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TECHNICAL NOTE

Treatment of post-prostatectomy rectourethral fistula with fibrin sealant (Quixil™) injection: a novel application

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Abstract Rectourethral fistulas in adults is a rare but potentially devastating postoperative condition requiring complex and demanding surgery. Fibrin glue treatment has been used with some success in anal and rectovaginal fistulas, and in the case we present here this indication has been extended to a postoperative rectourethral fistula following radical prostatectomy. For the first time, to our knowledge, a fibrin sealant (Quixil) was injected into the fistula tract, and a rectal mucosal flap was used to close the internal opening. The fistula healed in few weeks, and the patient is symptom free after 1 year of follow-up.

Keywords Postoperative rectourethral fistula · Fibrin sealant · Biological glue

Introduction

Rectourethral fistula is a rare condition most frequently described in malformations of the anus and the urinary tract [1]. In adult men, it is an infrequent surgical complication following rectal or prostate surgery [2–6], and it may complicate anorectal Crohn's disease [7, 8], and, more rarely, may follow pelvic radiation [9] or operations for hemorrhoids [10]. In a Medline search, only 28 papers dealing with postoperative rectourethral fistula in adults were found, in which a total of 165 cases were reported, including 30 cases following war wounds [11]. Although rare, this disease is quite difficult to treat, often requiring complex or demolitive surgery with an uretherocutaneous stoma. Fibrin sealant injection has been used in some complex and recurrent anal [12–16] and rectovaginal fistulas [17] with some success. In this study, we report for the first time a successful conservative treatment of a postoperative recto-urethral fistulas after retropubic radical prostatectomy by means of fibrin sealant injection.

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Technical considerations

A 67-year-old man underwent radical retropubic prostatectomy for a prostatic carcinoma classified as Gleason VII. The PSA value was 36 ng/ml, and bone scintigraphy and CT scan did not show any metastatic lesions.

During the fourth postoperative day, he developed an hematoma at the site of the urethrovescical anastomosis, and the hematocrit dropped from 38 to 32% No blood transfusions were required. But few days later, the patient developed proctorragia and hematuria.

Retrograde cystography under CT guidance showed a recto-urethral fistula tract (Fig. 1).

The patient was afebrile, but the urinary catheter was left in place and rectoscopy documented a suprasphincteric fistula opening anteriorly about 2 cm above the dentate line, which could not be managed with endoscopy.

One month after the operation, the patient was readmitted to our unit and submitted to a new operation performed by a team that included a colorectal surgeon. The patient was positioned in the jackknife position with the

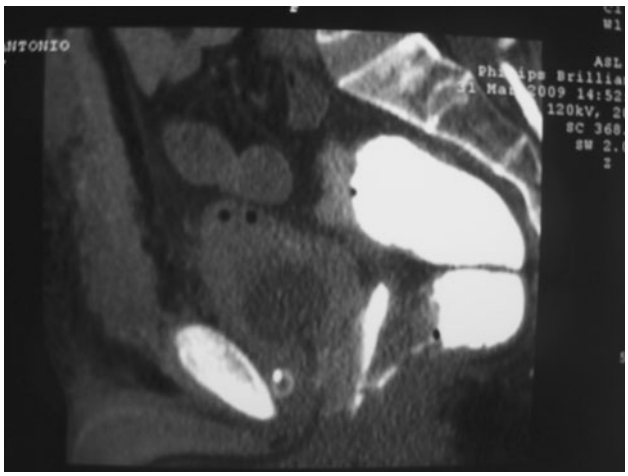

Fig. 1 Rectourethral fistula tract evidenced by contrast medium injected transanally

urinary catheter in place. The anus was dilated using a Park's retractor, and the site of the fistula was identified. An anterior mucosal flap was prepared using diathermy, and the fistula tract was washed with saline solution. About 1 ml of Quixil (OMRIX biopharmaceuticals S.A. 200 Chausée de Waterloo, 1640 Rhode-St George, Belgium) was then injected into the fistula tract using a fibrin glue applicator, until the substance appeared in the urethra, and the mucosal flap was then sutured by means of resorbable 3/0 sutures.

The patient's postoperative course was uneventful, and he was discharged the day after with the procedure, with the urinary catheter still in place, and was prescribed antibiotics and stool softners. Twenty days later, follow-up cystography showed complete occlusion of the fistula tract. The urinary catheter was then removed, and the patient was able to urinate without problems. Long-term follow-up 1 year later confirmed that the fistula had healed, and the patient had no urinary symptoms.

Discussion

The treatment of rectourethral fistulas is challenging and technically demanding. Several surgical approaches have been adopted; transperineal repair, low rectal resection and coloanal anastomosis, gracilis muscle flap interposition [18] and others [19–21]. The technical difficulties may be exacerbated by the effects of previous radiotherapy or surgical attempts to repair the fistula, and there is little difference between the various approaches in terms of recurrence [8].

There is no consensus regarding the optimal therapy for this condition since most of the studies in the literature are retrospective and often report single cases like ours. The Mayo Clinic group has recently proposed a therapeutic algorithm for the management of rectourethral fistulas [5].

The use of autologous or commercial fibrin sealant in the treatment of complex perianal fistulas or rectovaginal fistulas has been already reported and has a 30–80% success rate [11–16] without any side effects. This biological glue passively occludes the fistula, promoting the process of endogenous fibrin deposit and cicatrization by stimulating fibroblast proliferation and migration, neovascularization and reepithelialization, when applied on a cleaned surface. These properties make fibrin glue a very useful tool for surgeons in the treatment of several diseases, when the tissue healing process is impaired. In the literature, there is only one report [22], recently published, of successful treatment of a rectourethral fistula using commercial fibrin glue (Tissucol®Baxter BioScience) in a patient with anal Crohn's disease.

In this study, we report what is to our knowledge the first successful use of Quixil®, a commercial fibrin sealant, composed of two solutions (the first containing fibrinogen and tranexamic acid, the other human thrombin and calcium chloride) to treat rectourethral fistulas following radical prostatectomy. As for other indications, the presence of some unfavorable local factors, such as fistulas with too long and wide an extension, fistulas in Crohn's disease or in patients with AIDS [13, 14], could discourage the use of this technique because of the poor chance of success, but on the other hand, the therapeutic use of fibrin sealant has no contraindications and no side effects. It is not expensive and is easily repeatable. Moreover, it is not a contraindication to further surgery. The success reported in this single experience should encourage surgeons to adopt this therapy as a first-line treatment in cases of rectourethral fistulas before venturing on complex and high risk surgical procedures.

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