



Original Article

Surgical management of anal stenosis: anoplasty with or without sphincterotomy



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ABSTRACT

Aim: Anal stenosis is an uncommon complication of anorectal surgery, mostly resulting from circumferential hemorrhoidectomy or resection of the skin tag in surgical management of chronic anal fissure. The aim of anoplasty is to restore normal function to the anus by dividing the stricture and widening the anal canal. Internal sphincterotomy may cause gas incontinence and if we manage the stenosis without sphincterotomy it could be failed. Could we use anoplasty without sphincterotomy?

Method: The patients with anal stenosis were assigned in to two groups. The first group underwent Y-V anoplasty without partial lateral internal sphincterotomy and the second one underwent Y-V anoplasty with partial lateral internal sphincterotomy.

Result: A total of 25 patients (10 male and 15 female) underwent anoplasty, 14 without partial lateral internal sphincterotomy and 11 patients with partial lateral internal sphincterotomy. The healing rate of stenosis was 91% and 93% in groups undergoing anoplasty without partial lateral internal sphincterotomy and anoplasty with partial lateral internal sphincterotomy, respectively (p value 0.69). There was no significant change in both groups for post-operative incontinence complaints.

Conclusion: The healing rate of anal stenosis was the same in the patients who underwent Y-V anoplasty with or without partial lateral internal sphincterotomy. There was no significant change in post-operation incontinence between the two groups. Therefore, Y-V anoplasty would be a safe and simple surgical method in selected patients. Partial lateral internal sphincterotomy procedure has been noticed in individual cases.

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Tratamento cirúrgico da estenose anal: anoplastia com ou sem esfínterectomia

R E S U M O

Palavras-chave:

Anoplastia
Esfínteroplastia
Estenose anal

Objetivo: A estenose anal é complicação incomum da cirurgia anorretal, sendo principalmente resultante de uma hemorroidectomia circunferencial ou ressecção do pólipó cutâneo no tratamento cirúrgico da fissura anal crônica. O objetivo da anoplastia é a restauração da função normal do ânus, mediante a divisão da constrição e alargamento do canal anal. A esfínterectomia interna pode causar incontinência gasosa; e se tratarmos a estenose sem esfínterectomia, poderá ocorrer insucesso. Poderíamos usar a anoplastia sem esfínterectomia?

Método: Os pacientes com estenose anal foram designados para dois grupos. O primeiro grupo foi tratado com anoplastia em Y-V sem esfínterectomia interna lateral parcial, e o segundo grupo foi tratado com anoplastia em Y-V com esfínterectomia interna lateral parcial.

Resultado: No total, 25 pacientes (10 homens e 15 mulheres) foram tratados com anoplastia-14 sem esfínterectomia interna lateral parcial, e 11 com esfínterectomia interna lateral parcial. Os percentuais de cura da estenose foram de 91% e 93% nos grupos tratados com anoplastia sem esfínterectomia interna lateral parcial e com esfínterectomia interna lateral parcial, respectivamente ($p = 0,69$). Não ocorreu mudança significativa nos dois grupos com relação às queixas de incontinência pós-operatória.

Conclusão: O percentual de cura da estenose anal foi igual nos pacientes tratados com anoplastia em Y-V com ou sem esfínterectomia interna lateral parcial. Não foi observada mudança significativa na incontinência pós-operatória entre os dois grupos. Portanto, a anoplastia em Y-V seria um método cirúrgico seguro e simples em pacientes selecionados. Em casos isolados, o procedimento de esfínterectomia interna lateral parcial tem sido observado.

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Introduction

Anal stenosis is an uncommon serious complication of anorectal surgery. This narrowing may result from functional or anatomic anal stenosis. Functional stenosis results from a hypertonic internal anal sphincter, while in the anatomic one, the normal anoderm is replaced with an inelastic cicatrized tissue.¹

Anatomical anal stenosis usually results from surgery of the anal canal, inflammation of the anus in Crohn's disease, ulcerative colitis, radiationtherapy, venereal disease, tuberculosis and chronic laxative abuse. 90% of anal stenosis is caused by radical imputative hemorrhoidectomy.²

There are several management options to decrease complaints of anal stenosis. Most of treatments modalities have been non-surgical approaches such as topical medications or dilation, but in severe anal stenosis, surgical approaches would be a choice. A significant number of surgical methods have been described and the simple procedure is partial lateral internal sphinctrotomy. However, most of the patients have had a history of pervious partial lateral internal sphinctrotomy and extensive fissurectomy. Different types of anoplasty had been presented before in anal stenosis.³ Selection of surgical procedure depends on location, type, extension of stenosis and surgeon's experience. Numerous surgical techniques have

been described for the treatment of anal stenosis refractory to non-operative management. These procedures include simple stricture release and sphinctrotomy to complex advancement flaps.

Different surgical procedures have been performed if the patients need surgical intervention because in the majority of the patients medical management would be a choice.³

The surgical methods such as stricture release, sphinctrotomy and advancement flap are common techniques. Performing partial lateral internal sphinctrotomy with anoplasty at the same time has been a debatable issue to prevent incontinence versus unhealed wound.⁴

The aim of anoplasty is to restore normal function to the anus by dividing the stricture and as a result widening the anal canal, thus decreasing the symptoms and relief pain.⁵ In this study, we evaluated the successful rate of Y-V anoplasty in management of severe anal stenosis and incontinence (the most important complication of the procedure).

Materials and methods

There was a retrospective study that was approved by the ethics committee of Shiraz University of Medical Sciences and the people participating in this study were informed completely.

Table 1 – Classification of anal stenosis.

Mild	Stenotic anal canal can be examined by a well-lubricated index finger
Moderate	Forceful dilatation is required to do digital rectal examination
Sever	Digital rectal examination is impossible

This study was done in Faghihi Hospital during 2007–2012 in Shiraz, Iran. Eligibility criteria consisted of patients who had severe anal stenosis with painful and difficult defecation due to unhealed wound and refractory constipation and diarrhea. They need Y-V advancement flap anoplasty. When the internal diameter of anal canal is less than 0.5 cm, it is severe stenosis and when the diameter is 0.5–1 cm stenosis is moderate and 1–1.5 cm diameter is known as mild stenosis and surgeon decided to perform a partial internal sphincterotomy for severe stenosis.

Exclusion criteria were inflammatory bowel disease, Tuberculosis, previous radiotherapy, previous anal malignancy and previous anoplasty. All the patients who referred to colorectal department of Faghihi Hospital were examined by a colorectal surgeon.

Demographic data, past medical history, types of pervious anal procedures were collected and finally the patients were evaluated by manometry, endorectal sonography (if possible because of anal stenosis) and Wexner score. Medical records of all patients were evaluated and all of them were visited and examined. The questionnaire used contained information about their chief complaints on admission (itching, bleeding, pain, and constipation) (Table 1).⁶

Y-V anoplasty and partial lateral internal sphinctrotomy were done in the patients individually (noticed to manometry, endo-anal sonography, Wexner score and intra-operative decision making). The Y-V anoplasty was done in the same standard method.⁷

In the Y-V flap, the first incision was made over the area of stricture. The vertical limb of the Y and then the wide base of the Y which is oriented distally (true V-shaped advancement flap) were sutured into the vertical limb of the Y inside the anal canal.

After the procedure, they were evaluated the 1st, 6th, 9th months after operation for incontinence and unhealed wound (pain, itching and bleeding). Because manometry and endo-anal sonography was not possible for all the patients, incontinence was evaluated by Wexner criteria.

Statistical analysis

All data analysis was performed using the SPSS (version 16, Chicago, IL, USA).

Both Levene's test and Student T test were used to assess the normality of quantitative and qualitative variables. Findings were considered significant when *p*-value was less than 0.05.

Results

A total of 25 patients (10 male and 15 female), mean age 48.1 ± 2.9 (St. Error), range 23–73, underwent anoplasty,

14 Y-V anoplasty without partial lateral internal sphincterotomy (A – S) and 11 patients Y-V anoplasty with partial lateral internal sphinctrotomy (A + S). Wexner score in group underwent A + S was 1.4 ± 2.2 SD and in group underwent A – S was 1.07 ± 2.2 SD.

Preoperative symptoms included anal pain in 23 patients, bleeding in 18 patients, itching in 15 patients and incontinence in 5 patients. All of our patients complained of constipation and painful defecation. Two of the patients had severe stenosis and the rest of the patients had moderate stenosis. They did not respond to conservative managements.

The preoperative symptoms (pain, itching, bleeding and constipation) between the two groups in the 1st, 6th, and 9th months post-operation are shown in Table 2. History of hemorrhoidectomy and procedure for chronic anal fissure was seen in 18 and 6 patients, respectively. One patient developed incontinence in the group undergoing A + S. There were no significant changes in incontinence development in both groups in 1st, 6th and 9th month post operation (*p*-value 0.71, 0.71 and 0.52 respectively). Healing rate of stenosis was 91% and 93% in the groups undergoing A – S and A + S, respectively. There were no significant changes in wound healing with regard to their complaints (pain, bleeding, incontinence and constipation) in post-operative course (*p*-value 0.69).

Discussion

Although anal stenosis is not a common problem after anal surgeries, this condition should receive great attention from colorectal surgeons. The rate has been reported from 1.2% till 10% in patients having hemorrhoidectomy in different papers.⁸ Any intrinsic or extrinsic pathology that causes scarring of the anoderm can create anal stenosis. As mentioned previously, the causes of anal stenosis include anal surgery, inflammatory bowel disease, tuberculosis, venereal disease, radiation, and laxative abuse.² Removal of large areas of rectal mucosa and anoderm, with sacrificing muco-cutaneous bridges, leads to scarring and chronic stricture.⁹ Also, stenosis is less frequent after stapled rectal mucosectomy.¹⁰ In this study only one patient did not have any history of pervious anal procedures.

Most of stenosis cases are a postoperative complication and the rest are due to inflammatory disease or functional anal spasms. Non-operative managements are usually dedicated to mild to moderate stenosis that by definition, do not require surgical intervention.

Conservative approaches may include high fiber diet, laxatives and self-digital dilatation.⁵

Regular progressive self-dilatation by using Hegar dilators was described by Casadesuset et al. with successful results in four patients.¹ Hegar dilatation is a safe method when used under general anesthesia in comparison to digital dilatation to avoid excessive manual dilatation as it results in tearing of the sphincter, resulting in further fibrosis and stricture.⁵

When conservative managements fail, anoplasty is indicated. The principle of stricturoplasty consists of increasing anal caliber and removal of cutaneous scarring by using different methods of advancement flaps.⁸

Table 2 – The healing rate of preoperative symptoms between the two groups in the 1st, 6th, and 9th months post-operation.

Operation	First month															
	Bleeding				Pain				Constipation				Incontinence			
	-		+		-		+		-		+		-		+	
A + S	8 (72.7%)		3 (27.3%)		8 (72.7%)		3 (27.3%)		8 (72.7%)		3 (27.3%)		7 (63.6%)		4 (36.4%)	
A – S	10 (71.4%)		4 (28.6%)		8 (57%)		6 (43%)		9 (64.3%)		5 (35.7%)		12 (85.7%)		2 (14.3%)	
p	0.649				0.677				0.496				0.71			
Operation	Six month								Nine month							
	Bleeding		Pain		Constipation		Incontinence		Bleeding		Pain		Constipation		Incontinence	
	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+
A + S	9 (81.8%)	2 (18.2%)	9 (81.8%)	2 (18.2%)	9 (81.8%)	2 (18.2%)	7 (63.6%)	4 (36.4%)	9 (81.8%)	2 (18.2%)	7 (63.6%)	4 (36.4%)	8 (72.7%)	3 (27.3%)	6 (54.5%)	5 (45.4%)
A – S	13 (92.9%)	1 (7.1%)	10 (71.4%)	4 (28.6%)	10 (71.4%)	4 (28.6%)	12 (85.7%)	2 (14.3%)	12 (85.7%)	2 (14.3%)	8 (57%)	6 (43%)	9 (64.3%)	5 (35.7%)	12 (85.7%)	2 (14.3%)
p	0.407		0.661		0.661		0.71		0.604		0.881		0.496		0.52	

A + S, anoplasty with partial lateral internal sphinctrotomy; A – S, anoplasty without partial lateral internal sphinctrotomy.

There are many corrective techniques in the literature and the choice of the operation depends both from the surgeon's experience and from severity of stricture.¹¹ The principle of anoplasty consists of increasing the diameter of the anal outlet and removal of cutaneous scarring by proximal or distal advancement. The Y-V and diamond island flaps are now the preferred techniques, with good results.⁵ It is difficult to interpret the results of the various techniques in the literature because adequate prospective trials have not been performed yet.¹²

We selected the V-Y anoplasty technique for its good long term results, our experience and low complications. Besides, this method can be performed on both anal sides in severe stenosis.

We compared postoperative complication in the two groups (A + S vs. A – S).

After the procedures, there were no significant differences in the healing rate of preoperative symptoms (i.e. pain, itching, bleeding and constipation) between the two groups in the 1st, 6th, and 9th months post-operation.

Oh and Zinberg published a study in which 12 patients underwent C anoplasty with a healing rate of 91%.¹³ Similar results have been reported in our study (91% for A + S).

Khubchandani used mucosal advancement flap anoplasty in 53 patients with anal stenosis with a total healing rate of 94%⁴ which was similar to our results (93% for A – S). The healing rate was 100% in 23 patients who suffered from anal stenosis treated with diamond flap anoplasty. A total healing rate of 91.5% was obtained using island flap anoplasty in a total of 53 patients affected by anal stricture and ectropion.¹⁴

Aitola and coworkers published a study in which 10 patients underwent Y-V anoplasty combined with internal sphincterotomy. The patients had a healing rate of 90% after 1 year of follow up.¹³ Maria et al. conducted a prospective study which compared Y-V anoplasty with diamond flap anoplasty in a median follow up of 2 years. Complete resolution was reported for diamond flap anoplasty (100%) while the healing rate for Y-V anoplasty was 90%.⁸

In our study, we compared two usual methods for treatment of anal stricture (A + S vs. A – S). Healing rate of anal stenosis and post-operative complications (pain, itching, bleeding and constipation) was the same in the two groups with no significant difference (*p*-value 0.69).

In addition, postoperative incontinence was not statistically significant in the two groups in 1st, 6th and 9th month post operation, as well. This is comparable to Habr-gama et al.'s study which reported only one patient with temporary incontinence to gas and liquid stool in 77 patients who underwent surgery using sliding graft techniques.¹¹

The limitation of this study was small sample size because most of the patients with anal stenosis did not need surgical intervention. Another limitation was inability of doing manometry and endorectal sonography in all patients because of anal stenosis.

Conclusion

Anoplasty is a safe method with acceptable results in relieving the symptoms of anal stenosis. There is a method that needs partial lateral internal sphincterotomy in some selected cases to achieve best outcomes. On the other hand, in some cases anoplasty without partial lateral internal sphincterotomy do not lead to recurrence of stricture.

So we recommend Y-V anoplasty with or without sphincterotomy in treating anal strictures. That patient selection for each group would be critical.

Conflicts of interest

The authors declare no conflicts of interest.

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