Outcome of Endoscopic Assisted Recurrent Fistula in-Ano Treatment

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Abstract: Endoscopic assisted fistula in-ano treatment is a new method for treating recurrent fistula in-ano with secondary tracks and chronic abscess. The aim of this study to evaluate the ability and outcome of Endoscopic assisted recurrent fistula in-ano treatment. The main steps were visualization of the interior of fistula using special endoscope, proper localization of internal opening of the fistula, destruction or fulguration of the fistula tract from inside using special probe, closure of internal opening and finally injection of fibrin glue inside fistula track. Between March 2010 and January 2013, fifty patients suffered from recurrent fistula in-ano were included in this study, 30 (60%) patients were followed up for 6 months after complete healing. Twenty patients were followed up to one year with no change in healing rate. The primary healing rate was 68 % within one and half month, post-operative pain was acceptable in all cases.
[Hanan Ahmed Masoud Younis. **Outcome of endoscopic assisted recurrent fistula In-ano treatment.** *Life Sci J* 2013; 10(4): 1717-1720]. (ISSN: 1097-8135). http://www.lifesciencesite.com. 227

Keywords: Fistula in-ano, Perianal fistula, Endoscopic assisted fistula in-ano treatment

1.Introduction:

Perianal fistulae (Fig 1) are a common surgical problem and surgery still plays a very important role in treatment of anal fistulae, the surgical intervention was to remove or excise the fistula track and to protect the anal sphincter to maintain anal continence (Joy and Williams, 2002). Fistulectomy and lay open are suitable for simple superficial perianal fistulae, while high and complicated perianal fistulae difficult to be treated by this way (Steel *et al.*, 2011) as this method is usually associated with long healing time, larger perianal wound and higher risk of incontinence due to injury to anal sphincters (Ommer *et al.*, 2011). Many hospitals, at least in China are still using traditional surgical techniques for treating perianal fistulae and to some extent these methods work well (Wang and Lu, 2007; Ding, *et al.*, 2008; He *et al.*, 2009; Xing *et al.*, 2009). The accurate detection of the internal opening, chronic abscesses and secondary tracks are the key points of success in treatment of perianal fistulae (Garcia-Aguilar *et al.*, 1996). Traditional techniques such as excision of fistula (fistulectomy) and the method of cutting seton can be associated with an incontinence rate up to 12% in simple perianal fistulae and may be more in complicated cases and re-operated patients for recurrent fistula (Ritchie *et al.*, 2009). The lay open method proved good option to treat complicated perianal fistulae, 96% of the patients healed and incontinence rate for flatus or soft stool were 2 & 4 % respectively (Atkin *et al.*, 2012). In the last years, many trials have been made to treat complex (Rojanasakul, 2009) and recurrent perianal fistulae with minimally invasive technique as ligation of intersphincteric fistula track (LIFT technique), anal fistula plugs, using fibrin glues and video assisted technique (Lupinacci *et al.*, 2010; Cirocchi *et al.*, 2010).

The present study aimed at viewing the interior of the fistula track, side tracks, chronic abscesses and internal opening with the aid of endoscope or fistuloscope in patients with recurrent perianal fistula.

2. Patients, Material and Methods

Between March 2010 and January 2013, fifty patients with recurrent perianal fistula were included; all patients were done in surgery department Al Mishari Hospital, Saudi Arabia. Before admission all patients under-went complete history taking, clinical evaluation including proctoscopic examination, laboratory examination (CBC, RBS, Coagulation profile, Serum createnine, liver functions and ECG (if indicated), fistulogram (Fig. 2) and MRI in some indicated cases. Patients with chronic inflammatory bowel disease, pregnant, tumor and fecal incontinence were excluded. Evaluation of anal incontinence and anorectal manometry were performed before surgery. Written consent was obtained from all patients after the procedure explanation including advantages and disadvantages of the operation. All patients received spinal anesthesia for full relaxation of perianal area to facilitate the procedure and allow easy manipulation of fistula tract.

The procedure consists of two steps.

The first step is the visualization of interior of fistula track, side tracks, chronic abscesses and

proper or accurate localization of internal opening which is the key point in treatment of complex fistula. The scope is inserted through the external opening; sometimes the external opening is fibrotic so it needs dilation by nilton catheter or metal probe, sometimes excision of sclerosed tissue around the opening to facilitate insertion of fistuloscope (Fig. 3). The obturator should appear within the lower area of screen to be sure of correct direction of telescope. The scope is advanced while using washing solution (glycine/manitol 1%), any obstructing tissue or necrotic depress can be removed using special forceps to facilitate advancement of scope. The operating surgeon will follow the fistula track using gentle manipulation till accurate identification of internal opening. Furthermore, insertion of anal speculum during advancement of scope while the light of operating room is dim can help identification of internal opening and if the internal opening is so small or pin hole you can see scope light under anal or rectal mucosa, in this situation the internal opening can be marked by two or three stitches opposite each other.

The second step is the operative phase which consists of destruction of the fistula track, side tracks and chronic abscesses by monopolar electrocautary, the destruction starts from inner end to outer end and step by step, then the interior of the fistula track is cleaned and all necrotic depress removed using endoscopic brush. During the process of destruction of fistula track from inside the internal openings kept opened to allow drainage of waste material into the rectum. Finally the internal opening closed tightly either by interrupted stitches if accessible or by linear stapler if manual closure is difficult. If area around internal opening is fibrotic and difficult to use stapler, so in this situation mucocutaneous flab is preferred to close the internal openings perfectly, then lastly fibrin glue is injected directly behind the suture line or mucocutaneous flab to assure perfect closure of internal opening and inside fistula tract.

3. Results

The mean time of primary healing was 45 days in 34 patients (68%) after surgery, while the remaining 16 patients (32%), no healing were observed after 4 months. Five had a supra sphincteric fistula, 6 had an extra sphincteric fistula and 5 had a high Trans-sphincteric fistula. Ten of 16 (Recurrent fistula) reoperated again with Endoscopic assisted procedure after 6 months, three of 10 the endoscopic procedure failed due to extensive fibrosis and scarring, while the remaining 6 (of 16) refused reoperation. In the successfully reoperated patients 4 (57.1%) healed within 2 months and 3 patients (42.82%) show no healing after 4 months. Postoperatively no patient experienced partial (liquid and flatus) or solid incontinence. Visual analogue Scale (VAS) was used to evaluate post-operative pain with mean value 4% (scale 1-10) during the 1st two post-operative days. QA total of 35 patients (70%) received paracetamal injection 1gm. /8 hr, while the remaining received in addition diclofenac potassium 50mg/8 hr. on need. No patient experienced post-operative pain 10 days post-surgery. The operative time was progressively reduced from one and half hour to one hour due to improvement in the learning curve.

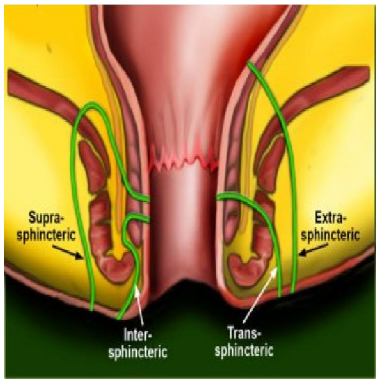

Fig 1 Types of fistula in-ano.

Fig 2: Fistulogram showing high branched fistula in-ano

Fig 3: A fistuloscope

4. Discussion

The perianal fistulae commonly occur in middle-aged men, who thought to be as a result of anal gland obstruction, with secondary abscess formation and external abscess rupture (Bhaya *et al.*, 2007). In Egypt, high transphincteric perianal fistula represents a technical challenge for surgical treatment (Kha-fagy *et al.*, 2010).

Fistulotomy is the primary therapy for intersphincteric and low trans-sphincteric fistula, but it usually associated with large perianal wounds that take longer time to heal (Malik and Nelson, 2008; Williams *et al.*, 2012).

Complex and recurrent fistula are very challenging for the surgeon because of recurrence and bowel incontinence, and most of patients are unsatisfied with the post-operative complication of laying open technique such as pain, bad scar and long healing period (Gisbertz *et al.*, 2005). Some surgeon start to search about less invasive technique as fistula plug, fibrin glue injection, endo-rectal mucosal advancement flap but the results have been unsatisfactory (Ellis and Clark, 2006). Although fistula pug was simple low risk (Johnson *et al.*, 2006) but considered as one of expensive procedure and the reported success rate range between 29-87% (Wang *et al.*, 2009). Mucosal advancement flaps are technical difficult procedure (Schouten *et al.*, 1999) and usually associated with recurrence rate range from 30-54% (Sonoda *et al.*, 2002). Modified setons as silastic tu-be, cable tie seton and braided silk were used for complex fistula (Ritchie *et al.*, 2009) but incontinence still cannot be avoided (Memon *et al.*, 2011). The latest conservative technique was ligation of inter-sphincteric fistula tract (LIFT), but this procedure does not suit for fistula with abscess, the problem of this technique are that ligation of fistula tract in intersphincteric space may be too difficult specially for high fistula, also dissection and opening of inter- sphincteric space interfered with blood supply of internal anal sphincter and anal mucosa leading to increased risk of recurrence (Lunniss, 2009) Besides, this procedure usually associate with large perianal wound that was completely different than endoscopic technique (Shanwani *et al.*, 2010). Others adopted excision of internal opening, fistula tract located in intersphincteric space till the external anal sphincter with three suture line designed to close the space between internal and external anal sphincter with 59% healing rate (Thomson and Fowler, 2004).

The treatment of complex anal fistula is fistula laser closure (FiLaC). The combination of ordinary method of closure of internal fistula opening by flap with laser fistula tract destruction gave 82% healing (Wilhelm, 2012). This technique is similar to Video assisted Endoscopic treatment of anal fistula by destroying fistula tract and saving anal sphincter but, done blindly without viewing the interior tract, side tract and chronic abscesses. The main advantages of endoscopic technique are precise and direct visualization of fistula anatomy, internal opening and destruction of fistula tract under direct vision. Success rate depends mainly on precise identification of internal opening, fistula tract, side tract and chronic abscesses. But, the main problem was strong scarring around the fistula tract due to previous surgery and recurrence.

5. Conclusion

The advantages of endoscopic assisted recurrent fistula in-ano treatment are clear and evident, no large surgical wounds in the perianal area, there is complete certainty regarding the accurate localization of internal opening of perianal fistula and the fistula tract destroyed completely form inside. Also the need to understand the anatomy or the course of the fistula is not so essential because you can see the fistula tract, side tract, and chronic abscesses directly by fistuloscope. In addition the patients have less post-operative pain with no chance of anal incontinence. Endoscopic technique appears cost effective because of short hospital stay, early return to the job and less preoperative work up. Thus, endoscopic technique proved to be safe, effective, less invasive and promising for treatment of recurrent perianal fistula.

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10/5/2013