

Case Report

A systemic allergic reaction to a mid-urethral sling

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Introduction

A 62-year-old woman developed severe nonspecific allergic reactions after insertion of a mid-urethral sling for stress urinary incontinence, which subsequently resolved on removal of the sling. This phenomenon has not been previously reported in the literature.

Case Report

A 62-year-old woman with a history of two normal vaginal deliveries presented with vaginal prolapse and worsening stress urinary incontinence, despite the use of topical oestrogen cream and pelvic floor exercises. She had a background of stable asthma and allergic rhinitis for many years, and adverse reactions to Indocid[®], Panadeine-Forte[®] and aspirin. This patient underwent placement of a Miniarc[®] and posterior fascial repair to good effect at a 2-month review, proven by symptom relief and urodynamic studies.

Over the months following the operation, the woman began to suffer from severe systemic hypersensitivity symptoms manifesting as recurrent angioedema, which she had never experienced before. The angioedema occurred when the woman ingested cephalexin, an Indian herb, pear, fish and several other foodstuffs, to which she had no reaction in the past. The reactions included significant shortness of breath, flushing and swelling of the face, neck and upper airway, which was usually responsive to oral Phenergan[®] and nebulised adrenaline, but occasionally required intramuscular hydrocortisone or an EpiPen[®]. Over 10 months, this woman lost almost 30 kg of bodyweight, dropping her body mass index from 32 to 21, as she became fearful of eating many of the foods she had previously enjoyed.

The woman also complained of a tugging, scraping or pulling sensation in the vaginal area on micturition, which she described as so painful that she almost lost consciousness. She used Phenergan[®] to manage this pain and continued to avoid drugs to which she had previously had reactions. On examination, the wound appeared to have healed well; the sling was not palpable, and there was no sling exposure. Ultrasound scanning revealed no peri-urethral haematoma or collection, or indeed any other abnormality. Flexible cystourethroscopy was normal at the time of postoperative urodynamics. 3D/4D transperineal ultrasound confirmed appropriate mid-urethral placement of the sling.

The woman was referred to both a dermatologist and allergist/immunologist, neither of whom, after extensive investigation and allergy testing, could find any triggers or causes for her symptoms. Differential diagnoses considered included specific drug allergies, specific food allergies, complement disorders, systemic lupus erythematosus, thyroid disorders and an unusual adult onset of hereditary angioedema, but all of these disorders were excluded on investigation. Normal tests included serum electrolytes, urea, creatinine, full blood count, liver function tests, cholesterol, complement C3, complement C4, IgE immunoassay, serum protein electrophoresis, thyroid hormone levels, anti-thyroglobulin and anti-thyroid peroxidase antibodies, and tryptase assays. The only anomaly was a raised serum C1 esterase inhibitor 420 mg/L (range 150–350 mg/L), which alone did not explain the woman's symptoms. None of the tests for specific allergens were positive (Table 1), including those such as fish and fruits, that had triggered reactions in the past, albeit in nonclinical settings.

Eleven months after it was placed, at the woman's request, the mid-urethral sling was removed in total. (Figs 1, 2) This was achieved through a midline suburethral vaginal incision and required extensive dissection through moderately dense fibrosis, via bilateral paraurethral tunnels right up to the obturator internus muscle. The wound was irrigated thoroughly with saline and gentamycin and closed in 2 layers using 2-0 Vicryl.

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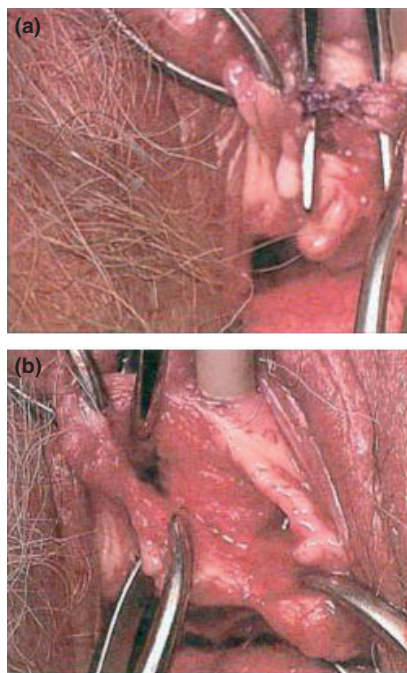


Figure 1 (a) Mid-urethral sling *in situ*. (b) No visible mesh on undersurface of urethra and paraurethral tunnels.

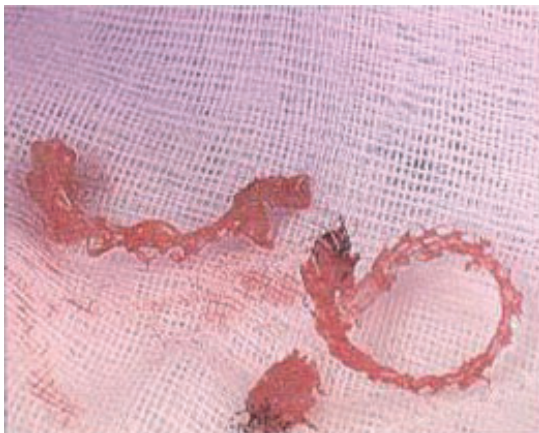


Figure 2 Sling removed completely.

The extracted sling was sent for histopathology, which revealed a severe nonspecific inflammatory reaction.

At review 6 weeks later, the woman reported complete relief from her hypersensitivity symptoms and felt completely well, although unsurprisingly the symptoms of incontinence had returned. One year on, the woman remains well; her pain and hypersensitivity symptoms have completely resolved.

Discussion

Mesh has been used in gynaecological surgery for around 30 years and for much longer in other specialties,¹ but to

Table 1 Negative specific IgE testing

Mango	Banana	Milk
Beef	Strawberry	Horse
Kiwi fruit	Hazelnut	Dog dander
Potato	Almond	Cat
Rice	Cashew	Grass mix
Prawn	Peanut	Soya bean
Oyster	Sesame seed	Egg white
Corn (maize)	Wheat	Fish (cod)
Tree mix (Wattle, Olive, Willow, Eucalyptus, White Pine, Melaleuca)		
Weed mix (Common Ragweed, Mugwort, Saltwort, Plantain, Goosefoot)		
Mould mix (Penicillium, Aspergillus, Cladosporium, Alternaria)		
Cockroach		
Storage mite (<i>Blomia tropicalis</i>)		
House dust mite (<i>D. pteronyssinus</i>)		

date, there have been no cases of systemic hypersensitivity reactions described in the literature. There are cases on record of localised allergic reactions and peri-prosthetic reactions to meshes, which are thought to be due to a delayed hypersensitivity and foreign body reaction,² but these do not tend to include a generalised response. In a review of 287 cases, Debodinance *et al.* opined that synthetic tissue tolerance is proportional to the surface of the mesh and to the distance which separates it from the scar.³ The authors feel that the process of 'mesh intolerance' could be caused by infection or a foreign body reaction. Infection can be an aetiological factor in early rejection.³ Foreign material acts as an adjuvant by decreasing the number of bacteria necessary to produce an infection. The tissue reaction may be an immune response to the polypropylene, a delayed hypersensitivity reaction or a graft-(vs)-host antigen-antibody reaction.³ In our patient, a generalised immunological reaction might be the cause of her symptoms, but this is potentially very difficult to prove with objective evidence. However, the abrupt onset and offset of the hypersensitivity symptoms in time with the placement and removal of the sling, as well as an inability of two independent specialists to identify any other causative conditions or factors, support this theory. This patient's sudden exacerbation of allergy symptoms appears to be an extremely unusual systemic reaction to the placement of a mid-urethral sling, which has not been previously described in contemporary literature.

Conflicts of interest

Prof Ajay Rane serves as a Consultant to the American Medical Systems, Minnetonka (MN). The other authors declare no conflicts of interest.

References

- 1 Cosson M, Debodinance P, Boukerrou M *et al.* Mechanical properties of synthetic implants used in the repair of prolapse

- and urinary incontinence in women: which is the ideal material? *Int Urogynecol J* 2003; **14**: 169–178.
- 2 Cosson M, Debodinance P, Lucot JP, Rubod C. Properties of Synthetic Implants Used in the Repair of Genital Prolapses and Urinary Incontinence in Women. *J Gynecol Obstet Biol Reprod (Paris)* 2003; **32** (4): 321–328.
- 3 Debodinance P, Cosson M, Burlet G. Tolerance of synthetic tissues in touch with vaginal scars: review to the point of 287 cases. *Eur J Obstet Gynecol Reprod Biol* 1999; **87** (1): 23–30.