Journal of Surgical Sciences (2021) Vol. 25 (1) : 5-9

JOURNAL OF SURGICAL SCIENCES

Original Article

Anal Stenosis, a Hidden Facts in Bangladesh: Evaluation of Causes and Management by Diamond Flap Anoplasty

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Abstract

Background: Anal stenosis is a rare but disabling condition characterized by an abnormal narrowing of anal canal to a varying extent due to stricture of skin, anal musculature or mucosa that has been replaced by fibrous connective tissue. The condition usually develops as a consequence of several anorectal procedures but commonly after haemorrhoidectomy, performed over zealously without adequate technical knowledge. In rare circumstances, anal stenosis may occur without previous anorectal surgery. Application of corrosive chemical substances by the quack for treating anorectal conditions is an alarming cause giving rise to anal stenosis.

Objectives: To evaluate the causes of anal stenosis and results of treatment by Dimond Flap Anoplasty.

Methods: This prospective study was performed in Dhaka Medical College Hospital and in a private hospital in Gazipur, Bangladesh between periods from January 2014 to December 2016. Nine patients of anal stenosis were included in this study. Data collection sheets regarding demographic data, cause of the event, and outcome of surgery were then analyzed.

Results: Total 09 patients were included in this study, among them 04 patients were female and 05 male with lowest age of 32 to the highest age of 65 years. 04 patients (45%) were due to application of corrosive agent by quack, 02 patients (22.22%) due to RTA having extensive perineal injury, 03 patients (33%) due to postoperative causes. Following anoplasty, no patient had flap necrosis, and 02 patients (22.22%) developed postoperative wound infection. One patient had some form of incontinence, specially if loose stools.

Conclusion: Anal stenosis develops most commonly after anorectal operations. We found maltreatment in the form application of corrosive agent by quacks for the treatment of anorectal diseases, specially in females, is common cause of anal stenosis in our study. The results of diamond flap anoplasty is highly effective in the treatment of anal stenosis irrespective of aetiology.

Keywords: Anal stenosis, Maltreatment, corrosive, Diamond Flap Anoplasty.

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Received on: 19 May 2022 **Accepted on:** 14 December 2022

Introduction

Anal stenosis is an uncommon incapacitating complication of anorectal surgery characterized by narrowing of anal canal to varying lengths as a result of scarring and fibrosis. Consequently, there is a failure of dilatation during defaecation. It may be in the form of true anatomic stricture to muscular or functional stenosis[1].The causes of anal stenosis vary from congenital, traumatic/iatrogenic, inflammatory bowel disease, radiation treatment for anorectal conditions, STD, tuberculosis, scleroderma and endometriosis

in female[2]. Besides these, we like to highlight an emerging and alarming cause of this condition, that is **application of corrosive** by quack for the treatment of anorectal diseases. This is nothing new in Bangladesh, rather "old wine in a new bottle ", the so-called magic agent used to initiate the disaster is Sulfuric acid. Anal stenosis occurs most commonly after anorectal surgeries (90%) such as, haemorrhoidectomy, excision and fulguration of anorectal warts, endorectal flap, following proctectomy, after stapled haemorrhoidectomy (0.8 -5.0 %)[2,3]. The victims of maltreatment usually went to quack for Skin tag, anal fissure, haemorrhoids, anal warts and fistula in ano. Difficulty or pain in defaecation is the leading symptom, the patient usually finds that increasing doses of laxatives are required. There may be a sense of incomplete evacuation. In case of inflammatory stricture, tenesmus, bleeding and passage of mucous are superadded. This condition may present with subacute or acute intestinal obstruction. Physical examination conûrms the diagnosis. Visual examination of the anal canal and perianal skin, along with digital rectal examination, is usually suûcient to establish the presence of anal stenosis. Anal examination under general anaesthesia is recommended to evaluate the stricture and to choose the appropriate technique, occurring mainly after anorectal surgery[4]. Variable classifications have been described and it is useful to determine the severity of stenosis and distinguish whether it is "true" stenosis or "functional" stenosis due to spasm of internal anal sphincter as in acute fissure in ano. Milsom & Mazier classify it to "mild" in which tight anus can be examined with well-lubricated index figure or admits medium size Hill- Ferguson (HF) retractor, "moderate" in which forceful dilatation is required to insert index figure or medium size HF retractor, and "severe" type in which neither little figure nor small size HF retractor can be inserted without forceful dilatation of anal canal[4]. Numerous surgical techniques have been devised for the treatment of moderate to severe anal stenosis refractory to conservative treatment[5]. They include partial anal sphincterotomy with stricture release, several forms of plastic surgery through advancement and rotational flaps involving skin, mucosa or both. In the literature, various complications have been reported after anoplasty. These include ûap necrosis from loss of vascular supply, infection or local sepsis, suture dehiscence from excessive suture line tension, failure to correct the stenosis, donor site problems, sloughing of the ûap, ischemic contracture of the edge of the ûap, pruritus, urinary tract infection subsequent to Clostridium diûcile enterocolitis only in a few cases, fecal incontinence, constipation without stenosis, urinary retention, restenosis and ectropion if the ûap is advanced too far and sutured at the anal verge, mucosa or both[1,5,6]. Anoplasty is a safe method with acceptable results in relieving the symptoms of anal stenosis[5].

Materials and Methods

This study was performed between January 2014 to December 2016. Total of 9 patients were included in this study 6 were male and 3 were female.

According to the classification proposed by Milson and Mazier, all patients had moderate to severe anal stenosis. Age, sex and symptoms of patients were recorded; careful history was taken including previous anal or rectal procedure, history of trauma or other possible etiology. All patients were examined carefully with digital rectal examination, when possible to ascertain the severity of stenosis. Informed written consent was taken and all operations were conducted under spinal anesthesia in the lithotomy position.

Figure 1: Effects of corrosive application (maltreatment) and Diamond Flap Anoplasty

Mechanical bowel preparation was given on the day before surgery. In one patient mechanical bowel preparation was not possible due to almost closure of anal orifice which was cleaned via the distal loop of a colostomy done for the management of extensive perianal injury of RTA. Antibiotic therapy (cefuroxime and metronidazole) was started before anesthesia. The procedure includes making an incision across the fibrotic stricture to dilate the anus and make a diamond flap defect then equivalent diamond flap was made adjacent and lateral to the defect with good mobilization of skin and subcutaneous fat to ensure suturing to the defect without tension then the resultant defect lateral to the flap was sutured with interrupted 3-0 prolene suture. Lateral internal sphincterotomy was done for all patients. The procedure was done bilaterally. Mean operating time was 1 to 1.30 hours. All patients were examined at 1, 2 and 7 days postoperative for any early complications and assessment of pain using the Visual Analogue Scale VAS (from 0-10), and then after1, 3 and 6 monthly onwards to evaluate the result of procedure and patients satisfaction in passing bowel. Stool softeners were used for 7 days postoperative days to aid evacuation along with sitz bath, local hygiene, analgesic and antibiotic for 7 days. Results were good in terms patient satisfaction.

Results

Total 9 patients were operated with Diamond Flap Anoplasty during the study period. Among them 6 were male and 3 were female with ages ranging from 32 years to 65 years (Table I).

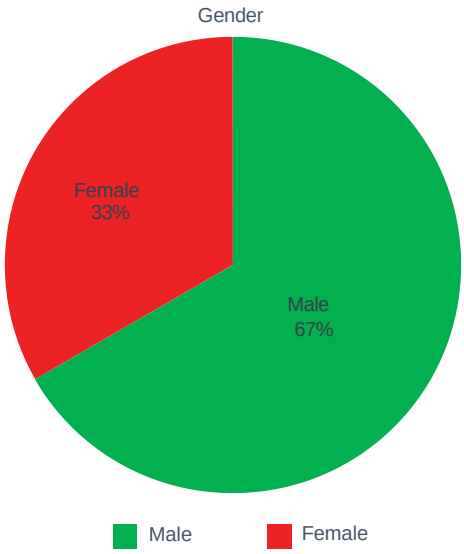

Table I. *Patients Demography (n=9)*

Number of patients	09
Age	32-65
Male	06
Female	03

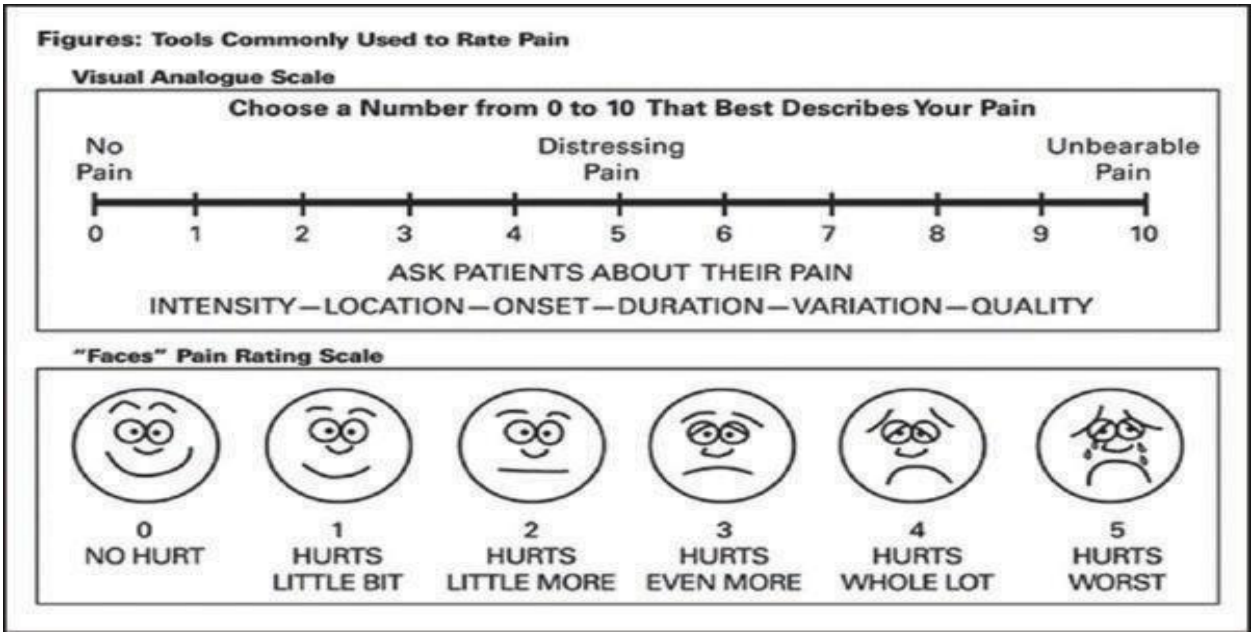

Figure2: *Visual Analogue Scale (VAS)*

Out of these 9 patients, 4 were due to maltreatment by quack, 2 were due to RTA with extensive perianal injury and 3 cases were due to post haemorrhoidectomy complication (Table 2).

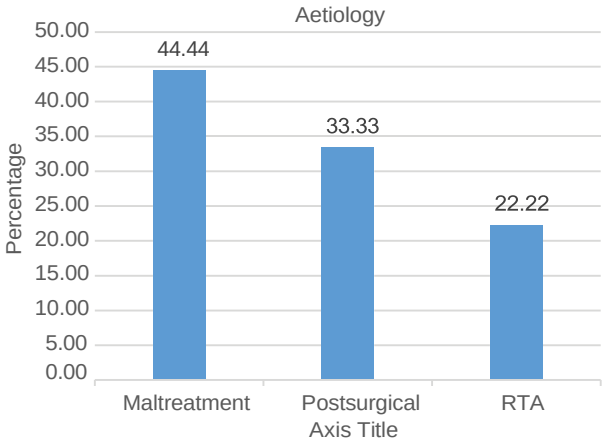

Table II. *Aetiology of anal stenosis (n=09)*

	Number	percentage
Maltreatment by quack	04	45
Postsurgical	03	33
RTA	02	22

All Patients were evaluated and followed up postoperatively for 1year and for some patients it is 2-3 years. All patients were free of symptoms of anal stenosis. No patient had flap necrosis, 02 patients had postoperative wound infection, managed by sitz bath, topical antibiotic ointment, systemic antibiotic and perianal hygiene (Table III). One patient experiences some form of incontinence specially during the attack of gastroenteritis. In 6 month follow up he learned to hold by voluntary control and sphincter exercise. So we recommend Diamond Flap Anoplasty a safe and effective method of treating anal stenosis.

Table 3: *Postoperative complications (n=09)*

Postoperative complications	Number	Percentage
Flap necrosis	None	
Wound infection	02	22.22
Incontinence	01	11.11
Haemorrhage	None	

Discussion

Anal stenosis, although rare, is one of the most feared and disabling complication of anorectal surgery. Among the known aetiology, application of corrosive by quack for the treatment of anorectal disease is also common in Bangladesh. We have found very few literatures reporting this issue. A lot of surgical techniques have been described for the management of moderate to severe anal stenosis. The best management of anal stenosis is prevention and the ideal technique of operation by experienced surgeons should be easily conducted with satisfactory results and a low complication rate with short hospitalization[7]. Excessive excision of normal anoderm should be avoided[8]. Removal of scar and increasing the circumferential diameter of anus is the main principle of surgery[9]. In this study, we used diamond flap anoplasty to deliver more anoderm (skin) into the anal canal to fill the defect that results from cutting of fibrous scarring. Internal anal sphincterotomy was required to ease anal dilatation[5,9]. Preparation of flap is important for the success of the procedure, it is necessary to preserve much subcutaneous fat and wide mobilization to maintain flap viability and avoid suture line tension. The use of bilateral flaps depends on the degree of anal dilatation after the completion of a unilateral flap. Low complication rate and high patient satisfaction were comparable to other studies and reflect the easiness and effectiveness of the technique, moreover diamond-shaped flap is designed so that it will cover the intra-anal portion of the defect. The flap is mobilized with minimal undermining to preserve the integrity of the subcutaneous vascular pedicle whereas in V-Y anoplasty the tip of the V is subject to ischemic necrosis, and in Y-V flap the proximal part of the flap is very narrow and will not allow for a significant widening of the stricture above the dentate line, also the tip of the V within the anal canal is subject to ischemic necrosis from lack of mobilization, tension of the flap or loss of vascularization[5].

Muayad J Lefta & Qais K Baqir[7], treated 16 cases of anal stenosis by diamond flap anoplasty. Among them, 14 were female and 2 male. 15patients were due to post haemorrhoidectomy and due to traumatic (shell injury).14 patients had unilateral procedure and 2 patients had bilateral diamond flap anoplasty. Two patients developed wound infection, 2 patients had gas incontinence, no patients developed flap necrosis.

In our series, during the three-year time, we have done 09 cases of anoplasty. Though it is a small study, it

is not very rational to compare with other series at this moment. But with this outcome and complications, it can be said that outcome is comparable to other studies. Anal stenosis is reported in 1.2 to 10% of patients after anorectal surgery[10]. Regarding the application of corrosive as an aetiology of anal stenosis, very few literatures were found. Sarabjit Sing et all reported anal stenosis after sclerotherapy for treatment of haemorrhoid[11]. Maltreatment is common in rural areas of Bangladesh and in the female who don't want to meet physicians due to social and religious constraints.

Anoplasty should be part of the armamentarium of colorectal surgeons for treating severe anal stenosis. The anatomic conûguration of the anorectum and perianal region is very complex and knowledge of this area is essential before performing any surgical procedure. The preparation of ûaps is important for treatment success. Various types of anoplasties with adjacent tissue transfer ûaps have been devised to relieve anal stenosis. All of these ûaps share the concept of an island of anoderm that is incised completely around its circumference. The type of ûap to be used is based on the surgeon's familiarity and choice as well as the patient's anatomy and the availability of adequate perianal skin for use in the various ûaps. The ideal procedure should be simple, should lead to no or minimal early and late morbidity, and should restore anal function with a good long-term outcome[4].

Conclusion

Though postoperative aetiology accounts for more than 90% of the cause of anal stenosis, we found maltreatment in the form of application of corrosive agent by quacks for the magic treatment of anorectal diseases, specially in females it is a significant cause of anal stenosis in Bangladesh. The results of diamond flap anoplasty is highly effective in treatment of anal stenosis irrespective of aetiology.

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