

A NEW PATTERN OF TREATMENT OF CHRONIC ANAL FISSURE; AUDIT OF THE SURGICAL MODALITIES & THE ROLE OF PHARMACOLOGICAL SPHINCTROTOMY, ONE-YEAR FOLLOW UP.

By

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This study was carried out to find an alternative method to treat chronic anal fissure. 170 patients were recruited for this and four different methods of treatment were done. These methods include pharmacological sphinctrotomy using glycerol dintrate, the anal dilatation, the formal fissuerectomy and posterior internal sphinctrotomy and the sub cutaneous lateral internal sphinctrotomy. The four groups were analyzed and followed up (immediate, short term and long term) for one year. The analyses of the results concerning the disappearance of pain, healing of the fissure (symptom free patients) and the complications mainly incontinence and recurrence (failure of treatment) and the loss of follow up of patients. It was found that the medical sphinctrotomy is a good alternative to the surgical procedures particularly for those who were unfit for surgery. The subcutaneous lateral internal sphinctrotomy was the best treatment in short and long terms follow up concerning the better results and less complications.

Key words: Anal fissure, Glycerol trinitrate and glycerol dinitrate, anal dilatation, pharmacological sphinctrotomy, formal posterior internal sphinctrotomy and, fissuerectomy and lateral subcutaneous internal sphinctrotomy

INTRODUCTION

The etiology of anal fissure is unknown but all patients tend to have a high maximum resting anal pressure MRAP which if reduced leads to fissure healing and increased blood flow to the fissure ulcer⁽¹⁾

Surgical treatment to overcome this sphincter spasm in the form of dilatation of the anal sphincter or internal sphinctrotomy was extensively studied before^(2,3)

Both these procedures might be associated with short and long term complication . Also some patients are unfit or refusing any form of surgery. So a non-surgical method for reducing anal pressure may be appropriate using what we call pharmacological sphinctrotomy^(4,5,6,7).

Nitric oxide (NO) donors such as glyceryl trinitrate or isosorbide dinitrate in a topical cream form have been shown to cause a reversible pharmacological sphinctrotomy

capable in treating chronic anal fissure without performing surgery. This is because it has been shown to be an effective inhibitory neurotransmitter in the internal anal sphincter. ^(8,9)

170 patients were treated from anal fissure 64 had medical treatment and 106 had some form of surgery. They were recruited from the out patient clinic to compare the different surgical and medical modalities. The patients were divided into four groups:-

- Group (I) who received Medical treatment (64 patients)
- Group (II) who under went Anal Dilatation (36 patients)
- Group (III) who had fissuerectomy and posterior internal sphinctrotomy (33 patients)
- Group (IV) who under went lateral subcutaneous internal sphinctrotomy (37 patients).

Aim of the work:

The main aim of this study is to assess the effect of different surgical modalities and the efficacy of this new medical treatment on our patients with chronic anal fissure.

PATIENTS AND METHODS

170 patients (116 male and 54 female) attended the surgical out patient department. All patients with chronic anal fissure were included. Those who had Inflammatory Bowel Disease, Ischemic Heart Disease and Pregnancy were excluded. Those with Liver cirrhosis and high bleeding tendency due to portal hypertension were included as part of our main service provider to the institute.

On the 1st visit a full history including main symptoms; anal pain related to defecation (170 patients), with special emphasis on complaining of constipation (136 patients) pain, bleeding/discharge(93patients) The rectal examination was done using xylocaine gel 5% [Astra] for 2-4 minutes. We were using it as a local anesthesia and lubricant just before doing anal examination.

The presence of linear ulcer in the distal anal canal, induration, skin tags, and the presence of the previous symptoms were good enough for our clinical diagnosis ⁽¹⁰⁾.

The Assisted linear Visual Analogue Score (ALVAS) for pain (0-10) was done to all patients by an independent blinded observer (A.EH). Patients were instructed to mark on the scale with a pencil the severity of pain during defecation where 0 for no pain, 5 for 50 % of pain and 10 for 100 % of pain.⁽¹¹⁾

All patients were explained thoroughly about the aim of our work and the availability to try the medical treatment and only those who agreed to join the study were included (pharmacological sphinctrotomy 64 patients in group I).

Those who had any form of the surgical interference were included in the three different surgical groups (anal dilatation 36 patients in group II, fissuerectomy and posterior internal anal sphinctrotomy 33 patients in group III and lateral internal sphinctrotomy 37 patients in group IV). This is shown on (Table 1).

The medical treatment

In-group (I) patients who agreed to have the medical treatment were included. 35 patients suffered from cirrhotic liver with portal hypertension and could not be treated by a surgical procedure under general anesthesia. The remaining 29 patients did not want to have a surgical procedure upon their request. All patients were given all the instructions and advise in a written sheet. All of them were taught how to use and apply the medications. They were also informed

that the treatment would take at least six to eight weeks.

In 1st and 2nd week

All patients were advised to pass stools daily by prescribing a routine bulk natural laxatives in the form of Bran tablets. Three tablets three times daily with meals and they were advised to drink plenty of fluids and water daily. **Bran tablets [Amira Pharm industries-Natural fibers 500 mg- Cellulose, minerals & excipients 740 mg].**

The medication prescribed was:

1-Faktu suppositories twice daily at night and in the morning after defecation [100 mg policresulen, 2.5 mg cinchocaine hydrochloride Hoechst Orient SAE Cairo-Byk Gulden,D 78467 konstanze, Germany]

2-Dinitra 5 mg twice daily [Isosorbid dinitrate 5 mg S/L tablets -Rhône Poulanc-Egypt-Paris].

The patients were told and taught to insert the S/L form of such tablets using the suppository as an introducer i.e. developing an accurate delivery system with the exact amount needed to the nitric oxide donors.

All patients were advised to perform **digital rectal examination DRE once/twice daily for up to 2 minutes** using either their own finger covered with glove, or anal dilators with xylocaine 5% gel.

All patients tolerated this method of treatment. They found no difficulty what so ever in doing it. The proper dose was easily given and properly observed.

All patients were warned that in the 1st 48 hrs they might experience some form of headache or dizziness and also possible bleeding. This is the vasodilator effect of Isosorbide dinitrate. They were told to lie down and were advised to stay at home for couple of days and to drink plenty of fluids and coffee to get rid of these side effects.

The DRE was not acceptable by some patients to do it by themselves and they were advised to come to the out patient clinic to have it done for them.

In, 3rd, 4th, 5th and 6th week

According to the protocol all patients in this group should receive the medication prescribed above once daily i. e. **half the dose of the first two weeks.**

They were also advised to continue the **digital rectal examination once daily for up to 2 minutes**. If the patient's symptoms did not subside in the follow up visits they were advised to continue the treatment twice daily for this period.

The surgical procedures:

The three different procedures were done in the operating theater as a day case procedure under general, spinal and local anesthesia. Some of the authors preferred the admission of patients the night before. The plan for those patients was to send them home on the same day of the procedure or as soon as they passed the 1st bowel motion.

A digital examination under anesthesia EUA was performed.

A proctoscopy with xylocaine 5% gel [Astra] as a lubricant using Allan parks' two valves anal speculum to identify the fibers of the internal sphincters.

In-group (II-36) a formal four fingers dilatation was performed under anesthesia. The internal anal sphincter is stretched for at least 2-4 minutes.

In-group (III-33) a formal fissurectomy and posterior internal sphinctrotomy were done. Starting with triangular flap excision including the unhealthy mucosa up to the dentate line level and anal skin.

In-group (IV-37) lateral internal sphinctrotomy. A subcutaneous lateral internal sphinctrotomy at 3 O'clock was done. A keratotomy-like knife or a hook-like blade was introduced through the muco-cutaneous junction via a small 2 mm circumferential incision in the intersphincteric plane. The blade was turned 90° and retracted to divide the internal sphincter. This was guided by the other hand's index finger inside the anal canal. The cut was made along the lower fibers of the internal anal sphincter up to the level of the dentate line.

Marcain was injected for pain control in the postoperative period. After all surgical procedures a flat dressing was applied with xylocaine gel 5% [Astra] and the patient was sent back to the ward.

They were given on demand oral *pain killers either* NSAID [ibuprofen 400 mg TDS - Kahira Pharma C/o -Knoll AG-Ludwigshafen-Germany] or *Tramal* 50 mg tablets twice daily [tramadol hydrochloride 50 mg tablets Mina Pharma C/o Egypt-Grunenthal-Germany].

Follow up

All patients were advised to drink plenty of fluids and to pass stool every day and requested to record the number of bowel motions. They were also advised to continue the digital rectal examination once daily for up to two minutes after one week. The follow up plan is to review them in the out patient department. A phone call is made if they were unable to come or forgot the appointment to fulfill the

information. This follow up started immediately on weekly basis post operative for the first three months and after 6 months and after 12 months.

The Assisted Linear Visual Analogue Score for pain assessment (0-10) was performed like before. This was analyzed by the independent blinded observer (A.EH). The digital rectal examination was performed by one of the investigators to look for any sphincteric abnormality in the form of spasm or incontinence. This was done on weekly basis for the 1st month and every two weeks for the 2nd and 3rd month and on the 6th and 12th month.(12). In This Study

- ❑ Symptomatic relief was defined as no pain with ALVAS < 2 either during or after defecation or passing stools easily.
- ❑ Healing is defined clinically as complete disappearance of ulcer.
- ❑ Failure of any form of treatment was considered if patient's symptoms did not improve or develop complications
- ❑ Patient lost follow up was considered if he did not turn up in the out patient department or no answer to the phone call.

RESULTS

An overview of the results is given in the Master (Table 3). Our study included 170 patients 116 (68%) male and 54 (32%) female with mean age group between (21-80) 44. Those who presented with anal pain 170 (100%); anal pain and constipation 136 (80%) and those who presented with anal pain, bleeding and discharge were 93 (55%). No mortalities occurred related to the different modalities of treatment. The symptom free patients were assessed clinically (Table 4) and the results of the ALVAS of which were included (Table 5)

The results for all patients were analyzed after 3, 6 and 12 months.

follow up after 3 months 170 patients:

The total patients who were symptom free after 3 months were 132 (78%). Those who had complications 34 (20%). Those who lost follow up 4 (2%)

follow up after 6 months 132 patients

The total patients who were symptom free after 6 months were 105 (80%). Those who had complications 15 (11%). Those who lost follow up 12 (9%)

follow up after 12 months 105 patients

The total patients who were symptom free after 3 months were 77 (73%). Those who had complications 13 (13%). Those who lost follow up 15 (14%).

After one year the total healing and symptom free patients were achieved in 77 patients (46%) and the total number of patients who had complications were 62 patients (36%) and the total loss of follow up were in only 31 patients (18%).

The results of each group of patients are as follows:

Group I

64 patients were included in this group 29 refused surgical treatment and 35 were unfit for any surgery or anesthesia.

follow up after 3 months all patients were seen

50 patients were symptom free (18 healed ulcer) 14 (2 withdrawal due to bleeding/rectum, 2 non compliance and 10 patients stopped treatment due to sever headaches) and they had some form of surgery and mean ALVAS was 3.

follow up after 6 months

43 patients were symptom free (30 healed ulcer) 5 patients had complications and 2 were lost and the mean ALVAS was 2.

follow up after 12 months

31 patients were symptom free and had healed ulcer, 6 patients had complications and 6 patients were lost and the mean ALVAS was 2.

After one year the total healing and symptom free patients were achieved in 31 patients (49%) and the total number of patients who had complications were 25 patients (39%) and the total loss of follow up were in only 8 patients (12%).

Group II

36 patients were included in this group for anal dilatation.

follow up after 3 months

26 patients were symptom free (7 healed ulcer), 8 patients developed complications (2 had hematoma and 2 had incontinence and 1 had perianal abcess and 3 had sever recurrence of symptoms. And 2 patients were lost follow up The mean ALVAS were 8 before treatment and the score was 7 after dilatation and it reaches 4 at the end of three months.

follow up after 6 months

18 patients were symptom free (8 healed ulcer) 1 had sever inconitnance and 3 patients had recurrence of symptoms and 4 patients lost follow up. After six months ALVAS were 2.

follow up after 12 months

11 patients were symptom free and healed ulcer 4

patients had an aggressive form of anal pain i.e. recurrence of symptoms and 3 patients lost follow up after 12 months the mean ALVAS was 2.

After one year the total healing and symptom free patients were achieved in 11 patients (30%) and the total number of patients who had complications were 16 patients (45%) and the total loss of follow up were in only 9 patients (25%).

Group III

33patients were included in this group for fissuerectomy and posterior internal sphinctrotomy.

follow up after 3 months

22 patients were symptom free (7 healed ulcer) 11 patients developed complications (4 had bleeding /rectum and 7 had incontinence. The mean ALVAS were 8 before treatment and the score was 8 after dilatation and it reaches 4 at the end of three months.

follow up after 6 months

16 patients were symptom free (10 healed ulcer) 3 patients had complications and 3 patients lost follow up. After six months ALVAS were 2.

follow up after 12 months

13 patients were symptom free and healed ulcer 2 patients had complication and 1 patients lost follow up after 12 months the mean ALVAS was 2.

After one year the total healing and symptom free patients were achieved in 13 patients (40%) and the total number of patients who had complications were 16 patients (48%) and the total loss of follow up were in only 4 patients (12%).

Group IV

37 patients were included in this group who had subcutaneous lateral internal sphinctrotomy.

follow up after 3 months

34 patients were symptom free (11 healed ulcer) 1 patient developed complications. And 2 patients were lost follow up The mean ALVAS were 9 before treatment and the score was 7 after dilatation and it reaches 3 at the end of three months.

follow up after 6 months.

28 patients were symptom free (17 healed ulcer) 3 patients had complications and 3 patients lost follow up. After six months ALVAS were 2.

follow up after 12 months

22 patients were symptom free and healed ulcer 1

patients had complications and 5 patients lost follow up after 12 months the mean ALVAS was 2.

(14%) and the total loss of follow up were in only 10 patients (27%)

After one year the total healing and symptom free patients were achieved in 22 patients (59%) and the total number of patients who had complications were 5 patients

Table (1): Material and Methods :

| <i>Groups</i> | <i>I</i> | <i>II</i> | <i>III</i> | <i>IV</i> | <i>Total</i> |
|---------------------------|------------|------------|------------|------------|--------------|
| Number of patients | 64 | 36 | 33 | 37 | 170 |
| Male | 44 | 25 | 22 | 25 | 116 |
| Female | 20 | 11 | 11 | 12 | 054 |
| Mean age | (21-72) 39 | (23-64) 35 | (27-80) 41 | (22-71) 36 | 170 |
| Mean ALVAS (2-10) | (5-10), 8 | (6-10), 9 | (6-10), 9 | (5-10), 8 | 170 |
| Pain presentation | 64 | 36 | 33 | 37 | 170 |
| Pain & Constipation | 52 | 29 | 26 | 29 | 136 |
| Pain, bleeding, discharge | 39 | 19 | 16 | 19 | 93 |

ALVAS. Assisted linear visual analog score.

Table (2): Operative details:

| <i>Groups</i> | <i>I</i> | <i>II</i> | <i>III</i> | <i>IV</i> | <i>Total</i> |
|--------------------------------|----------|-----------|------------|-----------|--------------|
| Numbers of patients | 64 | 36 | 33 | 37 | 170 |
| General anesthesia | N/A | 36 | 21 | 32 | 89 |
| Spinal anesthesia | N/A | 00 | 12 | 05 | 17 |
| Local anesthesia-Topical Gel* | 64 | 36 | 33 | 37 | 170 |
| Local anesthesia-Injection* | N/A | 36 | 33 | 37 | 106 |
| Home on the same day | N/A | 36 | 02 | 29 | 67 |
| Home after 1st motion (24 hrs) | N/A | 0 | 31 | 08 | 39 |

*For post operative pain management N/A not applicable

Table (3): Master table results.

| Four Groups | Follow up weeks | Symptom free | Ulcer healed | Patient's not free | Complication | Patient lost | Total Patients |
|-------------|-----------------|--------------|--------------|--------------------|--------------|--------------|----------------|
| I | 2 | 10 | 0 | 47 | 7 | 0 | 64 |
| I | 4 | 15 | 6 | 28 | 4 | 0 | 64 |
| I | 6 | 9 | 5 | 18 | 1 | 0 | 64 |
| I | 8 | 7 | 3 | 10 | 1 | 0 | 64 |
| I | 10 | 5 | 3 | 5 | 0 | 0 | 64 |
| I | 12 | 4 | 1 | 0 | 1 | 0 | 64 |
| I | 24 | 43 | 30 | 0 | 5 | 2 | 48 |
| I | 48 | 31 | 31 | 0 | 6 | 6 | 37 |
| II | 2 | 7 | 0 | 28 | 1 | 0 | 36 |
| II | 4 | 6 | 4 | 21 | 1 | 0 | 36 |
| II | 6 | 8 | 8 | 11 | 2 | 0 | 36 |
| II | 8 | 3 | 2 | 7 | 1 | 0 | 36 |
| II | 10 | 2 | 1 | 3 | 2 | 0 | 36 |
| II | 12 | 0 | 0 | 0 | 1 | 2 | 34 |
| II | 24 | 18 | 08 | 0 | 4 | 4 | 22 |
| II | 48 | 11 | 11 | 0 | 4 | 3 | 15 |
| III | 2 | 4 | 0 | 26 | 3 | 0 | 33 |
| III | 4 | 6 | 3 | 17 | 3 | 0 | 33 |
| III | 6 | 2 | 2 | 13 | 2 | 0 | 33 |
| III | 8 | 4 | 2 | 8 | 1 | 0 | 33 |
| III | 10 | 4 | 2 | 3 | 1 | 0 | 33 |
| III | 12 | 2 | 1 | 0 | 1 | 0 | 33 |
| III | 24 | 16 | 10 | 0 | 3 | 3 | 19 |
| III | 48 | 13 | 13 | 0 | 2 | 1 | 15 |
| IV | 2 | 11 | 0 | 25 | 1 | 0 | 37 |
| IV | 4 | 9 | 2 | 16 | 0 | 0 | 37 |
| IV | 6 | 4 | 3 | 12 | 0 | 0 | 37 |
| IV | 8 | 7 | 4 | 5 | 0 | 0 | 37 |
| IV | 10 | 2 | 1 | 3 | 0 | 0 | 37 |
| IV | 12 | 1 | 1 | 0 | 0 | 52 | 35 |
| IV | 24 | 28 | 17 | 0 | 3 | 3 | 31 |
| IV | 48 | 22 | 22 | 0 | 1 | 3 | 23 |

Table (4): % of Symptom free patients:

| Weeks | 2 nd | 4 th | 6 th | 8 th | 10 th | 12 th | 24 th | 48 th |
|---------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|
| Months | 3 rd | | | | | | 6 th | 12 th |
| I | 15 % | 39 % | 53 % | 64 % | 71 % | 78 % | 10 % | 26 % |
| II | 19 % | 36 % | 58 % | 66 % | 72 % | 76 % | 0 % | 0 % |
| III | 12 % | 30 % | 36 % | 48 % | 60 % | 66 % | 15 % | 27 % |
| IV | 29 % | 54 % | 64 % | 83 % | 89 % | 97 % | 9 % | 14 % |
| P value | NS | NS | NS | 0.02 | 0.05 | 0.01 | NS | NS |

NS Non Significant.

Table (5): Mean Value (score) of the ALVAS:

| <i>Weeks</i> | <i>1st visit</i> | | <i>2nd</i> | <i>4th</i> | <i>6th</i> | <i>8th</i> | <i>10th</i> | <i>12th</i> | <i>24th</i> | <i>48th</i> |
|--------------|-----------------------------|--|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|
| Months | | | Post treatment | <i>3rd</i> | | | | | | <i>6th</i> |
| I | 8 | | 7 | 5 | 5 | 4 | 4 | 3 | 2 | 2 |
| II | 9 | | 7 | 7 | 5 | 4 | 4 | 3 | 2 | 2 |
| III | 9 | | 8 | 6 | 5 | 4 | 4 | 3 | 2 | 2 |
| IV | 8 | | 6 | 5 | 5 | 3 | 3 | 3 | 1 | 1 |
| P value | NS | | NS | NS | NS | NS | NS | NS | NS | NS |

Table (6): results of group I

| | <i>Symptom free</i> | <i>Complications</i> | <i>Lost follow up</i> |
|--------------|---------------------|----------------------|-----------------------|
| 3 months | 50(18) | 14 | 0 |
| 6 months | 43(18+12) | 5 | 2 |
| 12 months | 31(18+12+1) | 6 | 6 |
| Total 1 year | 31 | 25 | 8 |

(healed ulcer)

Table(7): results of group II

| | <i>Symptom free</i> | <i>Complications</i> | <i>Lost follow up</i> |
|--------------|---------------------|----------------------|-----------------------|
| 3 months | 26(7) | 8 | 2 |
| 6 months | 18(7+1) | 4 | 4 |
| 12 months | 11(7+1+3) | 4 | 3 |
| Total 1 year | 11 | 16 | 9 |

(healed ulcer)

Table(8): results of group III

| | <i>Symptom free</i> | <i>Complications</i> | <i>Lost follow up</i> |
|--------------|---------------------|----------------------|-----------------------|
| 3 months | 22(7) | 11 | 0 |
| 6 months | 16(7+3) | 3 | 3 |
| 12 months | 13(7+3+3) | 2 | 1 |
| Total 1 year | 13 | 16 | 4 |

(healed ulcer)

Table(9): results of group IV

| <i>Follow up</i> | <i>Symptom free</i> | <i>Complications</i> | <i>Lost follow up</i> |
|------------------|---------------------|----------------------|-----------------------|
| 3 months | 34(11) | 1 | 2 |
| 6 months | 28(11+6) | 3 | 3 |
| 12 months | 22(11+6+5) | 1 | 3 |
| Total 1 year | 22 | 5 | 10 |

(healed ulcer)

DISCUSSION

As we mentioned before this study was meant to audit the role of the pharmacological sphinctrotomy with other surgical modalities in treatment of chronic anal fissure. In view of healing of the diseased fissure area and relief of the symptoms by reversing the spasm of the Internal Anal sphincter

Patients with chronic anal fissure are almost having high resting anal pressure because of the increase of the internal anal sphincter activity. The different studies suggested that the increased activity is a reaction of the internal anal sphincter to pain. High anal pressure is considered the consequence rather than the cause of the fissure. It was also believed that increased anal pressure precedes anal fissure.⁽¹³⁾

Increased activity of the internal anal sphincter may further decrease the anatomical blood supply especially at the posterior midline by compression of arteriols arising from the inferior rectal arteries previously reported that the blood supply of the anoderm at the posterior midline in healthy volunteers is significantly lower than at other sides of the anal canal.^(14,15)

In the first group where medical treatment was prescribed and pharmacological sphinctrotomy was the aim there is a strong evidence in our study that isosorbide dinitrate as a nitric oxide donor plays a major role in mediating the relaxation of the Internal anal sphincter allowing the healing of the fissure and relieving the symptoms. It was reported that the nitric oxide donors rapidly reduce the resting pressure in the anal canal in normal subjects and in patients with constipation.^(16,17)

The rationale of the medical combination of treatment used in our study was first by giving them bran tablets which act as a natural laxative, increase the stool bulk acting as an anal dilator, softening the stools well, stimulates the colon peristalsis, decrease rate of colon transit and avoids straining.

Adding to this drinking enough and plenty of fluids to avoid the obstructive effects of this high dose of bran if ingested without adequate fluid intake. Those two things (water and bran) were meant to change the bad habits of our patients by giving them high fiber diet to achieve what we mentioned previously

The rationale of using isosorbide dinitrate as a nitric oxide donor and its dose and its method of application was; Dinitrate as nitric oxide donor was tried before and it is easily found in our market, The 5-mg twice daily i.e. 10 mg is tolerant for our patients concerning headaches and bleeding

and as we mentioned before most of our patients had high bleeding tendency. The developing of this method of application made it possible to control and standardize the dose properly, also to apply it easily as it was difficult to prepare the ointment form in the hospital pharmacy or locally.^(18,19)

The Digital Rectal examination done by the patient or the investigator's was meant to help dilate the anal sphincter with the medical treatment given to relieve the spasm to allow the healing to occur.⁽²⁰⁾

The results obtained showed significant improvement of the symptoms of most of our patients in the 3 months follow up (78%) this was reduced to (48%) after one year different from other studies.⁽²¹⁾

The explanation of this was patients were actually seen more frequent and encouraged to continue with the treatment and afraid from surgery at the start! After 6 and 12 months not all patients turned up 13% lost follow up and those who were presented to us had complications and unable to comply with this kind of treatment

The rate of complications were high in this group of patients compared to other studies in the short (22%) and long term (39%) which we explained it due to the original pathology of some of our patients of being suffering from portal hypertension and cirrhotic liver and in the remaining complications they were due to un-compliance and headaches with this kind of treatment.⁽²²⁾

The lost follow up in this group could be attributed to the main pathology of being cirrhotic and their mental status (encephalopathy)

It was found that it is possible that the pathogenesis of anal fissure is related in part to an insensitivity of the internal sphincter to endogenous nitric oxide donor.⁽²³⁾

This study demonstrates that 5 mg isosorbide dinitrate used rectally twice daily causing pharmacological sphinctrotomy. In common with surgical sphinctrotomy it is associated with rapid relief of pain and leads to healing of the majority of chronic fissure. In contrast with surgical sphinctrotomy pharmacological sphinctrotomy is reversible and is therefore unlikely to have long term adverse effects on the anal sphincter

Other studies demonstrated that blood flow at the posterior commissure increased and MRAP fell after the application of 1% 10mg isosorbide dinitrate ointment.⁽²⁴⁾ Other studies suggest that the dose could be between 1.5% = 15 mg 2.5% = 25 mg and the response in our study

was in a small dose. This could be explained by the accurate method of delivering the medication in our study played an important role rather than the gel or ointment form

The proposed mechanism being reduction in the associated hypertonicity of the internal sphincter ⁽²⁵⁾. The reason behind not performing any pressure or blood flow studies was due to lack of resources and our assessment depend on clinical grounds mainly.

However the results in this study in the group who received medical treatment only the long term follow up of the patients showed high incidence rate of recurrence of the anal fissure this might be due to the reversible action of the isosorbide dinitrate on the internal sphincter ic function these results was simmler to the those obtained by previous studies.⁽²⁶⁾

In The anal dilatation group proved to be an effective method of treatment particularly in the immediate post operative period with significant improvement of the symptoms and healing of (72%) fissure. The short term follow up in this study showed significant improvement of symptoms and healing of the fissure . But long term follow up after 1 year was (31%) and the high rate of complications (44%) in the form mainly of recurrence of the symptoms and local complications requiring readmission to hospital was due to the procedure itself i.e. the digital forcible dilatation irrespectively of being done as a day case and all patients went home on the same day symptom free and passing stools without pain The high % of lost follow up 25% could be explained that patient seeks another medical advise some where else!

Significant number of patients developed post dilataion impairment of continance according to othe studies done.⁽²⁷⁾ the stated that this sphincteric problem is due to fragmentation of the IAS fibers rather than a single tear this fragmentation destroy more than 75% of the sphincteric circumferance

In this study the complications of the anal dilatation was attributed to this forcible dilatation which was condemned by the St Marks colorectal studies.⁽²⁸⁾

The reported complications in previous studies ⁽²⁹⁾ were recurrence , bleeding, and infections The bleeding occurs in differeant forms of contusion, heamatoma formation and frank bleeding which occurs in this study The different grades of infection like minor infection, gangreane and perianal abcess, only the later occurs in our study The major infection like bactereamia and septicemia were not encounterd in our study.the recurrence of symptoms were the major complication 28% the all in all complicatios were 45%.

In the long term follow up those patients showed high rate of recurrence of symptoms this was mainly due to the disruption of the fibers and the persistence of the constipating bowel habits as a cosequence of anal pain. The patient felt that the immediate short term relife of pain and the false impresson that he has been cured without doing surgery made him very relctant to follow the instructions and did not comply with the protocol of treatment to change his boewl habits.

In the present study the two different internal anal sphinctrotomy procedures reveals their precedence to the previous two methods of treatment.⁽³⁰⁾ Most studies had shown that surgical IAS is an excelant proedure for long term cure of chronic anal fissure as they reduce the MRAP and improve the healing of the relativly ischeamic ulcer (fissure)⁽³¹⁾.

In the first internal anal sphinctrotomy groups were fissuerectomy and posterior internal sphinctrotomy 67% of patients were symptom free and this reached 39% after one year compared to 92% and 60 % after one year in the subcutaneous lateral internal sphinctrotomy.

The posterior versuse lateral internal anal sphinctrotomy favors the later because of its shorter time of healing and less incidence of complications⁽³²⁾

the achieved results concerning the healing of the fissure was defiantly more in the later group.

this shown in the posterior IAS in the immediate post operative 21 % or in the long term after one year 39% and in the Lateral IAS 30% and up to 60% respectively.

In the former procedure the rate of complication was high up to 33% after surgery and reaches 48 % after one year due to the higher incidence of incontinence and persistence of anal discharge at the immediate post operative period and the high incidence of anal stricture (key-whole deformed anus) as well after one year that needed some re-admission and surgical interference compared to previous studies⁽³³⁾

In the lateral internal sphinctrotomy group they had 3% complications in the immediate post operative period and 14% after one year due to the patients did not change their habits and mainly they stopped the high fiber diet content. The rate of anal incontinence was less in patients subjected to the Lateral IAS.⁽³⁴⁾

Inspite of this result the over all incidence of incontinence and recurrence of symptoms were much lower than those who had anal dilatation ⁽³⁵⁾.

In the posterior IAS group of patients had to stay in

hospital for at least 48 hours or more compared to the lateral IAS group where they go home immediately after surgery.

This did not have any implication on the complications but on the patient satisfaction which was obvious in lateral IAS group

CONCLUSION

Lateral internal sphincterotomy is considered the operation of choice in the treatment of chronic posterior anal fissure in surgically fit patients. This because of the achieved results of healing of the fissure, the high rate of symptom free patients in the immediate short term follow up and in the long term follow up after one year and the low rate of recurrence and complications.

However the results achieved in our study concerning the pharmacological sphincterotomy using isosorbide dinitrate has proved to be an effective non invasive, tolerant method of treatment of chronic anal fissure particularly for those who are surgically unfit, who refuse surgery and those who had recurrence after previous surgery.

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