

Topical Nitroglycerin versus Lateral Internal Sphincterotomy in Treatment of Chronic Anal Fissure

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Abstract:-

Background: Anal fissure is common conditions that can affect people of all ages. Most anal fissures are at the rear of anal opening in line with cleft of the buttocks. There are many methods of treatment such as: medication by topical nitroglycerin or nifedipine paste or butulinum toxin injection or surgery by lateral internal Sphincterotomy or V-Y advancement flap.

Objectives: Is to compare the result of topical GTN (chemical Sphincterotomy) as primary treatment of chronic anal fissure with lateral internal Sphincterotomy.

Methods:

Setting: In outpatient clinic and Tikrit teaching hospital from Jan. 2006 to Octo.2007.

Design: prospective study.

This study compares the results of two different methods of treatment (chemical sphincterotomy&lateral internal Sphincterotomy) in 84 cases of chronic anal fissure regarding the efficacy and complication of these procedures.

These cases were randomized in equal number into two groups:

Group 1: were treated by chemical Sphincterotomy.

Group 2: were treated by lateral internal Sphincterotomy.

The average period of follow up after completion of treatment was 3 months for both groups.

Results:

Symptomatic improvement occurs in 30 patients treated by chemical Sphincterotomy (71.42%) at 12 weeks following treatment and 39 patients (92.85%) treated by lateral internal Sphincterotomy.

No improvement occurs in 3 cases (7.15%) treated by chemical Sphincterotomy and no case who was treated by lateral internal Sphincterotomy.

Conclusion: From this study we find that chemical Sphincterotomy induce rapid healing of chronic anal fissure with 71.42% rate in comparison to lateral internal Sphincterotomy with a 92.85% healing rate after 12 weeks treatment.

المقارنة ما بين المعالجة باستخدام عقار GTN موضعياً مع المعالجة بجراحة داخلية جانبيهة (Sphincterotomy) من الناسور المزمن

المستخلص:-

الناسور من الامراض الشائعة التي يُمكنُ ان تصيب الاناس في كل الأعمار. ان معظم الناسورات هي التي في مؤخرة الإفتتاح الشرجي يتوافق مع شقّ الأرداف. هناك العديد من طرق المعالجة مثل: دواء nitroglycerin موضوعي أو معجون nifedipine أو حقن سمّ butulinum أو جراحة (Sphincterotomy داخلي جانبي). تهدف هذه الدراسة الى المقارنة ما بين المعالجة باستخدام عقار GTN موضعياً (Sphincterotomy كيميائية) كمعالجة أساسية من الناسور المزمن مع المعالجة بجراحة داخلية جانبيهة (Sphincterotomy) في 84 من حالات الناسور المزمن من حيث الكفاءة والتعقيدات المصاحبة لكل طريقة معالجة. انجزت هذه الدراسة في العيادة الخارجية ومستشفى تكريت التعليمي من كانون الثاني/ 2006 إلى كانون الاول/2007.

عشوائياً قسمت هذه الحالات الى مجموعتين متساويتين في العدد:

مجموعة 1: عولجَ بطريقة Sphincterotomy الكيميائية (استخدام عقار GTN).

مجموعة 2: عولجَ بطريقة Sphincterotomy (الجراحة الداخلية الجانبيهة).

لوحظت النتائج بعد ثلاث اشهر من المعالجة حيث وجد انه يحدث التحسن العرضي في 30 مريض (71.42 %) عولجوا بطريقة Sphincterotomy الكيميائية (استخدام عقار GTN) و39 مريض (92.85 %) عولجَ بطريقة Sphincterotomy (الجراحة الداخلية الجانبيهة). كما وجد انه لا اثر لاي تحسن في 3 حالات (7.15 %) عولجوا بطريقة Sphincterotomy الكيميائية (استخدام عقار GTN). من هذه الدراسة نجد ان المعالجة بطريقة Sphincterotomy الكيميائية (استخدام عقار GTN) تؤدي الى شفاء سريع من الناسور المزمن وبنسبه تصل الى 71.42 % بالمقارنة مع طريقة Sphincterotomy (الجراحة الداخلية الجانبيهة) 92.85 % نسبة مشفوية بعد 12 اسبوع من المعالجة.

Key words: Fissure in ano, Chemical Sphincterotomy, Lateral internal sphincterotomy, Topical GTN.

Introduction:-

Unlike acute anal fissure, chronic fissure in ano do not usually respond to dietary advice alone, the aim of treatment is to alleviate sphincter hypertonia and improve blood flow to the ulcerated area⁽¹⁾. Lateral internal Sphincterotomy has replaced anal stretching as the main stay of treatment due to concerns over adverse effects on continence. Lateral Sphincterotomy permanently lowers resting anal pressure and in doing so aids the healing of anal fissures. It may, however, be associated with minor temporary or permanent alterations in the control of gas, mucous and occasionally stool in up to 35% of patients⁽²⁾. This has led to alternative therapeutic approaches, in particular, pharmacological, reversible Sphincterotomy using topical agents such as butulinum toxin, calcium channel blockers and glyceryl trinitrate (GTN). The most widely used topical agent is GTN. The latter is mobilized to nitric oxide and leads to sphincter muscle relaxation and reduction in maximum anal resting pressure. This results in a reversible improvement in pecten perfusion and eliminates the risk of permanent anal incontinence associated with surgery⁽³⁾. Existing data concern mainly the efficacy of 0.2% GTN paste.

Recent evidence suggests that nitric oxide (NO) is the neurotransmitter released by inhibitory enteric neurons innervating the internal anal sphincter (IAS)⁽⁴⁾. Endogenous and exogenous nitric oxide (NO) in contact with the IAS causes relaxation of that muscle^(4,5). Organic nitrates, such as nitroglycerin, are degraded by cellular metabolism, liberating (NO). Nitroglycerine (NTG) applied topically to the anus has been shown to cause a lowering of IAS pressure in normal human subjects^(7,8).

Patient and Methods:-

Eighty four cases of chronic anal fissure were included in the study from Jan. 2006 to Oct. 2007. All the patients treated at Tikrit teaching Hospital and private out patient. All patients were treated by high roughage diet. Chronicity was determined by history longer than 3 months and/or the presence on examination of sentinel tag or white muscular fiber at the base of fissure.

Patients with inflammatory bowel disease, pregnant women and patients taking nitrates for other condition were excluded.

At presentation, a pain score (0-10) was established as well as a symptom score (0-3) with one point each for bleeding, discharge and itching. The patients were treated with GTN 0.2% ointment (prepared by pharmacist) which was applied digitally peri and internally 3 times daily, initially for 6 weeks. The amount applied was the smallest amount that could be rubbed into the anal area without leaving excess ointment. All patients were reviewed at 3, 6 and 12 weeks to assess pain and symptoms scores and to assess fissure healing complication and compliance. Patients that did not respond to treatment or who were unable to comply with the treatment were offered a lateral anal Sphincterotomy.

Results:-

The results were recorded as:

1-Asymptomatic: when the main symptoms (pain, bleeding, discharge and itching) were completely controlled and ulcer healed completely.

2-Residual symptoms: when marked improvement of the main symptoms but some residual symptoms persist and headache (non compliant) was occurred.

3-No improvement: when symptoms persist as before and patients were not willing to continue treatment.

The majority of patients were males shown in table (1). The majority of patients was (30-39 years) shown in table (2). The mean length of anal fissure history was 10 months ranging 4-36 months in both groups shown in table 3. The main pain score at presentation was 8 (range 2-10). The main pain score at 3 week follow up was 3 with 14/42 (33.33%) patients experiencing no pain. At 6 weeks, 21/42 (50%) patients, experiencing no pain and 30/42 (71.42%) were pain free at 12 weeks. At time of presentation 30/42 (71%) patients had two or more of documented symptoms. At 3 weeks, 24/42 (57%) patients were symptoms free. At 3 month follow up this was 30/42 (71.42%) patients.

Overall, at 12 weeks following treatment with 0.2% GTN ointment 30/42 (71.42%) patients had

clinically healed ulcer. Thirty-six out forty tow patients experienced headache on commencing treatment.

Table 1: Sex distribution of chronic anal fissure in both groups.

SEX	Topical GTN		Surgical Sphincterotomy	
	NO.OF PATIENTS	PERCENTAGE	NO.OF PATIENTS	PERCENTAGE
MALES	38	92.53	35	83.3
FEMALES	4	7.47	7	16.6

Table 2: The majority of patients were between (30-39years) in both group.

Age group	Topical GTN		Surgical Sphincterotomy	
	No. of patients	Percentage	No. of patients	Percentage
10-19	1	2.38	2	4.76
20-29	11	26.12	10	23.80
30-39	15	35.82	16	38.09
40-49	7	17.16	5	11.19
50-59	3	6.72	4	
Over 60	5	11.19	5	11.19
Total	42	100	42	100

Table 3: The length of anal fissure history.

Length of anal fissure history	Topical GTN	Surgical Sphincterotomy
	No. of patients	No. of patients
4 months	3	4
8 months	5	6
10 months	13	14
12 months	6	5
18 months	7	6
24 months	4	3
36 months	4	4

Table 4: Distribution of result 3 month after completion of treatment in both groups.

Result	Topical GTN(Chemical Sphincterotomy)		Surgical Sphincterotomy	
	No. of patients	Percentage	No. of patients	percentage
Asymptomatic	30	71.42	39	92.85
Residual symptoms	9	21.42	3	7.15
No improvement	3	7.16	0	0

Discussion:-

Topical GTN ointment is an effective alternative to surgery in the treatment of chronic fissure-in-ano. At a concentration of 0.2% GTN has been shown to be better than placebo in healing chronic anal fissure⁽⁹⁾. A crescendo dosage of GTN from 0.2% to 0.6% by 0.1% weekly increments, was associated with a consistently lower pain score and a better healing rate compared with 0.2% treatment group but this did not reach statistical significance⁽¹⁰⁾. Most data support the use of topical GTN only one small uncontrolled study has previously assessed the use of topical 0.5% GTN ointment in the treatment of anal fissure⁽¹⁰⁾ Kenndy et al⁽¹¹⁾, report 46% symptomatic improvement and 29% of cases complaining headache during their treatment period.

Zuberi et al⁽¹²⁾, report 67% symptomatic improvement with 0.2% GTN and 72% of cases complaining headache.

Bachert et al⁽¹³⁾ report 80% success rate with 0.2% GTN and 20% of cases complaining headache.

Hananel et al⁽¹⁴⁾, report 98.6% success rate with lateral internal Sphincterotomy in 312 patients.

Littlejohn et al⁽¹⁵⁾, report 99.7% success rate with lateral Sphincterotomy in 352 patients.

Nyam et al⁽¹⁶⁾, report 96% success rate with lateral internal Sphincterotomy in 585 patients.

The results of our study were found to be comparable with other studies.

By chemical Sphincterotomy, there was symptomatic improvement occurred in 30 out of 42 (71.42%) and 9 cases (21.42%) show improvement with residual symptoms and 3 cases (7.16%) show no improvement. The results of lateral internal Sphincterotomy were 39 patients (92.85%) had symptomatic improvement with 3 patients (7.16%) had residual symptoms.

Conclusion:-

Successful treatment may come at the expense of a high incidence of headaches and a lower compliance than found in studies involving. A balance is required between fissure healing and headache intolerance.

Topical GTN should be the initial treatment in chronic anal fissure. In patients with chronic fissure in ano chemical Sphincterotomy is a non-invasive and effective modality that can be considered as first line of treatment, especially in patients who tend to avoid or are unfit for surgery, as it has no permanent side effects and is well tolerated.

Lateral Sphincterotomy should be reserved for patients with severe disabling pain (because pain relief is much faster), and for patients not responding to at least 4 weeks of GTN therapy. Moreover, topical treatment proved to be significantly cost-effective.

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