



TOPICAL HYALURONIC ACID VERSUS NO TREATMENT AFTER LATERAL INTERNAL SPHINCTEROTOMY FOR CHRONIC ANAL FISSURE - PROSPECTIVE RANDOMIZED STUDY.

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ABSTRACT

PURPOSE: Hyaluronic acid is a component of the extracellular matrix and is known to be involved in several mechanisms of the wound healing process. It has been shown to improve and accelerate the healing process of chronic wounds. This randomized prospective study investigated does anal application of hyaluronic acid could also improve the healing progression of patients after left internal sphincterotomy for chronic anal fissure. **METHODS:** Eighty patients with chronic anal fissure and left internal sphincterotomy (LIS) under local anesthesia, were included in the study. Hyaluronic acid (Cicatridina) was applied as a suppositories, once daily before bed rest for ten applications. Group A treated with Cicatridina include 11 men and 29 women, median age 45,3. Control group B include 13 men and 27 women median age 43,7. On the ten and twenty post procedure day we investigate the persistence of pain, analgesic needs, return to work, anal discharge, epithelisation of the fissure and sphincterotomy wound separately.

Key words: anal fissure, sphincterotomy, treatment, hyaluronic acid, Cicatridina

RESULTS

Tolerability of the drug in group A was excellent. There were no adverse reactions requiring interruption of the treatment. On the tenth day after defecation pain is present in 4/40 in group A vs. 6/40 patients in Group B. At twentieth day no patient with pain after defecation in both groups. Secretion in the anal area in groups A 2/40 in group B 3/40 patients. Were assessed separately the area of anal fissure wound and left-sided sphincterotomy as at 20 days revealed no significant differences in both groups. On the tenth and twentieth postoperative day, no patient taking oral analgesics in both groups. In both groups, patients of working age return to work before 10-th postoperative day. Complications were observed in 1 patients of group A (sphincterotomy wound infection) and in one patients of group B (recurrence).

CONCLUSION

The results of this study indicate that

hyaluronic acid provides good healing of chronic anal fissure after LIS and is well tolerated by the patients. The full course of treatment was completed by all the patients. There were not side effects registered. However hyaluronic acid applied locally does not accelerate the wound healing process after LIS.

INTRODUCTION

Chronic anal fissure (CAF) is an unhealed wound lining in the anal canal below the dentate line. It is believed that anal fissure is chronic if it heals for more than 4 weeks. CAF is considered chronic if they fulfilled the following criteria: does not respond to the conservative treatment, if hypertrophic anal papilla or sentinel skin tag is present, hardening of edges of the fissures, the presence of visible sphincter fibers at the bottom of the fissure, when the bottom of the fissure is infected, if there is subfissure fistula. CAF with some of these criteria is unlikely to heal permanently spontaneously and is indicated to surgery. (1, 2, 3)

Chronic anal fissure is located in 90% of patients posteriorly and in 10% at other

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location. In patients with CAF chronic trauma is triggering the disease and increased basal anal pressure, with a longer zone of increased pressure in the anal canal is characteristic for these patients. Ultra slow waves are also often found in these patients. (2)

A second factor is the presence of ischemia causing failure of healing the CAF. Angiography of the distal branches of the inferior rectal artery in these patients show deficiency of blood flow. These terminal branches pass through the internal sphincter, resulting in hypertonia and secondary blood flow reduction. On the other hand the anal mucosa posteriorly is densely fixed to the muscular tissue, which contributes to easy traumatization and lack of mobility in the act of defecation. There is also the pronounced mechanical stress due to the presence of the anorectal angle.(3)

Surgical internal sphincterotomy is the standard treatment of CAF. The preferred technique is a subcutaneous lateral internal radial sphincterotomy for best functional results and low anesthesia requirements. Despite the long list of possible complications in experienced hands the procedure is safe, reliable and efficient.(1, 3, 5, 6, 7, 8, 9, 10)

After LIS for CAF there were two wounds, one of refreshed fissure after removal of the fibrous edges and sentinel skin tag, and the second - the LIS wound. Shortening the time for healing is a goal that probably can be achieved with the use of anal suppositories containing hyaluronic acid.

Hyaluronan is a glycosaminoglycan polysaccharide located in many places in the body such as eyes, skin and soft tissues. It is proved that hyaluronic acid is interacting with stabilized fibrin making the blood clot more porous and creates better conditions for the migration of phagocytes. In addition, hyaluronic acid activated proliferation and motility of fibroblasts, thereby accelerating the formation of granulations and activating angiogenesis.(11, 12, 13, 14)

MATERIAL AND METHODS

80 consecutive patients with chronic anal fissure were treated through LIS between May'2011 and March'2012.

Only patients with chronic anal fissure and no other concurrent anal pathology were included in the study. All patients were not treated with

surgery until study is started. Every second patient received a prescription for use of anal suppositories - Cicatridina® for 10 days once daily before bedtime. No other topical medication was used in both groups. Patients in both groups received the same dosage regimens for analgesia with oral nonsteroidal analgesics. Group A using Cicatridina included 40 patients (11 men and 29 women) at a mean age of 45.3 years. Control group B included 40 patients (13 men and 27 women) at a mean age of 43.7 years. Average duration of pain after defecation before treatment in both groups was 4 hours and 12 minutes in group A and 4 hours and 24 minutes in group B.

RESULTS

Pain 10 days after surgery in group A have 4 of 40 patients and 6 of 40 patients in group B. All patients of working age are able to work on the 10th day after surgery. On the tenth day there is no patient taking analgesics. Secretion in postoperative anal area on the tenth day is present in 4/40 in group B, and 3/40 in group A. At the twentieth day there were no postoperative wound discharge requiring dressing.

Epithelization of the wounds of sphincterotomy and anal fissure were evaluated separately. Sphincterotomy wound healed in all patients before the fissure wound. At 20-th day the sphincterotomy wound was healed in all patients compared with 35/40 fissure wounds in group A and 31/40 fissure wounds in group B. In cases of incomplete epithelization of the fissure, the residual wound is always proximal in the anal canal. The mean surface of incomplete epithelization is 20% compared to the wound surface created by local excision of the fissure.

DISCUSSION

Hyaluronic acid suppositories Cikatridina® applied topically have a good effect on patients with anal fissure. Left-sided radial closed sphincterotomy leaves an open wound with a length of 1 cm, which is not sutured primarily. At 20 days the LIS wound is healed completely in the absence of inflammatory complications in all patients. The effect of topical hyaluronic acid has been studied in acute wounds / surgical, traumatic, etc (11). We confirm the excellent results of subcutaneous LIS on CAF healing. After refreshing the edges of CAF and removing the sentinel skin tag the wound surface is usually

about 1,5 sq. cm , and we expected a marked effect of use of Cicatridina to accelerate epithelization. However doses used for 10 days in this study gave no advantage to treated patients compared with control group. We failed to register acceleration of epithelization in treated patients, despite their satisfaction from the use of anal suppositories. The sphincterotomy wound healed earlier in the primary mechanism despite the absence of sutures. The fissure wound heals secondarily and delayed, probably due to the impaired blood flow in posterior anal region. Last healed anal fissure zone is in the proximal direction. Despite incomplete epithelization of the wound in the anal canal after LIS these patients were asymptomatic. We attribute the lack of symptoms in these patients to the effect of LIS and reduced basal anal pressure.

CONCLUSION

Topical application of hyaluronic acid suppositories Cicatridina after LIS have a positive but statistically insignificant effect on the rate of epithelization of chronic anal fissure.

REFERENCES

1. Ersoz F, Arikan S, Sari S, Bektas H, Ozcan O., Type of lateral internal sphincterotomy incision: parallel or vertical? *World J Surg.* 2011 May;35(5):1137-41.
2. Poh A, Tan KY, Seow-Choen F. Innovations in chronic anal fissure treatment: A systematic review. *World J Gastrointest Surg.* 2010 Jul 27;2(7):231-41.
3. Gupta PJ. Treatment of fissure in ano-revisited. *Afr Health Sci.* 2004 Apr;4(1):58-62.
4. Gatehouse D, Arabi Y, Alexander-Williams J, Keighley MR. Lateral subcutaneous sphincterotomy: local or general anaesthetic? *J R Soc Med.* 1978 Jan;71(1):29-30.
5. Sánchez Romero A, Arroyo Sebastián A, Pérez Vicente F, Serrano Paz P, Candela Polo F, Tomás Gómez A, Costa Navarro D, Fernández Frías A, Calpena Rico R.,

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Open lateral internal anal sphincterotomy under local anesthesia as the gold standard in the treatment of chronic anal fissures. A prospective clinical and manometric study. *Rev Esp Enferm Dig.* 2004 Dec;96(12):856-63.

6. Rosa G, Lolli P, Piccinelli D, Mazzola F, Zugni C, Ballarin A, Bonomo S. Calibrated lateral internal sphincterotomy for chronic anal fissure. *Tech Coloproctol.* 2005 Jul;9(2):127-31; discussion 131-2. Epub 2005 Jul 8.
7. Jensen SL, Lund F, Nielsen OV, Tange G. Lateral subcutaneous sphincterotomy versus anal dilatation in the treatment of fissure in ano in outpatients: a prospective randomised study. *Br Med J (Clin Res Ed).* 1984 Sep 1;289(6444):528-30.
8. Al-Raymoony AE. Surgical treatment of anal fissures under local anesthesia. *Saudi Med J.* 2001 Feb;22(2):114-6.
9. Nelson R., Operative procedures for fissure in ano. *Cochrane Database Syst Rev.* 2001;(3):CD002199.
10. Jensen SL, Lund F, Nielsen OV, Tange G. Lateral subcutaneous sphincterotomy versus anal dilatation in the treatment of fissure in ano in outpatients: a prospective randomised study. *Br Med J (Clin Res Ed).* 1984 Sep 1;289(6444):528-30.
11. Voinchet V, Vasseur P, Kern J., Efficacy and safety of hyaluronic acid in the management of acute wounds. *Am J Clin Dermatol.* 2006;7(6):353-7.
12. Cutting KF Wound healing through synergy of hyaluronan and an iodine complex. *J Wound Care.* 2011 Sep;20(9):424, 426, 428-30.
13. Markowska J, Madry R, Markowska A. The effect of hyaluronic acid (Cicatridine) on healing and regeneration of the uterine cervix and vagina and vulvar dystrophy therapy. *Eur J Gynaecol Oncol.* 2011;32(1):65-8.
14. Nashar S, Nikolov A, Atanasova M, Garnizov T. Efficiency of Cicatridina spray for healing of episiotomy and perineal ruptures, *Akush Ginekol (Sofia).* 2011;50(3):20-5.