

Rectourethral Fistula Repair: A Challenging Surgical Procedure

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Rectourethral fistulas (RUFs) can be congenital, associated with several other anorectal malformations or acquired as a result of relevant trauma, surgery, infection, radiation and/or malignancy. Especially, RUFs resulting from radical prostatectomy and/or radiotherapy are complex, because of their large extent and the poor local healing process. Additionally, concomitant urethral and/or rectal strictures may add more difficulties in the management. As a result, the complicated urethrorectal fistulas are the most difficult to treat.

Both conservative and surgical approaches have been described for the management of RUFs (Table 1). The earliest report of the surgical repair of RUFs was published late in the 19th century [1]. Given that RUFs are rare, there is no consensus regarding the surgical treatment of choice, although numerous surgical procedures have been described. The principles of fistula repair remain unchanged including good tissue exposure, identification and excision of the fistulous tract, closure of the fistulous opening and urethral repair with meticulous debridement of the urethral edges using non-overlapping suture lines. Furthermore, healthy vascularized tissue should be interposed in order to support the repair, promote healing, and prevent recurrence of the fistula.

All surgical reconstructive procedures concerning the anterior rectal wall could be divided into two main large categories: trans-anal or trans-sphincteric [2]. Both the aforementioned procedures have the important drawback of the high pressure at the urethra side which is not repaired unlike rectovaginal fistulas where the high pressure rectal side is repaired. Additionally, fecal contamination after trans-sphincteric approach risks the efficacy of these surgical procedures.

The interposition of viable healthy tissue between the urethra and the rectum is vital. Several vascularized tissue flaps have been used for the repair of RUFs, including the omentum, the groin flap, the scrotal myocutaneous flap, and the dartos pedicle flap. The use of gracilis muscle for the treatment of RUFs was first described by Ryan et al. [3] more than three decades ago. Given the fact that most surgeons prefer to avoid laparotomies and deep anterior pelvic dissections during the repair of RUFs, the gracilis muscle single pedicle rotation flap represents the best rehabilitating solution. Regarding the gracilis muscle, apart from its vestigial function; it is a versatile source of well-vascularized tissue for perineal reconstructions [4]. Several retrospective studies have been performed and have reported successful fistula repair with very low rates of recurrence and very good functional results regarding postoperative urinary or fecal incontinence [5-7]. On the contrary, less invasive procedures such as the transanal advancement flap use, the anal plugs and/or the use of biogluce substances have not proven efficacy until now [6].

In conclusion, the majority of RUFs can be managed using proper surgical techniques with high success rates in experienced referral centers with preservation of urinary and bowel function. Gracilis muscle rotation flap represents a safe and efficacious technique in such procedures with high success rates, while conservative and less invasive treatments have limited efficacy.

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Conservative management
Anterior transanorectal approach
Kraske (laterosacral) technique
Perineal rectal pull-through procedure
Perineal tissue flap interposition procedure
Posterior midline trans-sphincteric approach
Posterior sagittal approach
Transabdominal approach
Transanal/ perianal approach

Table 1: Rectourethral fistula management options.

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