XENOGRAFT I TERPOSITION IN FEMALE URETHRAL DIVERTICULUM SURGERY


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Summary.- OBJECTIVE: To describe the use collagen xenograft as adjuvant therapy in the surgical treatment of female urethral diverticulum (FUD) and to perform a bibliographic review.

METHODS: We performed a surgical approach to remove the diverticulum and repair the remaining dead space with a porcine collagen mesh to avoid fistulas. Monitoring is done by MRI.
RESULTS: After two years of follow up the patient improved considerably, disappearing the previous symptoms. Follow-up MRI showed no abnormality: There was no inflammatory reaction or encapsulation of any kind.

CONCLUSIONS: We recognize that the flap or the use of a xenograft are not always necessary, but due to its technical simplicity and effectiveness, it is an important tool for diverticulum surgery. However, more experience is needed to assess the appropriateness of this method.

Keywords: Urethral diverticulum. Xenograft. Urethra.

INTRODUCTION

Female Urethral Diverticulum (UD) is an uncommon surgical entity. Among adult women, the estimated prevalence is between 0.6 and 6.0% (1,2). It is noticeably more common among women with chronic genitourinary conditions, such as recurrent infections, post-void dribbling, and dyspareunia. In fact, in women with persistent lower urinary tract symptoms (LUTS), prevalence rates of 16 and 40% (2) have been reported. Diverticulectomy with complete excision via a transvaginal approach is the most common surgical procedure for its treatment. In this paper we introduce the use of a biological xenograft as an adyuvant surgical method.

CASE REPORT

A 34-years-old multiparous woman complaining of recurrent UTI over the past 8 years. On physical examination, there was a firm, nodular-like mass on the anterior vaginal wall, about 3 cm in diameter, that overlies the mid portion of the urethra, which was not tender, neither felt cystic, nor painful.

In endoscopical examination a clear ostium was not seen, but simultaneous compression originated the extrusion of a purulent material somewhere in mid-distal urethra. MRI showed U-shaped UD, meaning 3.2 x 2.1 x 1.5 cm (Figure 1).

Under spinal anesthesia a classical diverticulectomy was performed. An inverted 2.5 cm U-shape incision was made on the anterior vaginal wall over the UD. This anterior vaginal wall was dissected inferiorly and laterally up to the level of the bladder neck to expose the periurethral fascia and a transverse incision was made into the periurethral fascia overlying the UD. The diverticular sac was dissected, mobilized off to the periurethral fascia, and completely excised opening the urethra. A three-layer closure consisting of the urethral wall, the periurethral fascia, and the anterior vaginal wall was made using nonoverlapping sutures. The urethra was primarily closed with interrupted 3/0 Vicryl sutures over a 18 french Foley catheter. Periurethral time was closed over the repair and a piece of a porcine collagen dermal graft (Pelvicol®) was then put in place to fill the dead space (Figure 2) and prevent fistula formation. Vaginal mucosa was closed with 2/0 Vicryl sutures.

FIGURE 1. MR image showing the urethral diverticulum in the left lateral wall of the urethra.
The postoperative course was uneventful and no complications were encountered. The patient was followed up at 3, 6, 12 and 24 months postoperatively. She was markedly improved, her symptoms had resolved and she denied dyspareunia. MRI images failed to demonstrate any abnormality: after two years followed-up, the outcome was excellent, the graft was not encapsulated and any inflammatory reaction was demonstrated.

DISCUSSION

Leading specialists in the field agree that the decision on the type of surgical procedure will be based on symptomatology, location of the ostium, configuration of the diverticulum, and concurrent co-morbidity.

Symptomatic and large diverticula must be treated in the easiest way. When the ostium communicates with the distal third of urethra, marsupialisation of the diverticulum may be adequate, whereas if it opens into the middle or proximal third, excision of the diverticulum or conservative options are indicated.

When the excision of the diverticulum leaves behind a large defect, and the periurethral fascia is deficient, reinforcement is necessary to prevent stricture formation from excessive tension and fistula formation. The bulbocavernosus fat pad interposition, as described by Martius, has been used in this situation as it improves vascular support, increases tissue thickness, and buffers the post-excision dead space (3,4). However, it entails excessive mobilisation of tissue, and there may be persistent postoperative dyspareunia and point tenderness at the harvest site. The other deficiency is that it does not address any coexistent stress incontinence. Lee and Fynes (unpublished data, 2005) have reported the use of Surgisis xenograft (Cook Surgical) interposition to repair and reinforce the periurethral fascia, with excellent outcomes. After closing the periurethral fascia, the four-ply porcine small intestinal submucosa xenograft is put in place before closure of the vaginal skin. It gives extra scaffolding for tissue regeneration without the need to mobilise adjacent tissue flaps, thereby avoiding the attendant complications.

In our case, the size of the resultant dead space after the removal of the urethral diverticulum induced us to use Pelvicol, an acellular matrix of cross-linked collagen and elastin fibers derived from porcine dermis. The collagen is maintained in its original three-dimensional form, supports fibroblast infiltration and neovascularization and becomes permanently incorporated into the surrounding tissue. It is a sterile flexible sheet, has good tensile strength and is tolerant. There is no evidence of immediate or delayed hypersensitivity with its use (5). Recently it has been used in many surgical procedures including ileoanal pouch-vaginal fistula (6) and vesicovaginal fistula treatment (7).

Our case had good results, but does not seem to be the rule. In a recent article published by Dr. Ljungqvist revealed that residual symptoms were surprisingly common in the long term. However, most of these symptoms were tolerable and it is noteworthy that most patients regarded the intervention as the most appropriate procedure to compare their situation to their preoperative status (8).

CONCLUSIONS

We recognize that flap or xenograft interposition is not always necessary, but due to its technical simplicity and efficacy is an important tool for diverticulum surgery. However, further experience is necessary to assess the suitability of this method.

REFERENCES AND RECOMMENDED READINGS

(*of special interest, **of outstanding interest)


ANTOPOL-GOLDMAN LESION: A RARE CONDITION IN THE DIFFERENTIAL DIAGNOSIS OF GROSS HEMATURIA

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Summary.- OBJECTIVE: To describe a case of a patient with gross hematuria. The pathological study revealed a subepithelial hematoma of the renal pelvis (Antopol-Goldman lesion).

METHODS/RESULTS: A 86 years old woman with gross hematuria through the right ureteral orifice with a filling defect in right renal pelvis is visualized on CT showed a filling...