

CASE REPORT

ELITE: a diode laser minimal invasive technique for hemorrhoids during the surgical treatment for anal fissure

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Abstract

A 44-year-old male patient diagnosed with Anal Fissure and Stage II Hemorrhoids in 2013. He has been suffering ever since, avoiding surgery, using local analgesic and anti-hemorrhoidal crèmes. Physical examination in February 2017, showed a chronic character of his problem and hemorrhoids to have progressed to Stage III. The common shared decision between patient and surgeon was to proceed with a combination of a LIS for the Anal Fissure and an ELITE minimal invasive procedure for hemorrhoids. The operating time of the dual procedure was short and the patient witnessed a remarkable, painless post-op rehab period. The results of the ELITE technique using a diode laser for treating hemorrhoidal nodules are very promising. In the hands of an experienced surgeon the technique is applicable to be used in combination with other procedures in order to treat several problems in the anal region at the same time.

INTRODUCTION

Chronic conditions, like anal fissures and hemorrhoids, are a difficult topic for discussion for patients, due to the fact that they do not feel comfortable to disclose enough information about these problems. Nevertheless, recent technological advances have made the treatment of these conditions easier. New techniques can be used as a dual procedure, when patients are suffering from a combination of rectal problems. Nowadays, it is easier, faster and safer to treat an anal fissure and hemorrhoids, staged II–IV, in one operation, with local anesthesia and sedation of the patient. Patients witness the benefits of one hospital admission, shorter operating time (<30 min for both), a 2-in-1 procedure ensuring them less pain,

less costs and a shortened rehabilitation period. Experienced surgeons are able to combine a regular lateral internal sphincterotomy (LIS) to treat anal fissures along with the minimal invasive expert intrahemorrhoidal therapy (ELITE) to treat hemorrhoids right after, in one session.

CASE REPORT

A 44-year-old, male patient reported intense pain with minor-to-major bleeding during defecation. In 2013, he was diagnosed with anal fissure and stage II hemorrhoids. Since then, he was trying to accommodate his pain, with analgesic, rectal cremes. In February 2017, physical examination showed a neglected anal fissure at 6 o'clock along with stage III Hemorrhoidal

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nodules at 3 and 11 o'clock. Medical history included no hospitalizations/operations, no medication for any conditions and no known drug allergies. Patient was a non-smoker and did not consume any alcohol. After the diagnosis the patient decided to proceed with a combination of treatments for his problems, (i) a LIS for his anal fissure followed by (ii) an ELITE minimal invasive technique for his hemorrhoids, with the use of diode laser. Surgery took place in February 2017, under sedation and local anesthesia in the peri-anal region. Bowel preparation was achieved with the administration of Sennosides A&B, 24 h before the surgery. A single-dose of antibiotics was also administered during the procedure as an infection prevention.

Initially, anal fissure was treated by performing LIS. Internal sphincterotomy for the surgical management of anal fissure was first introduced and described by Eisenhammer back in the 1950s [1, 2]. LIS became recognized very quickly as the alternative to the posterior approach that resulted in large wounds and incontinence due to a 'key-hole' deformity [3]. LIS requires first cleaning of the tissue lying over the fissure at 6 o'clock with the use of a scalpel. Then, a short incision of <1 cm was performed on the anal sphincter at 3 o'clock. This served to reduce the spasm and the pain produced in this area, as well as to promote healing. No stitches were applied at the level of the sphincterotomy.

Subsequent, treatment of the hemorrhoidal nodules with the ELITE procedure was initiated. According to Plapler et al. [4] the diode laser in the treatment of hemorrhoids improved the outcome for the patients decreasing their discomfort, the post-operative pain and their rehabilitation time; however, at that point surgeons have been using a 980 nm wavelength. Expert laser intrahaemorrhoidal therapy was introduced in 2016 via the 1470 nm laser unit in proctology. Each hemorrhoidal pile was treated separately, by pushing the hemorrhoid probe (an optic fiber with a special conical glass tip) gently inside it reaching the distal rectum to the level of the dentate line. The glass tip of the probe provides a gentle delivery of energy, while at the same time its distal, sharp end helps to easily penetrate the hemorrhoidal pile tissue with more precision. The optic fiber was connected to the laser unit (output of 7.0W/3s, Single Pulse). Energy was delivered homogeneously to the tissues in pulses. In this manner, the veins that nourish the abnormal growth of the pile were sealed off (thermally close-off). The total energy for both nodules was 903J (17 shots × 7 W × 3 s @3 o'clock, 26 shots × 7 W × 3 s @11 o'clock). No stitches were applied.

After ELITE procedure, the patient got awakened and was admitted for one night as a precaution, due to the chronic character of his dual condition. Total operating time was 22 min.

RESULTS

The first post-operative day the patient reported pain leveled at 3 on visual analog pain scale (VAPS), compared to 9/10 pre-operatively. Bowel movement occurred 48 h after the operation with minor feelings of discomfort, but no difficulty. Physical examination showed normal findings with minor tissue ecchymosis. The patient returned to daily activities 3 days after the surgery. One week later, the reported pain dropped to 2/10 on VAPS, without any bleeding, pain or defecation difficulties. The LIS incision was already closed. After the second post-operative week, physical examination confirmed that the hemorrhoidal cushions disappeared and the LIS wound was fully healed. Six weeks after surgery the patient witnessed no pain,

no discomfort, no difficulty during bowel movements and the anal fissure had been treated fully.

DISCUSSION

According to [5], LIS 'offers shorter hospital stay, rapid wound healing, low re-occurrence rates as well as no permanent defect in incontinence'. For the choice of the combination of therapies [6] argue that when comparing an open hemorrhoidectomy with a combined open hemorrhoidectomy the post-operative scores were identical without any significant differences with regards to pain. Minimally invasive intrahaemorrhoidal procedures using diode laser are a common, fast, safe and efficient substitute to open hemorrhoidectomy [4, 7] or other procedures, such as Milligan-Morgan procedure, Ligature, the Longo process, etc. [8] argue that diode laser treatment can be effortlessly performed by any experienced surgeon and can be tolerated well by the patient. In Stage II/III hemorrhoids, the procedure is performed and managed in an outpatient basis. Diode laser treatment offers minimal, if any, post-operative pain, no application of stitches, quick relief of the symptoms [9], a smoother, shorter and painless healing process [10]. If combined with another surgical operation, the post-operative guidelines regarding the treatment of the major surgical problem are followed, i.e. the LIS rehab guidelines. This case comes to add on the existing literature for minimally invasive therapies as the combination of the two procedures is rare to be found in the literature of modern proctology.

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REFERENCES

1. Eisenhammer S. The surgical correction of chronic internal anal (sphincteric) contracture. *S Afr Med J* 1951;25:486-9.
2. Eisenhammer S. The evaluation of the internal anal sphincterotomy operation with special reference to anal fissure. *Surg Gynecol Obstet* 1959;109:583-90.
3. Zaghiyan KN, Fleshner P. Anal fissure. *Clin Colon Rectal Surg* 2011;24:22-30.
4. Plapler H, Hage R, Duarte J, Lopes N, Masson I, Cazarini C, et al. A new method of hemorrhoid surgery: intrahaemorrhoidal diode laser, does it work? *Photomed Laser Surg* 2009; 27:819-23.
5. Adcarian H. Surgical correction of chronic anal fissure: results of lateral internal sphincterotomy vs. fissurectomy-midline sphincterotomy. *Dis Colon Rectum* 1980;23:31-6.
6. Mathai V, Ong BC, Ho YH. Randomized controlled trial of lateral internal sphincterotomy with haemorrhoidectomy. *Br J Surg* 1996;83:380-2.
7. Maloku H, Gashi Z, Lazovic R, Islami H, Juniku-Shkololli A. Laser hemorrhoidoplasty procedure vs. open hemorrhoidectomy: a

- trial comparing two treatments of hemorrhoids of third and fourth degree. *ACTA Inform Med* 2014;**22**:365–7.
8. Jahanshahi A, Mashhadizadeh E, Sarmast MH. Diode laser for treatment of symptomatic hemorrhoid: a short-term clinical result of a mini invasive treatment and one year follow up. *Pol Przegl Chir* 2012;**84**:329–32.
 9. Karahaliloglu AF. Die laserhemorrhoidoplasty. *Coloproctology* 2010;**32**:116–23.
 10. Crea N, Pata G, Lippa M, Chiesa D, Gregorini ME, Gandolfi P. Hemorrhoidal laser procedure: short- and long-term results from a prospective study. *Am J Surg* 2014;**208**: 21–5.