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10 CASES OF INFECTIONS WITH SUB-URETHRAL MULTIFILAMENT POLYPROPYLENE MESH SLING REQUIRING REMOVAL OF THE SLING

Hypothesis / aims of study

We discuss the causes and consequences of 10 retropubic space collections requiring removal of multifilament polypropylene mesh sling used for urinary incontinence.

Study design, materials and methods

This is a retrospective study which analysed 149 patients operated on by a single surgeon, in a single center between february 2001 and April 2002. They all received an IVS, a multifilament woven polypropylene mesh sling to treat stress urinary incontinence. Incontinence and sexual activity outcomes were evaluated by a questionnaire sent by mail.

Results

Among the 149 patients, 11 (7.4%) complained about fonctionnal signs such as leukorrhea, cutaneous or vaginal fistula on an average 9.7 months delay following surgery . Antibiotherapy with oxacillin and iodinated polyvidone local care failed in 10 patients, who required repeated surgery either by laparotomy (60%) or by vaginal approach (40%). A retropubic space collection made the surgeon removed the 10 slings entirely (40%) or unilaterally (60%). All but one bacterial cultures remained negative (one positive for a *Staphyloccus aureus*), but electron microscopy study of one sling showed cocci. After sling removal, 80% of patients experienced either stress urinary incontinence (50%) or de novo urge incontinence (30%) and 80% reported a deteriorated sexual activity.

Interpretation of results

The efficacy of TVT monofilament polypropylene mesh has led to the development of new materials such as multifilament polypropylene mesh. Multifilament mesh is more flexible and less extensible than monofilament mesh which can not be moved once in place.
Retropubic space collection could be explain by 2 mechanisms:

- bacterial infection related to “pore theory” of multofilament mesh. If the pore size is larger than 1 micrometer (the size of a bacteria) but smaller than the size of an immune cell, bacteria could escape from the acton of the immune system and colonize the mesh.
- Chronic inflammatory reaction induced by the polyester mesh.

In our cases, improvement after unilateral removal and presence of bacteria on eletronic microscopy oriented the etiology towards chronic infection.
Slime production by bacteria might explain delayed signs (on average : 9.7 months following surgery), sparsity of symptomes and the failure of antibiotics (1). Slime protects bacteria against phagocytosis because of its low immunogenicity, against antibiotics by forming an impermiable barrier and allows bacteria to irreversibly adhere to the multifilament mesh, which requires removal of the sling when infected.
To our knowledge, there are only two published reports of acute infections with monofilament mesh (2). Infections and erosion of monofilament polypropylene mesh usually resolve favorably after antibiotic treatment, and sling removal is not necessary in most of cases.

Concluding message

It seems that multifilament mesh is more likely to be infected and requires sling removal, contrary to rare infections with monofilament mesh in literature.
It is important to report all specificities of such prostheses which are more and more used in vaginal surgery, especially in prolapse cure procedures.

References

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