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The Role of Zinc Sulphate ointment 5% in preventing post hemorrhoidectomy stricture

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ABSTRACT

Anal stricture is a rare but serious complication of anorectal surgery, most commonly seen after hemorrhoidectomy (1-2 months postoperatively). Simple cases with anal stricture can be managed conservatively with stool softeners or fiber supplements, otherwise surgery is indicated, meanwhile anal stricture may be prevented with the use of certain antioxidants (zinc sulphate) locally.Thirty five patients aged 20– 45years; 11 female 24 male, with hemorrhoidectomy surgery randomly allocated as a control , group A; (15 cases) with frequent manual dilatation, 2 weeks postoperatively for 3 weeks , matching with group B (20 cases) had frequent manual dilatation along with application of zinc sulphate ointment 5% four times daily , 2 weeks postoperatively for 3 weeks. Compared with control group, group B showed no incidence of stricture following hemorroidectomy cases while in other cases within group A, there were 2 cases had stricture treated by dilatation and sphincterotomy (surgery) later. Zinc sulphate ointment 5% seemed to be effective in preventing anal stricture along with frequent manual dilatation two weeks postoperatively for at least two weeks.

Keywords: Zinc sulphate ointment, Anal stricture, Hemorrhoidectomy, Digital dilatation, Proctoscopy.

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INTRODUCTION

Hemorrhoids are vascular structures in the anal canal which help with stool control.[1,2] The exact cause of symptomatic hemorrhoids is unknown.[4] They become pathological or piles[2] when swollen or inflamed, if symptoms are severe or do not improve with conservative management, surgery is reserved for those who fail to improve following these measures as with our cases in this study especially those with late grade 4 as written below :

Grade I: No prolapse. Just prominent blood vessels.[1, 2, 3.]

Grade II: Prolapse upon bearing down but spontaneously reduce.

Grade III: Prolapse upon bearing down and requires manual reduction.

Grade IV: Prolapsed and cannot be manually reduced.

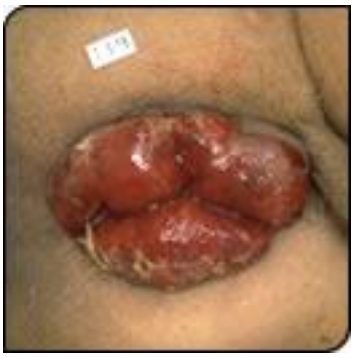

Figure 1; piles-grade 4

Figure 2: piles with Late grade 4

Anal stricture is an uncommon disabling condition.[6-10] It is a narrowing of the anal canal, which occurs mostly as a serious complication of anorectal surgery. It can complicate a radical amputative hemorrhoidectomy in 5%-10% of cases,[9-14] particularly those in which large areas of anoderm and hemorrhoidal rectal mucosa from the lining of the anal canal is denuded, but can also occur after other anorectal surgical procedures (rectal prolapse). Ninety percent of anal stricture is caused by overzealous hemorrhoidectomy. Treatment both medical and surgical should be modulated based on stricture severity.[9-20] Anal stricture represents a technical challenge in terms of surgical management, for more severe anal stricture, a formal anaplasty should be performed to treat the loss of anal canal tissue. Several techniques have been described for the treatment of severe stricture refractory to non-operative management, but there is not yet universal consent on the anaplastic procedure to use; sphincterotomy may be quite adequate for a patient with a simple narrowing, for more severe stenosis, a formal anoplasty should be performed to treat the loss of anal canal tissue. Although there are many various surgical techniques, such as the incision of the scar and internal anal sphincter, removal of scar tissue and covering the defects with well vascularized skin flaps are available for management of anal

stricture, early complications like visible wound dehiscence in the donor site or translocated flaps and local infection may occur, in most cases, they are amenable to medical management and do not affect functional results.[20]

Zinc is an essential trace element for life in humans, it serve as potential antioxidants. It plays a critical role in many biochemical functions including DNA,RNA, and protein synthesis, cell growth, proliferation and regeneration,stebilization of biomembrane structure, wound healing, alcoholic metabolism, intellectual development, reproduction, disease resistance, and immunocompetence.[23,24] It serves as a catalytic component over 300 enzymes and a structural component of various protein, hormones and nucleotides.[25]An essential biochemical function of zinc is to retard oxidative processes and it serves as potential antioxidant.[23, 24] Zinc compounds have been used therapeutically in different medical areas because of their healing properities at the same time; it possesses low toxicity and well tolerated.[26]

The primary objective of our study is to establish the effectiveness of zinc ointment 5% for preventing anal stricture (following hemorrhoidectomy) reducing the incidence of anal stricture and decreasing failure rate of conservative modality, meanwhile surgery on stricture carry high risks of failure rate and have a disastrous problem to the patients.

MATERIALS AND METHODS

Thirty five patients, male to female ratio was 3:1 with a median age of 32 years (range 20-45 years). With symptomatic late 4th degree hemorrhoids were enrolled in the study over a period from April 2010- November 2012. Patients were first checked in the outpatient. Their history and physical examination included digital per rectal examination followed by proctoscopy. After establishing fitness for general anesthesia, patient was put on elective list. Preoperative preparation included enemas administrated in evening before surgery and repeated on the morning of surgery. Operations were performed under general anesthesia, with single dose of intravenous Ceftriaxone and Metronidazole given at the induction, all patients were placed in lithotomy position for the procedure and they had at least three piles or hemorrhoids at 3, 7, and 9 o'clock of anal verge (late presentation of grade 4) as seen in figure 1 & 2, they were excised by conventional method of surgery (transfixation and ligation). Patient stayed in hospital for 24 hours on injection pethidine100mg i.m on need as analgesia in Alkarkh hospital and metronidazole 500mg i.v 8hrly. Postoperative care was standard for every patient, which included regular analgesia, fiber supplements and laxatives and they were instructed for continuing hot baths and the use of antibiotics (ceftriaxone 1gm 2 times daily and flagyl tablets

500 mg 3 times daily for 10 days at home, they were divided 2 weeks postoperatively into two groups:

Group A: frequent manual anal dilatation two weeks postoperatively, for 3 weeks-15 cases.

Group B: frequent manual anal dilatation + zinc sulphate ointment 5% four times daily, 2weeks postoperatively for 3 weeks - 20 cases.

Follow up done two weeks postoperatively, every week by regular visits for 3 weeks to look for the progress of the anal verge changes by digital per rectal examination (with dilatation) and proctscopy was carried out to assess any residual stricture or narrowing (usually done on 3rd week and more because it 's painful procedure to the patients).Manual dilatation done as outpatients management by surgeon with certain precautions regarding pain using either xylocain jelly or Vaseline ointment to be sure that the patient proceed within the right way, at the same time we instruct the patient to apply zinc ointment to anal verge four times daily at home regarding group B. For group A painful defecation managed by regular use of analgesic (xylocain jelly locally and NSAD orally) and stool softeners. All patients received high fiber diet and stool softener and were questioned about their overall satisfaction with the procedure and regarding any possible adverse symptoms from using zinc sulphate ointment 5% (itching, burning sensation regarding group B),or pain on defecation especially on 3rd ,4th and 5th week postoperatively in both of them.

RESULTS & DISCUSSION:

Eleven patients of group A had no complain at all without any evidence of anal stricture or narrowing nor any pain or blood during defecation in 4th week postoperatively as assesd by digital examination and proctoscopy on 3rd week , 2 cases developed anal fissure with painful defecation managed by repeated frequent manual dilatation locally using xylocain jelly and stool softeners (high rough diet with laxatives) end up with surgery (sphincterotomy, the other two patients we lost contact with them. While for group B; 15 cases had no pain or blood on defecation and return to routine life in 3rd week postoperatively assessed by digital examination and proctoscopy as shown in table 1, with no need for further dilatation in fourth week (only zinc ointment), three of them had itching with burning sensation as a side effect of zinc due to frequent applications managed by local steroid ointment, the other 5 cases of group B; escape contact (mostly they afraid using prepared ointment as they told us (which is prepared zinc ointment 5% in special caps from the pharmacy). Response to treatment was determined by the following criteria two weeks after surgery: symptoms & signs (pain, blood during defecation),

digital per rectal examination, proctoscopic finding and surgery(which means failure of our modality of management).

Table: 1 Changes in improvement of hemorrhoidectomy during the 3rd, 4th and 5th weeks postoperatively

Cases	Parameters	EEK	4th week	5th week
Group A	Symptom & sign	mild pain	Same, except 2 cases had pain on defecation	2 case escape contact,11 cases good results, 2 cases had pain with blood on defecation
	Digital rectal exam.(PR)	Dilatation-local	Dilatation-local	Normal, except 2 cases
	Proctoscopy	nil	Mild narrowing in all cases except 2 had more narrowing	Normal except for 2 cases sever narrowing
	Surgery	-	-	Indicated in 2 cases
Group B	Symptoms &signs	Mild pain	nil	5 cases escape 15 cases good results
	Digital rectal exam.(PR)	Dilatation + zinc	Zinc only	nil
	proctoscopy	nil	No narrowing	nil
	Surgery	not indicated	Not indicated	Not indicated

Although we are dealing with the patients in hospital as an outpatient management, we faced many problems regarding the follow up of our cases postoperatively. Patients in general with symptomatic hemorrhoids presented late to the surgeon (grade 4) as an outpatients management with no place for planned or well performed hemorrhoidectomy embracing medical staff for the best surgical results where there were no place to leave islands of normal tissue between the excised piles, at the same time our patients reject staged surgery or two times surgery, that is why most cases of anal stricture occurred following hemohoidectomy and ninety percent of anal stricture is caused by overzealous hemorrhoidectomy. [20] Removal of large areas of anoderm and hemorrhoidal rectal mucosa, without sparing of adequate muco-cutaneous bridges, leads to scarring and a progressive chronic stricture. Suspicion of anal stricture is heightened by a history of hemorrhoidectomy. Physical examination confirms the diagnosis, visual examination of the anal canal and perianal skin, along with a digital rectal examination, is usually sufficed to establish the presence of anal stricture. Occasionally the patient is too anxious or the anal canal too painful to allow an adequate examination. In this situation, anesthesia is needed to perform a proper examination of the anal canal The fear of fecal impaction or pain usually causes the patient to rely on daily laxatives or enemas .In the natural anatomic configuration, the anal canal is an upside down funnel, where its diameter is lower than the diameter of the anal verge.

Physiologically, during evacuation, the internal sphincter relaxes and dilates to the cutaneous side, where the diameter is greater, to allow the regular passage of stool, anal stricture, occurs secondary to surgical procedures are adynamic and irreversible.[3,4] Thus, the anal canal progressively reduces its diameter. The patient usually reports difficult or painful bowel movements. The patient may also have rectal bleeding and narrow stools.

Zinc is one of essential trace elements required for physiological functions. It forms an integral part of several enzymes and cofactors and is an essential element in wound healing to prevent the occurrence of stricture within short time and fewer side effects. [27]

CONCLUSION:

The best treatment of post hemorrhedectomy stricture is prevention; because it is most often a preventable complication. Although well-performed hemorrhoidectomy is the best preventative measure, most patients presenting late, zinc suphate ointment 5% was an effective safe and non-costly in reducing the incidence of anal stricture, that follow late cases of hemorrhoidectomy as a conservative measure , to avoid the risk of further surgery. Studies with a larger number of cases are recommended.

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