

Sphincterotomy with Radio Frequency Surgery: a New Treatment Technique of Fissure in Ano and Associated Pathologies

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Abstract

Background. Anal fissures are dealt with using traditional approaches aiming at relieving the anal spasm and minimizing the anal sphincter pressure. Nevertheless, pathologies like sentinel tags, anal papillae, anal polyps, or small hemorrhoids which are often associated with chronic fissures are either considered innocuous, therefore left untreated, or are removed by conventional techniques.

Material and methods. In this retrospective, non-randomized study, we performed lateral internal sphincterotomy, which was followed by radio frequency surgical procedures to eliminate the associated pathologies mentioned above.

Results. In all, 283 patients were studied. All the patients treated by the method of lateral subcutaneous internal sphincterotomy followed by radio frequency surgical procedure for aforesaid associated pathologies were made comfortable on account of the reduction in pain and irritation during defecation, the pricking or foreign body sensation in the anus and pruritus or wetness around the anal verge. A follow up after 18 months showed that only 7 % of patients had recurrence of symptoms or local signs.

Conclusion. This combined approach has been found to be an effective, easy and quick way of treating chronic fissure in ano with associated pathologies.

Keywords

Fissure in ano - anal papillae - fibrous polyps - sphincterotomy - radio frequency surgery

Rezumat

Premize. Fisurile anale se tratează prin metode tradiționale, ce vizează relaxarea spasmului anal și reducerea presiunii

la nivelul sfincterului anal. Cu toate acestea, asocieri patologice ca hemoroizii sentinelă, papilele anale, polipii anali sau mici hemoroizi asociați fisurii sunt considerate inofensive și sunt lăsate netratate sau sunt îndepărtate prin tehnici convenționale.

Material și metodă. În acest studiu retrospectiv nerandomizat am efectuat sfincterotomie laterală internă urmată de proceduri chirurgicale de radiofrecvență, pentru a elimina patologia asociată menționată mai sus.

Rezultate. Au fost studiați 283 pacienți. Toți pacienții tratați prin sfincterotomie laterală subcutanată internă, urmată de procedeu chirurgical prin radiofrecvență pentru patologia asociată au evoluat favorabil, în sensul reducerii durerii și iritației la defecație, a senzației de arsură sau de corp străin anal, și a pruritului sau secreției în jurul orificiului anal. Urmărirea după 18 luni a arătat că doar 7% din pacienți prezentau recurența simptomelor sau a semnelor locale.

Concluzie. Abordul combinat reprezintă o metodă eficientă, simplă și rapidă de tratament al fisurii anale în prezența patologiei asociate.

Introduction

Anal fissures are dealt with by traditional approaches aiming at relieving the anal spasm and minimizing the anal sphincter pressure (1). However, the concomitant pathologies like sentinel tags, anal papillae, or small hemorrhoids are often ignored and nothing specific is done to eliminate them (2).

Chronic or complicated fissures

A fissure is labeled as chronic or complicated if it fulfills the following criteria (3):

1. not responding to conservative treatment;
2. association with a fibrous anal polyp at the level of dentate line;
3. presence of an external skin tag (sentinel pile);
4. presence of hemorrhoids;
5. induration at the edges of fissure;
6. exposure of the fibers of the internal sphincter at the floor of the fissure;

7. a bridged fissure with underlying fistula (a post fissure fistula);

8. associated post fissure abscess;

9. associated post fissure antibioma.

While it has long been recognized that simple or acute fissures can be healed by conservative treatment, various studies and references show that a fissure complicated by any of the above factors will not heal spontaneously and the response to conservative therapy would be short term and non satisfactory (4).

For these chronic fissures, various treatment options have been advocated. They range from non-operative procedures like injection of botulin toxin (5), nitroglycerine ointment (6), endoscopic dilatation (7), direct current probing (8), cryotherapy (9), anal stretching etc, or surgical procedures like fissurectomy (10), fissurotomy and sphincterotomy.

Many of the above methods are successful in order to give relief to the symptoms of fissure in ano. Nevertheless, for the associated pathologies mentioned above, these procedures do not provide a satisfactory answer.

Material

In this study, a joint approach of relieving the anal spasm by lateral subcutaneous internal sphincterotomy followed by a radio surgical procedure to eliminate the above-mentioned associated pathologies has been described.

In this retrospective study, 283 patients were treated by the above combined method. Only those patients with chronic anal fissure, who had one or more pathologies mentioned above, were selected.

An informed consent was obtained from them before subjecting them to this new technique. No special pre-operative preparation was carried out; however, all the patients were administered a dose of laxative the night before to clear the bowels.

The study was approved by the local ethics committee.

Methods

A sphincterotomy on the left lateral side (3 o'clock) was performed under general anaesthesia with good relaxation. A spinal anaesthesia was preferred in patients who were denied general anaesthesia.

Lateral subcutaneous internal sphincterotomy is one of the most favorite methods of treating anal fissures (11). The great attraction of the procedure is due to the minimal damage caused, while giving maximum relaxation to the internal sphincter and because it requires very basic surgical instruments (12).

Sphincterotomy followed by radio surgery. Associated pathologies are simply excised or crushed and then are ligated by the same instruments, which are used for sphincterotomy (9). However, this approach is a little time consuming and accounts for a fair amount of technical difficulties, bleeding and increased tissue trauma leading to increased post operative pain and delay in wound healing.

Instead, we used the radio frequency device to tackle the associated pathologies. They were coagulated, curetted or shaved off with this instrument.

The Radio Surgical Unit. Radio surgery is a method of cutting and/or coagulation of tissues, using a high frequency alternate current. The effect of cutting, known as high frequency section, is executed without pressurising or crushing the tissue cells. This is achieved through the heat produced by tissue resistance to the passage of high frequency wave emanating from the RF unit (13). The heat makes the intracellular water boil, resulting in an increase in the cell inner pressure to the point of breaking it from inside to outside [explosion]. This phenomenon is called cellular volatilization (13).

We used the modern radio surgical equipment Ellman Dual Frequency 4MHz by Ellman International, Hewlett, N. Y. This instrument produces an electromagnetic wave of a very high frequency that reaches 4 MHz. The amount of energy to be delivered can be pre-set. It has grades from 0 to 100. The unit is supplied with a handle to which different interchangeable electrodes can be attached according to the requirement. In our study, we used the ball electrode for coagulation and a fine wire and a round loop electrode for cutting and shaving off the desired tissues.

All the patients under study, as aforesaid, were discharged within 24 hrs. All of them were prescribed analgesics and antibiotics for 10 days as per the departmental protocol. A regular diet was started right from the first day. No special dressing was recommended except a twice-daily Sitz bath.

Results

Pathologies found associated with chronic fissures in ano

The distribution of pathologies found in patients with chronic fissure in ano in our study is given in Table I.

Table I Pathologies found associated with chronic fissure in ano in 283 patients

Associated pathologies	No. pts
Hypertrophied anal papillae	136
Sentinel tags or piles	146
Fibrous anal polyps	17
Post fissure abscess or fistula	7
Internal hemorrhoids	48
Post fissure antibioma	9

Presentation of the disease

The complaints and symptoms of the patients are given in Table II.

1st Follow up

The patients were called for the first follow up after 4 weeks. No patient complained of incontinence to faeces, while 12% of them had incontinence to flatus for the first few days in the immediate postoperative period, which recovered

on its own. Three patients, who had been operated for associated sentinel pile, had sepsis in the wounds with pus discharge and pain. They were prescribed antibiotics and it ameliorated. Twenty-seven patients had post defecation pain (1-2 on visual analogue scale), which was lasting for a mean period of 7 minutes. They were prescribed appropriate analgesics and were reassured. None of the patients had any sphincter spasm or bleeding per rectum.

Table II Presentation of the disease in our series of 283 patients

Symptoms	No. pts
Pain	283
Feeling of uneasiness in the anal region	262
Bleeding during defecation	172
Discharge from the anus	165
Discomfort on sitting	154
Pruritus ani	102
Sense of incomplete defecation	82
Crawling sensation in the anal region	78
Prolapse from the anus	19

A further follow up after 8 weeks of the procedure showed complete healing of the wounds. Eight patients still complained of post defecation pain. The reason was constipation and passage of hard stools. So they were asked to follow dietary restrictions in the form of avoiding spices and pungent food. A suitable laxative was also prescribed. They were relieved thereafter.

Follow up after 18 months

Twenty-one patients failed to report for this follow up.

From the remaining 262 patients, 93% had no recurrence of fissure or associated pathologies. There was no sphincter spasm. Anoscopy showed presence of anal papillae ranging from 1 to 3 in 11 patients (all these patients were different from those who had been previously treated for papillae). In none of the patient fibrous anal polyp or fistula were found; 3% had developed internal hemorrhoids and had a complaint of intermittent bleeding episodes; 4% were found to have fissures-in-ano which were superficial and were causing pain and discomfort in defecation. They were prescribed medication and were relieved of the complaint.

Discussion

Hypertrophied Anal Papillae are a common finding in most cases (14) of chronic fissure in ano and are responsible for minor associated complaints like discharge, a foreign body sensation, occasionally being trapped in the tight sphincter. Conventionally, these are either left behind or are trimmed or crushed and the base is sutured. While dealing with these complaints, we simply coagulated them by touching with the ball electrode, resulting in their immediate disappearance without any bleeding or need for suturing.

Sentinel piles or tags are a common accompaniment of all chronic fissures. Surgeons often do not pay attention to

them (15) and leave them untouched while relieving the spasm of the internal sphincter.

We found that they interfered with the healing of the fissure, and at times became a cause of concern for the patient who continued to experience that “something” is still left behind. Studies (16) have shown that presence of sentinel tag adversely affects healing of fissure in ano. Its removal also facilitates maintenance of a good anal hygiene (1).

Few surgeons have suggested that excision of the sentinel pile should be performed and then the base should be sutured.

However in our experience, if the mass was found to be small like a tag, it was directly coagulated with the ball electrode. But when it was found sufficiently large to project like an external pile mass, it was shaved off with the round loop electrode after holding it in a haemostat. Thereafter, the base was coagulated with the ball electrode. There was no need for ligating or suturing the base.

Fibrous anal polyps are exaggerated anal papillae, which with time attains excessive fibrous thickening, and acquire a rounded expanded tip, which can even be felt on digital examination (1). We subjected them to coagulation using the ball electrode. In case of masses being voluminous, they first were shaved off with a loop electrode and the base was then coagulated with ball electrode.

Post fissure abscess or fistula (bridged fissure) usually develops when the fissure is suppurated. The chances of recurrence of ano rectal symptoms are high if this pathology is not treated (17).

This mass was curetted by frequent sweeps of a loop electrode. After removing the mass, which looked yellow in color, the oozing base was secured by rolling the ball electrode and the resulting pear shaped cavity with its base towards the anus was lightly packed.

Hemorrhoids. The small hemorrhoids found associated with chronic fissure in ano usually remain innocuous with no symptoms of their own. Nevertheless, they can be a cause of bleeding per rectum at a later date if left untreated. The associated (18) early degree of non-prolapsing hemorrhoids could be quickly dealt with radio frequency coagulation. The piles were directly coagulated in situ with the ball electrode having a sufficient length (19).

Post fissure antibioma results when an infected or suppurated fissure is treated with antibiotics and anti-inflammatory drugs without draining the pus. The abscess cavity becomes ‘sterilized’, and persists as a lump that intermittently turns painful and edematous. The aim of treatment is to curette the complete cavity. It is achieved by incising the center of the cavity using a fine wire electrode. Then all the granulation tissues, which felt hard and had a little bleeding, were scrapped out with a round loop electrode until a soft red base was reached. The bleeding points were secured and the wound was left without attempting any primary closure allowing it to be healed by fibrosis.

While carrying out sphincterotomy for chronic anal fissures, surgeons usually ignore associated pathologies like anal papilla, anal polyps, sentinel piles or hemorrhoids. But various studies have shown that these can lead to various

complications like discharge (20), foreign body sensation, pruritus (21), bleeding (22), recurrence of symptoms (23) etc.

And the few surgeons, who consider these pathologies as a causative factor for the abovementioned symptoms and would like to eliminate them, use the conventional techniques in the form of excision and ligation of the base or pedicle.

We, instead, used the radiofrequency device to carry out the removal of the concomitant pathologies. This was found to have a distinct advantage over the conventional procedure by means of reducing operation time, amount of bleeding, and the need of suture material.

Radio surgery uses a very high frequency radio wave. Unlike electrocautery or diathermy, the electrode in radio surgery remains cold (24). This is possible because of the use of a very high frequency current of 4 MHz, as compared to 0.5 to 1.5 MHz used in the electrocautery. In contrast to true cautery, which causes damage similar to 3rd degree burns, the tissue damage that does occur in radio surgery is superficial and is well comparable to the one that occurs with Lasers. Radio surgery creates minimal collateral heat damage in the tissue.

It has been the experience that additional anorectal procedures performed at the same time, while undergoing the treatment of fissure in ano, do not lead to any increase in incidence of postoperative complications (25).

Rapidity of treatment, a nearly bloodless field, reduced postoperative pain, and rapid healing are but a few advantages of radio frequency surgery. Once the surgeon is able to establish a proper technique, the scar left by this method of treatment is often less pronounced than those produced by other surgical techniques.

Conclusion

Associated pathologies like hypertrophied anal papillae, fibrous polyps, sentinel piles and tags, post fissure fistula, and internal hemorrhoids may become a cause of concern to the treating physician while dealing with a patient with chronic fissure in ano. A combination of lateral sphincterotomy followed by radio frequency surgery can be effectively employed to tackle the problem.

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