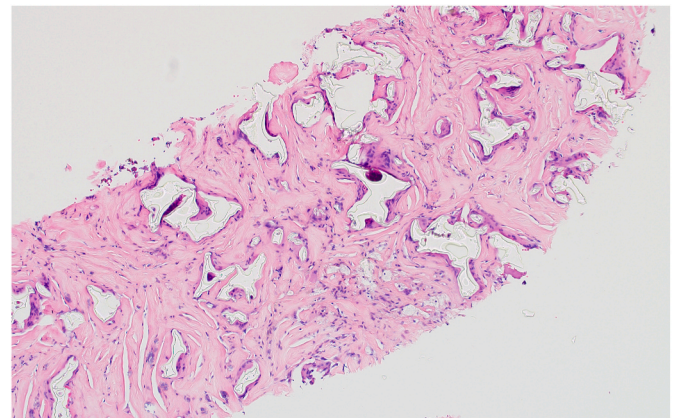
### 3. Discussion

A foreign body reaction composed of foreign body giant cells is the end-stage sequelae of the inflammatory response following implantation of a medical biomaterial such as synthetic mesh. While the foreign body reaction is primarily modulated in the first two to four weeks following implantation, the reaction at the tissue/material interface may remain present for the in vivo lifetime of the biomaterial.<sup>4</sup> Although synthetic mesh is used in a variety of surgeries, there is limited data regarding complications of long-term exposure to MUS mesh. In a retrospective case-control study of 130 women who underwent excision of MUS mesh for voiding dysfunction and/or pain and/or mesh exposure, the presence of inflammatory giant cell reaction was seen in almost all excised specimens, though no tumor-like lesions were seen as in the reported case.<sup>5</sup>

In summary, this is the first case in the literature of a late-presenting tumor-like mass giant cell reaction to foreign MUS mesh managed without excision. This patient was advanced in age and had limited functional status. Her clinical frailty score was a 6 with a 60% probability of post-operative survival at 30 months. With the patient's clinical status and normal PVR with timed voiding, the shared decision was made to opt for conservative management. Further research is needed to better understand the long-term risks of synthetic mesh as well as



**Fig. 2.** H&E stained sections show abundant foreign refractile material within dense fibrosis with surrounding histiocytic reaction (H&E, 40x)



**Fig. 3.** Higher power better demonstrates the refractile material as well as the foreign body giant cell reaction to the material (H&E, 100x).

conservative management options for masses that could develop as a result of its use.

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