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Rectourethral Fistula Management Via Urological Prospective

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1. Abstract

Rectourethral fistula is a rare condition with multiple etiology. The surgical treatment is a challenge as the site is difficult to reach and also there are usually several associated comorbidities from the etiological cause which needs to be dealt with. This pathology involves different speciality i.e., general surgery, colorectal surgery, minimal access surgery, urology and reconstructive surgery etc. This being one of the reasons that several different surgical technique and approaches are devised to treat this condition. Our study is based on 19 patients in whom the etiology was trauma. The surgical approach was transperineal andwe utilizing scrotal fibrofatty vascularized flap for interposition layer. We had 89.5% (n=17) success rate and10.5% (n=2) recurrence. It is therefore concluded that perineal approach is safe and far less complication.It is also important to place vascularize interposition tissue flap for successful outcome.While more radical trans sphincteric approach with defunctional colostomy should only be reserved for more complex and recurrent cases.

2. Introduction

This is a rare condition and is difficult to treat. The treatment comes under the domain of multiple specialities, including Urology and Colorectal surgery. Conservative treatment with prolonged catheterization hastlimited role [1]. While the surgical treatment is difficult, mainly due to complexity and rarity of this conditionand is associated with higher rate of recurrence [2].

The etiology can be both congenital or acquired. In acquired causes trauma and especially the iatrogenic trauma surpasses all the other condition like tumour, radiation, inflamation or infection [3]. Previously in the category ofiatrogenic causes open prostatectomy and lower anterior rection for carcinoma rectum were the common causes. Now a days radical prostatectomy, radiotherapy or brachytherapy for Ca prostate are the commonest etiological causes, with the incidence of about 0.1-3% [4].The incidence of fistula formation increases to 2-9% during salvage retropubic radical prostatectomy [5].The other iatrogenic causes reported are cryotherapy, transrectal hyperthermia, high intensity focused ultrasound therapy [6,7], repeated prostate biopsy, sclerotherapy for hemorrhoids[8], Crohn's disease[9] and Fournier's gangrene [10].

The common presentation are pneumaturia, fecaluria and recurrent urinary tract infections [11,12]. The diagnosis is easy by digital rectal examination, proctoscopy, sigmoidoscopy, urethroscopy radiological examination like colour doppler ultrasound, urethrogram and Ct scan [13].

Several surgical procedures have been introduced but non of them has yet achieved a gold standard. The surgical approach can be via abdominal rout especially if laparoscopic or robotic technique is used. In this approach omentum or peritoneum flap can be used for interposition [14]. The other approaches are via perineal, trans rectal with or without dividing anal sphincter, trans anal approach, especially for small and distal fistula [15,16]. The type of approach usually depends on surgeon preference as well as on the complexity of fistula (Figure 1). The more complex the fistula, the more radical procedure is implied [17].

The rout preferred by urologist is trans perineal rout. This being a rather familiar area to work in and the advantages are that urethroplasty if needed can be performed at the same time. The anal sphincter is saved and a vascularized pedicel for waterproofing in the form of scrotal flap, Gracilis muscle, buccal mucosa, levator ani muscle, Gluteus muscle etc. can easy to harvest and apply [18].

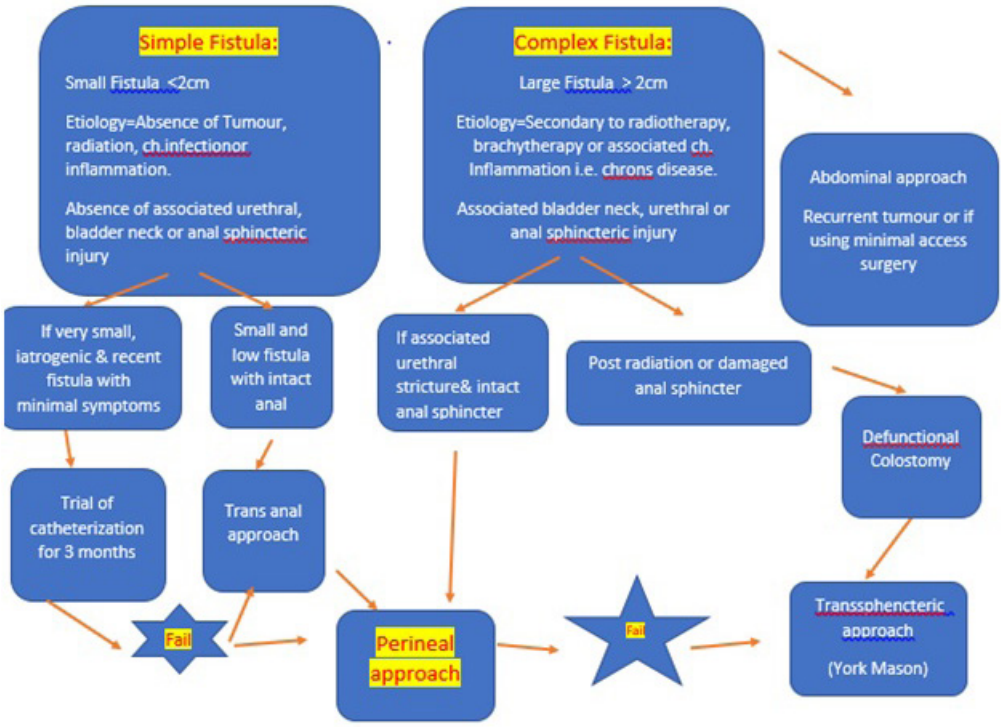

Figure: 1

3. Material and Methods

This is a retrospective study of 19 patients with recto-prostatic fistula treated at our centre between 2014 and July 20021.The study included the age, etiology, clinical presentation, status of anal sphincter, prior defunctional colostomy, and the outcome of surgery. The main emphasis of this study was to see the recurrence and to note the advantage, if any of prior defunctional colostomy. In these patients the diagnosis was confirmed by MCUG, antegrade urethrogram cystourethroscopy and proctoscopy.

4. Surgical Technique

All surgeries were performed by the same surgeon. The type of surgery was trans perineal extra sphincteric approach. The patients were placed in high lithotomy position with head end tilted 20° down. Proctoscopy and cystourethroscopy performed and in presence of urethral stricture cystoscopy via suprapubic site was performed to access the competence of bladder neck and to visualize the fistula. In case of patent urethra, a ureteric stent was introduced via urethroscopy and brought out from rectum for easy localization of fistula during dissection. A long mid line perineum incision was made and diverted to right side near anus to avoid damage to anal sphincter. Perineal body was dissected and divided to access the fistula. The identification and dissection of fistula was aided by prior placed ureteric stent and finger introduced via anus. The fistula was completely dissected and margins freshened and is closed in two layers using 2/0 vicryl suture. Urethra was closed using 3/0 vicryl running suture. Fibro fatty flap was raised from the scrotum and rotated distally to interpose as vascularised water proof layer. The use of suction drain was optional. The perineal incision was closed in layers, after thorough irrigation with normal saline, using 2/0 running vicryl suture up to the skin. Nine patients had history of fire arm injury to perineum and had prior defunctional colostomy. Five of them also had damaged anal sphincter and were repair in the same setting. Six among these patients had blind bulbo/ membranous stricture, where simultaneous end to end urethroplasty was performed in the same sitting. In four patients the etiology was Trans vesical prostatectomy and two patients had urinary retention secondary to BPH, where the balloon of catheter was accidently inflated in prostatic urethra. In four patient the etiology was RTA with pelvic fracture and blind disruption injury to membranous urethra. In all these iatrogenic cases prior defunctional colostomy was not performed.

5. Exclusion Critariae

Recurrent fistula, trans anal approach, trans sphincteric approach, crippled urethra.

5.1. Inclusion Criteria: Intact bladder neck, Trans perineal approach, urethral stricture.

The patients were followed for 1 year. The urethral catheter was removed after one month but the suprapubic catheter remained clamped and removed after 2 months if the urethra remains patent. On each of these two visits patient had retrograde urethrography and urine for c/s.Following this patient were seen on 6th and 8th month. During each visit history was taken regarding symptoms of recurrence, urine was sent for C/S and Uro-flowmetrywas performed.

6. Results

The patients were followed for one year and the success rate as well as any complications were noted. The failure happens in 2 patients and the recurrent fistula was successfully repaired via Yourk Mason posterior trans sphincteric approach after doing prior de functional colostomy. The list of complication encountered is on Table 2.

Table 1:

Etiology	No	Added pathology	No
Fire arm injury	9	Anal Sphincter Damage Blind Bulbo-membranous stricture	5 6
Trans Vesical (Freyer's) Prostatectomy	4	Incompetent Bladder neck	4
Road traffic accident	4	# pelvic & Urethral disruption injury	4
Balloon inflated in urethra	2		

Table 2:

Complications		Treatment Offered
Perineal haematoma	2	Incision drainage
Haemorrhage	1	Blood transfusion
Wound infection	1	Cleaning and sitz bath
Infection & disruption of anal sphincter	1	Anal sphincter repair after 3 months
Bulbar urethral stricture	2	I.O.U in one and redo -urethroplasty in one
Erectile Disfunction	1	Vacuum erectile pump
Urethral stricture following urethroplasty	2	Internal optical urethrotomy

7. Discussion

This is a rare condition. The common etiology in most of international studies are iatrogenic injuries and among these the radiation for carcinoma prostate surpasses all with up to 50% incidence [19], while in our study the common cause is injury from fire arm.

There are more than 40 operative procedures introduced to treat recto urethral fistulae [20,21]. It is more than 100 years that the surgical management was first reported [22] Conservative management with prolonged catheterization can only be tried in iatrogenic trauma and has got limited role [23]. There is no consensus on the procedure of choice. The type of surgery mainly depends on the presentation of pathology but also to some extent on the preference of the surgeon. The commonest procedure practiced by colorectal surgeons is the York Mason posterior para sacrococcygeal trans sphincteric approach, which was introduced in 1969[24,25]. The results with this technique are good but the disadvantage is complications secondary to surgical division of anal sphincter that may resultin wound dehiscence, wound infection fecal incontinence or recto-cutaneous fistulas [26,27]. Also, through this approach it is difficult to expose and perform urethroplasty. In our study this approach was only used when there was recurrence, but in both these cases the initial urethroplasty were successful.

In 1985 Parks et al. described the trans anal full thickness rectaladvancement flaptechnique, thus avoiding transection of anal sphincter [28]. The limitation of this procedure is that it can be offered to only very low and small rectal fistulae. Through this technique interposition flap cannot be applied. We did not use this technique for the reason that all our fistulae were of complex nature.

Minimal invasive approach by using fibrin injection in the fistula has been tried with 70% successrate [29,30]. We did not use such technique for the reason that all our cases were of complex fistula and this technique is designed for only simple and small fistula.

The Urologists usually prefer trans perineal approach, which was first described by Young in 1917 and popularized by Goodwin in 1958[31]. This approach is ideal for exposing and managing any urethral pathology if present [32].

In our study only trans perineal approach for fistula repair was used and we achieve 89.5% success rate. We had two cases of recurrence and both were in patient with complex and extensive fistula secondary to fire arm injury. One patient had perineal haematoma with superimposed infection with abscess formation. We utilize perineal approach "with its limited exposure", due to familiarity of this procedure by the operating surgeon and also in nine patients simultaneous urethroplasty where required. Although the stricture was successfully repaired in all patients but in two patients the fistula reoccurred. These recurrences were repaired by trans sphincteric York Mason procedure after 4 months of previous procedure. Our success rate is comparable to similar study by Marten S. et al [33]. In this study the water proofing was performed by using Buccal mucosal interposition graft in five patients with one recurrence. The causes of fistulae were iatrogenic compare to our study where majority had more extensive injury due to fire arm. In place of buccal mucosa we use thevascularized fibro fatty layer from scrotum which is raised locally thus avoiding separate incision and procedure in oral cavity. In another study on 23 patients by Bryan B at al. [34]. In this study 10 patients had iatrogenicinjure and all were successfully managed, they had dartos muscle interposition graft. In remaining 13 patient who had post radiation fistula recurrence occurred in 5 patients. In one of the largest multicentric study on 210 fistula patients, secondary to prostate cancer treatment the over all success rate was 92.8%. in this study 79% of patients had transperineal approach [35].

Dietmar et al. used gracilis muscle in his study of 35 cases with 26 cases of recto urethral fistula with 90% success rate [36]. The recurrence occurred in two patients and both were suffering from chrons disease. The disadvantage with Gracilis muscle transposition is the associated morbidity frommultiple incisions in medial aspect of thigh inorder to raise this flap [37].

8. Conclusion

The extra sphincteric perineal approach is a safe and effective method for repairing recto urethral fistula. Vascularized interpos-

ition tissue flap is important to prevent recurrence and is raised locally without giving any additional incision. In most cases prior defunctional colostomy is not needed.

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