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Medical Sciences

A STUDY ON DIFFERENT MODALITIES IN MANAGEMENT OF FISSURE IN ANO

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ABSTRACT

BACKGROUND AND OBJECTIVES

Fissure in Ano is defined as a longitudinal split in the anoderm of the distal anal canal, which extends from the anal verge proximally towards, but not beyond, the dentate line. It can be acute or chronic.
Its situation in the unmentionable site adds to the morbidity as the shy and female patients avoid surgical consultation.
Though fissure in ano is a very old entity, controversy still exists in the management of fissure in ano.
An attempt is made in this dissertation to study the correlation between several etiological factors, morbidity, recurrences, and also comparatively study four modalities of treatment of fissure in ano.The purpose of this study is to:
1. To study the different clinical presentations and etiological factors of the fissure in ano.
2. To study the different modalities of treatment of fissure in ano i.e., application of Glyceryl trinitrate ointment, Sclerotherapy, Lord's dilatation and Subcutaneous lateral internal sphincterotomy.
3. To study the complications associated with fissure in ano as well as those with its treatment.
METHOD
This is a prospective cohort study for a period of 15 months. 60 patients diagnosed to have fissure in ano were included in the study and divided into acute and chronic groups depending on the presentation. They were then treated with a predefined modality and efficacy and complications were studied.
RESULTS
Among 30 patients in the acute group 10 patients each were treated with sclerotherapy, application of GTN ointment and Lord's dilatation. Sclerotherapy wasfound to have immediate pain relief in patients but very poor effect on healing of thefissure. Lord's dilatation had good pain relief and fissure healing percentage but wasassociated with high rate of post treatment complications and disturbances of anal continence. GTN ointment was found to have good pain relief and fissure healing rateand also minimal post treatment complications.
Among 30 patients in the chronic group 10 patients each were treated with GTN ointment application, Lord's dilatation and Lateral internal sphincterotomy. GTN ointment was found to have good pain relief and fissure healing with headache being the only complication in a small percentage of patients. Lord's dilatation again had a high rate of post op hemorrhage and post op disturbances in continence. Lateral internal sphincterotomy was by far the best method and had the best pain relief and fissure healing and the least complications.
CONCLUSION
This study showed that fissure in ano is the commonest painful condition of the anal canal and the maximum number of cases was encountered in the third decade of life.
The male to female ratio was almost equal. The commonest presenting complaint in acute fissures was pain during defecation and in chronic fissures was a sentinel skin tag, while the second most common complaint in both was bleeding per rectum. The posterior midline was the commonest site of fissure in both males and females. Anterior fissures were rare and seen mostly in females.
Application of GTN ointment was found to be the ideal treatment modality for acute fissure and lateral internal sphincterotomy the most ideal for chronic fissure. In patients with chronic fissure who refused or were unfit for surgery, GTN ointment application is the next best option.

INTRODUCTION

Anal fissure or fissure-in-ano is a common condition. It can be a very troubling condition because, if acute, the severity of patient discomfort and extent of disability far exceed that which would be expected from a seemingly trivial lesion.

Definition

Fissure in Ano is defined as a longitudinal split in the anoderm of the distal anal canal, which extends from the anal verge proximally towards, but not beyond, the dentate line.

It can be acute or chronic.

It may occur at any age but is usually a condition of young adults and middle aged people.

Both sexes are affected equally.

Its situation in the unmentionable site adds to the morbidity as the shy and female patients avoid surgical consultation.

An attempt is made in this dissertation to study the correlation between several etiological factors, morbidity, recurrences, and also comparatively study four modalities of treatment of fissure in ano.

AIM OF THE STUDY

Though fissure in ano is a very old entity, controversy still exists in the management of fissure in ano**.**

The purpose of this study is to:

- To study the different clinical presentations and etiological factors of the fissure in ano.
- To study the different modalities of treatment of fissure in ano i.e., application of Glyceryl trinitrate ointment, Sclerotherapy, Lord's
  dilatation and subcutaneous lateral internal sphincterotomy.
- To study the complications associated with fissure in ano as well as those with its treatment.

Selecting a method of treating this condition that can achieve optimal clinical results and the least pain and inconvenience to the patient has always posed a challenge to the surgeons. This has led to the innovation of a number of surgical and pharmacological methods that relax the anal sphincter.

PARAMETERS INCLUDED IN THE PRESENT STUDY

1. Post treatment complications

a. Haemorrhage

b. Headache

2. Incidence of minor disturbances of anal continence

a. Soiling of underclothes
b. Imperfect control of faeces
c. Imperfect control of flatus

3. Healing of fissure

a. Complete
b. Persistent or recurrent fissure in ano

4. Relief of symptoms

a. Immediate
b. Delayed
c. No relief

METHODOLOGY

The study is conducted at kempegowda Institute of Medical Sciences and Research Centre between January 2013 to April 2014. The patients diagnosed as having acute and chronic fissure in ano are considered for this study. Acute fissure in ano is considered as one which has been present for less than 6 weeks. Chronic fissure is considered as one which has been present for more than 6 weeks, or one where previous onservative or medical treatment has failed or where the base of the ulcer is formed by the fibres of the internal sphincter or where there is a sentinel skin tag.

30 cases of acute fissure in ano and 30 cases of chronic fissure are included and compared with different modalities.

The primary aim of this study is to compare different modalities of treatment for acute and chronic fissure and decide which modality is ideal for both. For this purpose, cute fissures have been treated with sclerotherapy, glyceryl trinitrate ointment application and Lord's dilatation. 10 cases have been allotted for each method; the results of hich are then compared. Chronic fissures are treated with glyceryl trinitrate ointment application, Lord's dilatation and Lateral internal sphincterotomy. In the same way 10 cases have been allotted for each method and the results are compared. The post treatment outcome and complications with each method will also be studied.

Sclerotherapy for acute fissure was carried out as an OPD procedure, whereas patients were admitted as inpatients and were evaluated before subjecting them to Lord's dilatation or lateral internal sphincterotomy. History, findings of physical examination and laboratory investigations were documented.

During evaluation of the patients history, due importance was given to age, sex, bowel habits, diet, type of stools, history of previous surgical procedures of anal region and other medical problems and history of childbirth in female patients.

In the preoperative work up, detailed examination of the anal region was done by noting the site of the fissure, condition of the fissure, presence of sentinel pile, state of

anal sphincter. Patients with other conditions like fistula were not included in this study.

In patients in whom digital rectal examination could not be done due to severe tenderness and anal spasm in spite of application of local anaesthetic jelly, digital rectal examination and proctoscopy were done under anaesthesia in the major operation theatre just prior to the surgery.

As a part of the general work up for surgery, patients were investigated for haemoglobin percentage, bleeding time, clotting time, fasting blood sugar, postprandial blood sugar, blood urea, serum creatinine, urine sugar, albumin, microscopy, chest x ray, HIV and HbsAg rapid tests and ECG.

Type of treatment given to the patient depended on whether the presentation was acute or chronic.

1. Sclerotherapy was done for only acute fissures as an outpatient procedure. Here 1ml of 2% xylocaine, followed by 0.05 ml of 3% sodium tetradecyl sulphate was injected into the base of the fissure. Patients were followed up at 2 weekly intervals.

2. GTN application in a 0.5% dosage was administered to the patients. Patients were advised to first put ointment up to the 2.5 cm mark on the measuring line on the outside of the carton of the ointment and then transfer it to their fingers and apply just proximal to the anal verge over the area of the fissure. It was advised twice daily for a period of 4 weeks. Patients were followed up at 2 weekly intervals.

3. Lord's dilatation and lateral internal sphincterotomy were performed under spinal anaesthesia. Proctoscopy was done on table and pre-operative findings reassessed. After doing these procedures, if a large associated sentinel skin tag was found it was excised.

Anal pack soaked in 2% lignocaine jelly was placed into the anal canal at the end of the procedure. During immediate postoperative period, patients were monitored for complications like bleeding, soakage of dressing. Bladder catheterisation was done in

patients who were unable to pass urine despite having a full bladder.

Patients were allowed to take oral liquids on the same evening onwards provided they didn't have nausea or vomiting. Postoperatively, parental antibiotics and analgesics were given to all patients till third post-op day. From then only oral medications were given. The anal pack was removed the next morning after surgery and fresh perianal dressing applied.

During the postoperative period, the relief from pain, healing of fissure, disturbances of anal continence were particularly looked for, along with any associated complications like infection, bleeding and perianal ecchymoses or edema and fistula formation. Sitz bath was advised to all patients from first post-op day onwards.

In all patients, digital rectal examination was done on 4th or 5th postoperative day. 2 weekly follow ups were done at surgery OPD along with a detailed digital rectal examination.

The patients were advised to continue liquid paraffin syrup (Cremaffin) for 3 weeks postoperatively. All patients were followed up for up to 3 months. During the follow up detailed history with respect to the relief of pain, habits, frequency of defecation and any persistence of symptoms or fissures were collected for evaluation.

OBSERVATIONS AND RESULTS

Totally 60 cases were studied in the present series. All the cases seen at Surgery OPD or admitted and operated at kempegowda Institute of Medical Sciences and Research Centre Bangalore during the study period with a final diagnosis of fissure in ano were included in this study. The cases were compared keeping in mind the type of fissure (acute or chronic) and the three modalities of treatment given for both.

Age Incidence: in the present study, majority of the patients are in the age group of 21-30 years (40%), followed by the age group of 41-50 years (18.33%). The youngest patient in the study is a 13 year old male and the eldest patient is a 65 year old female. The maximum incidence of both acute and chronic fissure was also

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seen in the 21-30 age group.

Table 1: Age distribution

Age Group (in yrs)	No. of patients	Percentage
11-20	8	13.33
21-30	24	40.00
31-40	10	16.67
41-50	11	18.33
51-60	5	8.33
61-70	2	3.33
Total	60	100

Table 2: Age distribution according to type of fissure

Age Group (in yrs)	Acute		Chronic	
	No. of Patients	Percentage	No. of Patients	Percentage
11-20	5	16.67	3	10.00
21-30	11	36.67	13	43.33
31-40	6	20.00	4	13.33
41-50	5	16.67	6	20.00
51-60	1	3.33	4	13.33
61-70	2	6.67	0	-
Total	30	100	30	100

Table 3: Sex Distribution

Sex	No. of Patients	Percentage
Male	34	56.67
Female	26	43.33
Total	60	100

Table 4: Sex Distribution according to type of fissure

Sex	Acute		Chronic	
	No. of Patients	Percentage	No. of Patients	Percentage
Male	19	63.33	17	56.67
Female	11	36.67	13	43.33
Total	30	100	30	100

Table 5: Dietary Habits

Sex	No. of Patients	Percentage
Mixed	53	88.53
Vegetarian	7	11.67
Total	60	100

Table 6: Symptoms in Acute fissure

Symptoms	No. of Patients	Percentage
Pain during defecation	28	93.33
Bleeding PR	17	56.67
Mass at anus	0	0.00
Normal Bowel Habits	27	90.00
Constipation 3 10.00	3	10.00
Difficulty in passing stools	9	30.00

Table 7: Symptoms in Chronic fissure

Symptoms	No. of Patients	Percentage
Pain during defecation	6	20.00
Bleeding PR	14	46.67
Mass at anus	23	76.67
Normal Bowel Habits	22	73.33
Constipation 3 10.00	8	26.67
Difficulty in passing stools	9	30.00

Table 8: Site of Fissure

Symptoms	No. of Patients	Percentage
Anterior	13	21.67
Posterior	47	78.33
Total	60	100.00

Table 9: Site of Fissure – Male/Female

Site of Fissure	No. of Patients		Percentage	
	Male	Percentage	Male	percentage
Anterior	2	15.38	11	84.62
Posterior	32	68.09	15	31.91

Table 10: Relief of symptoms

Relief of Symptoms	No. of Patients	Percentage
Immediate	9	90.00
Delayed	1	10.00
Total	10	100.00

Table 11: Healing of Fissure

Healing of Fissure	No. of Patients	Percentage
Complete	2	20.00
Persistent	8	80.00
Total	10	100.00

Table 12: Relief of Symptoms

Relief of Symptoms	No. of Patients	Percentage
Immediate	9	90.00
Delayed	1	10.00
Total	10	100.00

Table 13: Healing of Fissure

Healing of Fissure	No. of Patients	Percentage
Complete	9	90.00
Persistent	1	10.00
Total	10	100.00

Table 14: Relief of Symptoms

Relief of Symptoms	No. of Patients	Percentage
Immediate	7	70.00
Delayed	3	30.00
Total	10	100.00

Table 15: Healing of Fissure

Healing of fissure	No. of Patients	Percentage
Complete	6	60.00
Persistent	4	40.00
Total	10	100.00

Table 16: Comparison of symptom relief in all 3 modalities

Relief of Symptoms	Sclerotherapy		GTN Ointment		Lords Dilatation	
	n=10		n=10		n=10	
	No.of Patients	Percentage	No.of Patients	Percentage	No. of Patients	Percentage
Immediate	9	90.00	9	90.00	7	70.00
Delayed	1	10.00	1	10.00	3	30.00
Total	10	100.00	10	100.00	10	100.00

Table 17: Comparison of fissure healing in all 3 modalities

Healing of fissure	Sclerotherapy		G T N Ointment		L o r d s Dilatation	
	n=10		n=10		n=10	
	No. of Patients	Percentage	No. of Patients	Percentage	No. of Patients	Percentage
Complete	2	20.00	9	90.00	6	60.00
Persistent	8	80.00	1	10.00	4	40.00
Total	10	100.00	10	100.00	10	100.00

Table 18: Relief of symproms

Relief of symproms	No. of Patients	Percentage
Immediate	7	70.00
Delayed	3	30.00
Total	10	100.00

Table 19: Healing of fissure

Healing of fissure	No. of Patients	Percentage
Complete	7	70.00
Persistent	3	30.00
Total	10	100.00

Table 20: Relief of symproms

Relief of symproms	No. of Patients	Percentage
Immediate	10	100.00
Delayed	0	0.00
Total	10	100.00

Table 21: Healing of fissure

Healing of fissure	No. of Patients	Percentage
Complete	9	90.00
Persistent	1	10.00
Total	10	100.00

Table 22: Relief of symproms

Relief of symproms	No. of Patients	Percentage
Immediate	10	100.00
Delayed	0	0.00
Total	10	100.00

Table 23: Healing of fissure

Healing of fissure	No. of Patients	Percentage
Complete	10	100.00
Persistent	0	0.00
Total	10	100.00

Table 24: Comparison of symptom relief in all 3 modalities

Relief of Symptoms	L a t e r a l Sclerotherapy		GTN Ointment		Lords Dilatation	
	n=10		n=10		n=10	
	No. of Patients	Percentage	No. of Patients	Percentage	No. of Patients	Percentage
Immediate	10	100.00	7	70.00	10	100.00
Delayed	0	0.00	3	30.00	0	0.00
Total	10	100.00	10	100.00	10	100.00

Table 25: Comparison of fissure healing in all 3 modalities

Healing of fissure	L a t e r n a l Sclerotherapy		GTN Ointment		Lords Dilatation	
	n=10		n=10		n=10	
	No. of Patients	Percentage	No. of Patients	Percentage	No. of Patients	Percentage
Complete	10	100.00	7	70.00	9	90.00
Persistent	0	0.00	3	30.00	1	10.00
Total	10	100.00	10	100.00	10	100.00

Table 26: Post treatment complications with Sclerotherapy

Post treatment complications	No. of patients (n=10)	Percentage
Soiling of undergarments	0	0.00
Impaired control of flatus	1	10.00
Impaired control of stools	0	0.00

Table 27: Post treatment complications with GTN Ointment

Post treatment complications	No. of patients (n=10)	Percentage
Headache	2	20.00
Soiling of undergarments	0	0.00
Impaired control of flatus	0	0.00
Impaired control of stools	0	0.00

Table 28: Post treatment complications with Lords Dilatation

Post treatment complications	No. of patients (n=10)	Percentage
Haemorrhage	3	30.00
Soiling of undergarments	4	40.00
Impaired control of flatus	4	40.00
Impaired control of stools	0	0.00

Table 29: Comparison of post treatment complications of all 3 modalities

Post treatment complications	Sclerotherapy	G T N Ointement	Lords Dilatation
	n=10	n=10	n=10
	No. of patients	No. of patients	No. of Patients
Headache	NA	2	NA
Haemorrhage	NA	NA	3
Soiling of undergarments	0	0	4
Impaired control of flatus	1	0	4
Impaired control of stools	0	0	0

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Table 30: Post treatment complications with GTN Ointment

Post treatment complications	No. of patients (n=10)	Percentage
Headache	5	50.00
Soiling of undergarments	0	0.00
Impaired control of flatus	0	0.00
Impaired control of stools	0	0.00

Table 31: Post treatment complications with Lords Dilatation

Post treatment complications	No. of patients (n=10)	Percentage
Haemorrhage	2	20.00
Soiling of undergarments	1	10.00
Impaired control of flatus	2	20.00
Impaired control of stools	0	0.00

Table 32: Post treatment complications with Lateral Sphincterotomy

Post treatment complications	No. of patients (n=10)	Percentage
Haemorrhage	0	0.00
Soiling of undergarments	1	10.00
Impaired control of flatus	0	0.00
Impaired control of stools	0	0.00

Table 33: Comparison of post treatment complications of all 3 modalities

Post treatment complications	Sclerotherapy	G T N Ointement	Lords Dilatation
	n=10	n=10	n=10
	No. of patients	No. of patients	No. of Patients
Headache	5	NA	NA
Haemorrhage	NA	2	0
Soiling of undergarments	0	1	1
Impaired control of flatus	0	2	0
Impaired control of stools	0	0	0

DISCUSSION

Fissure in ano, a common disease of the anal canal, basically consists of a crack in the squamous lined part of the anal canal and is remarkably constant in its situation, posterior midline, with a few exceptions. It starts as an acute tear in the anoderm probably due to over stretching from passage of a large or hard stool.

The angulation of the anal canal and the elliptical shape of the superficial portion of the external sphincter leave the posterior midline segment of the internal sphincter relatively unsupported and this leaves the posterior midline more prone for fissure formation.

Recent studies have indicated that the posterior midline region of the anal canal has a relatively reduced blood supply. With reduced or minimal nutrition, healing of any injury is delayed, which explains the development of chronic ulcers.

Constant hypertonicity in the sphincter muscles will compress the blood vessels supplying the anoderm and leads to the development of ischemic ulcers. These ischemic ulcers refuse to heal with adequate conservative treatment unless the sphincter muscle is relaxed.

The incidence of fissure in ano is nearly equal in both sexes.

In the present study, male/female ratio is 1:1.30, consisting of 34 male and 26 female patients. Peak incidence for development of fissure in ano was the third decade of life in both male and female population.

SYMPTOMOLOGY: In the present study, pain at defecation was the commonest complaint in patients with acute fissure in ano (93.33%) and mass per anus was the commonest complaint in patients with chronic fissure in ano (76.67%). Bleeding per rectum was the second commonest presenting complaint in both acute (56.67%) and chronic fissure (46.67%).

The presenting complaints documented in the study by Khubchandani and Reed were pain (23.5%), bleeding (76.2%), pruritis ani (34.9%) and an anal lump (24.3%) and burning sensation in the anal region (33%).

In the present study, 11 patients out of 60 (18.33%) complained of constipation and 18 patients (30%) also gave history of difficulty in passing stools. In the study by Jensen et al**4** in 1967, 67% of patients complained of constipation.

In the present study, 88.33% of patients were consuming mixed diet consisting of both vegetarian and non-vegetarian food and 11.67% were purely vegetarian.

Out of the 60 patients in this series, 47 patients (78.33%) had posterior midline issures and 13 patients (21.67%) had anterior midline fissures. Out of the 47 posterior issures, 32 (68.09%) were seen in male patients and 15 were seen in females 31.91%).

Out of the 13 anterior fissures, 11(84.62%) were seen in females and 2 (15.38%) were

seen in males.

TREATMENT: The 60 cases were divided into acute and chronic groups of 30 each. In each group, 3 methods of treatment were used and 10 cases allotted for each treatment modality. For acute fissure, sclerotherapy, GTN ointment application and Lord's dilatation were used. For chronic fissure, lateral sphincterotomy, GTN ointment application and Lord's dilatation were used. Sentinel skin tag if present was excised while doing the lateral sphincterotomy or Lord's dilatation. The comparison of results between this study and previous studies is done in the tables that follow.

Table 34: Sclerotherapy for Acute Fissure in comparison with previous studies
(in percentage)

Results		Present study	Antebi et al
Number of patients		10	30
Relief of pain	Immediate	90	100
	Delayed	10	0
Healing of fissure	Complete	20	70
	Persistent	80	30
Disturbances of anal continence	Soiling of undergarments	0	0
	Incontinence to flatus	10	0
	Incontinence to faeces	0	0

CONCLUSIONS

The commonest age group affected is the third decade. Both male and female sex groups are equally affected.

Pain during defecation is the most common presenting symptom in acute fissures and sentinel skin tag in chronic fissures, followed by bleeding per rectum in both. These three are the most important presenting complaints. This is often associated with difficulty in passing stools and history of constipation, which could be explained as the reason or the end result of fissure in ano.

The commonest site of fissure in ano is the posterior midline in both males and females. Anterior fissures are very rarely seen in males and the majority occurs in females.

Primary fissure in ano can be diagnosed with history and clinical examination alone, the laboratory findings are of little help. Routine investigations are only needed as part of the preoperative work up.

Acute fissures are best treated with application of Glyceryl Trinitrate ointment in a dose of 0.5% twice daily for a period of four weeks. It had good percentage of patients with immediate relief of symptoms and healing of fissure and the only post treatment complication was headache, which could be resolved by proper education of the patient on how to apply the ointment. In patients who do not respond to this treatment another cycle of ointment application can be tried or surgical intervention can be done.

Chronic fissures are best treated by lateral internal sphincterotomy and this is the procedure of choice. Because of the controlled and accurate sphincterotomy, it has the best treatment efficacy and the most minimal post-op complications. Recurrence rate is also very small.

Sclerotherapy for acute fissures should only be used in a patient having severe pain on defecation as it has been shown to have high percentage of immediate post treatment pain relief. However it has very poor ability to heal the fissure and patients usually end up needing further different mode of treatment.

Lord's dilatation for both acute and chronic fissures had an acceptable percentage of relief of symptoms. But the post treatment complications due to uncontrolled tretching and irregular tearing of the sphincter occurred too often to be ignored. Haemorrhage, Soiling of undergarments and impaired control of flatus were seen in a very high percentage. Therefore, this procedure is not recommended for both acute and chronic fissure in ano.

In patients with chronic fissure in ano who are not willing or not fit for lateral internal sphincterotomy, application of Glyceryl trinitrate ointment should be used as the treatment modality.

Regular follow up of patients, especially in whom there is some impairment of anal continence is very important. At each of

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