

OUTCOME OF ND-YAG/DIODE LASER THERAPY IN PATIENTS WITH ACUTE ANAL FISSURE

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Abstract : In the past decade, several studies have investigated the effect of laser therapy on haemorrhoids, anal fistulas and tumours but few have explored its use in acute anal fissure. Therefore, the present study aimed to evaluate the efficiency of laser therapy in treating acute anal fissure. This clinical trial was conducted on all the patients referred to ACS Hospital, Chennai with acute anal fissure. Patients who were unresponsive to medical treatment and in whom surgery was indicated were divided into two equal-sized groups.

- Age,
- Medical treatment,
- Duration,
- Healing time,
- Pain relief,
- Relapse and indication for reoperation, were recorded in all patients.

The mean age of the patients and the mean medical treatment duration were significantly different in the two groups. Although there were no significant differences in the mean healing time and response to pain in the first and third months after surgery and laser therapy, by month 6 the mean response to pain was significantly different in the two groups. Frequency of relapse and need for further surgery were not significantly different between the groups. Laser therapy of acute anal fissure is a simple, non-invasive and painless, surgical procedure with a low rate of complications. It can be viewed as an effective treatment for patients with anal fissure. However, this procedure has some limitations.

Introduction

An anal fissure is a disruption in the anoderm distal to the dentate line, which leads to internal anal sphincter spasm, more pain and tearing, as well as reduced perfusion to the anoderm.

It is one of the most common benign anorectal conditions arising from high anal pressure.

Its specific presentation is tearing pain accompanying a bowel movement and rectal bleeding.

Patients may complain of:

- ❖ Severe rectal pain
- ❖ Spasms that persist for several hours after a bowel movement.

Treatment focuses:

- ❖ On pain relief
- ❖ Resolution of spasm
- ❖ Ischaemia.
- ❖ Fibre therapy to keep the stool soft
- ❖ Warm sitz bath following bowel movements, to relax the sphincter, are the first-line treatment for reducing trauma to the anus.

Application of 2% lidocaine gel, or any other analgesic ointment, provides a more symptomatic resolution.

Healing may be further facilitated by application of 2% topical nitroglycerine ointment, which increases local blood flow and reduces pressure in the internal anal sphincter, but headache can be a major side-effect of topical nitroglycerine.

- ❖ Diltiazem (oral and topical) has fewer side-effects.
- ❖ Newer drugs, such as arginine (a nitric oxide release)
- ❖ local bethanechol (a muscarinic antagonist), have also been used.

Medical treatment is effective for most acute fissures and 50–60% of chronic fissures.

1. Botulinum toxin prevents the release of acetylcholine from presynaptic nerve terminals and, in turn, results in temporary muscle paralysis. Botulinum injection as an alternative to surgery in the treatment of chronic fissure has also been suggested. Although few studies have used this method, it seems to yield better results and fewer complications than other medical treatments.
2. Nevertheless, in comparison with sphincterotomy, recovery is slower and relapse may be more frequent.
3. Surgical methods are recommended for treatment of chronic fissure not responding to medical treatment.
4. In such cases, lateral internal sphincterotomy is the treatment of choice.
5. The purpose of this procedure is to reduce internal sphincter spasm by cutting a portion of the muscle.
6. Almost 30% of the internal sphincter fibres are cut laterally with either open or closed methods.
7. Immediate pain relief and healing can be achieved in over 95% of cases.

Following surgery, less than 10% of patients will develop recurrence while 5–15% will suffer from incontinence (usually gas).

Considering the surgical complications, such as pain, bleeding, oedema, infection, urinary retention, stenosis and recurrence, choosing a suitable method with favourable clinical outcomes in reducing pain and discomfort of the patient has always been the focus of most surgeons.

"Perianal skin is thin and sensitive; hence, ND-YAG Laser therapy is an innovative treatment for these lesions. Laser is a non-contact method for treatment of perianal lesions that typically results in less bleeding, pain and discomfort for the patient."

Thus, for the treatment of perianal and rectal tumours, anal fistula, haemorrhoids and anal fissure, it is considered a suitable option. In the past decade, several studies have been carried out on the use of laser for the treatment of haemorrhoids, anal fistulas and tumours, however there is a scarcity of studies on laser treatment of acute anal fissure.

Thus, the present study was performed to determine the effect of laser therapy on the treatment of acute anal fissure.

Materials and methods

This clinical case-control study was carried out in ACS Medical College and Hospital.

A total of 161 Patients with Acute Fissure in Ano, were treated with Nd-Yag /Diode Laser.

Used with setting of 10 watts on continuous wave mode. Periods Of Study 1 Year 2019-20.

Out Of 161, 67 of the Fissures were combined with other Protological Disease.

- ✓ Under Local Anaesthesia three-Fold Laser Treatment To the Edges and Floor of the Fissure, Excision of Fibrous Tissues & Anal Tag of Skin.
- ✓ Abnormal Tissues are Coagulated and Evaporated.

Local Anaesthesia



Parks Speculum



Parks Anal Speculum gives good visualization of the operating area.

Medical treatment in the case group consisted of 10-20 sessions of laser therapy depending on disease severity and response to treatment.

Each treatment session lasted 5-10 minutes. During laser treatment sessions, the patients did not receive any other medical treatment.

Patients in both groups were re-examined 6 months after the end of the treatment and followed up regarding response to treatment, healing time, intervention effects, relapses, as well as the need for surgical intervention. Response to treatment, based on wound healing, pain relief and rectal bleeding, was assessed, and the information from each patient was recorded in a specific checklist.

Re-examination and follow-up of treatment outcome, 6 months after the interventional therapy.

In addition, to have the same conditions in both groups, the participants were assigned to their groups based on their age, severity of symptoms and complications of the disease.

All patients unwilling to participate in the study, and those with concurrent anorectal conditions associated with fissures, were excluded from the study.

Information was collected on

- ❖ Patients age
- ❖ Sex
- ❖ Medical treatment duration
- ❖ Healing time (days)
- ❖ Response to pain management
- ❖ Laser therapy sessions
- ❖ Relapse and indication for further surgery.

Descriptive statistical analysis as well as a chi-squared test, an independent t-test, a logistic regression test.

Ethical considerations

This study was conducted in accordance with the ethical principles, laid down by ICMR.

Patients were free to participate in this study and a written consent form was completed prior to the start of study.

Moreover, the surgical procedure was chosen by the patients.

Results

AGE	MALE	FEMALE
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20-30	7	3
30-40	19	9
40-50	38	13
50-60	16	2
60-70	21	6
70-80	15	4
80-90	4	4
TOTAL	120	41

- ❖ **Followed Over a period of 12 Months.**
- ❖ **Out 161, 63 Patients were lost follow – up.**
- ❖ **Recurrence rate was 1.8%.**

Laser Treatment in Fissure in Ano

- 1) **Simple and Effective Day-Care.**
- 2) **Patients Treatment.**
- 3) **Minimally Invasive.**
- 4) **Improves Blood flow due to Relief of pain & Muscle Spasm.**

Discussion

Despite current advanced knowledge about anal fissure management, a lack of information is still a weakness in this field of surgery. Each of the available routine therapies has some limitations, and they are often associated with a high recurrence rate.

As mentioned in the results section, the mean age and the sex distribution of patients differed significantly between the groups.

This was probably because of the importance placed on inclusion criteria, including indications for surgery and the willingness of patients to undergo laser therapy.

This is partly because patients with anal fissure who agree to surgery often do so because no medical treatment is available to them. These findings suggest that the Male group suffered more from their anal fissure and, therefore, were more accepting of laser therapy.

Various studies and references show that fissure complicated by any of these factors is unlikely to heal spontaneously and the response to conservative therapy would be short term and non-satisfactory.

Various treatment options have been advocated in such cases, including non-operative procedures, such as injection of botulin toxin, nitroglycerine ointment, endoscopic dilatation, direct current probing, cryotherapy, anal stretching, etc., and surgical procedures, such as fissurectomy, fissurotomy and sphincterotomy.

Many of these methods are good enough to provide relief of symptoms of fissure in ano.

Nevertheless, for the associated pathologies mentioned above, these procedures do not provide a satisfactory answer.

Mean healing time and medical pain response in the first and third months were not significantly different following surgery or laser therapy.

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