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ADVANCES IN THE MANAGEMENT OF FISTULA IN ANO

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ABSTRACT:

Fistula in ano is a notorious disease, commonly develops as a result of chronic sequence of an asymptomatic or symptomatic abscess in the anal gland, i.e. cryptoglandular in origin. Complex and recurrent fistula in ano probably develop from secondary to trauma, infection, radiation or chronic granulomatous infections etc. Most of the fistula in ano occurs in patients with a past history of pre-existing anorectal abscesses. Approximately 50% of perianal abscess end up in the form of an anal fistula. It is usually simple to locate the external opening of an anal fistula while finding of internal opening can be more challenging. Diagnosis of fistula in ano is done with digital rectal examination (DRE), probing of fistulous tract, proctoscopy, injection of diluted methylene blue dye in the tract, CT, MRI, fistulogram etc. Treatment of anal fistula should be aimed with minimal or without any injury to the sphincter muscles complex and control of localized sepsis without loss of anal continence. Newer treatment modalities like collagen plug, fibrin glue, advancement rectal flap procedure, VAAFT procedure etc, should be adopted as per complexity of fistula in ano along with conventional methods.

KEYWORDS: Fistula in ano, fistulography, virtual CT fistulogram, MRI, collagen plug, fibrin glue, VAAFT etc.

INTRODUCTION

Fistula in ano is a notorious disease due to its frequent exacerbations, recurrences and chronicity. It is a common anorectal disease encountered in adults; men are more prone to be affected than women.[1] Fistula in ano commonly develops as a result of chronic sequence of an asymptomatic or symptomatic abscess in the anal gland, i.e. cryptoglandular in origin, approximately 90% cases of fistula in ano occurs due to infection of anal glands[2]. It is also

observed that fistula in ano occurs in upto one third of patients who undergone drainage of an anorectal abscess[3]. Complex and recurrent fistula in ano probably develop from secondary to trauma, infection, radiation or chronic granulomatous infections (eg.tuberculosis, actinomycosis etc.)[4]. Most of the fistula in ano occurs in patients with a past history of pre-existing anorectal abscesses. When the anorectal abscess burst open spontaneously or treated surgically a fistula may occur. Approximately 50% of perianal abscess end up in the form of an anal fistula. Treatment of fistula in ano still remains a surgical challenge. The simple fistula treated with conventional surgical treatment such as lay open of the fistula tract as a complete transaction of the tissue between the fistula tract and anoderm, is very effective with a success rate of up to 100%[5]. The complex or high anal fistulas have been treated by a number of techniques (ie. fistulotomy, rerouting fistula tracts, loose and tight seton, advancement flap etc.) with variable results in terms of recurrence and complications[6,7].

MATERIAL AND METHODS

The literature of the present article was reviewed from various authoritative books, research articles from various journals, Internet, library etc.

Diagnosis of Fistula in ano

It is usually simple to locate the external opening of an anal fistula while finding of internal opening may be more challenging. The external opening of the fistula is usually represents with red, inflammed, discharges pus or sometimes pus mixed with blood. The location of the external opening gives a clue to a fistulous tract and sometimes the actual fistulous tract can be felt. However, locating its visual pathway often requires various tools and techniques. Usually the diagnosis of fistula in ano is done by following ways-

1) Digital rectal examination (DRE) **-** To palpate fistulous tract.

2) Probing of fistulous tract- A metallic instrument specially designed to be inserted through a fistulous tract to find out the depth and direction of fistulous tract.

3) Proctoscopy - A small instrument is used to visualize the anal canal and rectum.

4) Injection of diluted methylene blue dye into a fistula tract to find out the exact location of internal opening of fistula.

5) Fistulography-Injection of contrast solution (dye) into a fistulous tract and then x-ray imaging performed.

6) Virtual CT fistulogram- It provides more accurate information about the position of tract.

7) Magnetic resonance imaging (MRI)- It is much accurately informative regarding the fistulous tract in relation to sphincter complex.

8) Flexible sigmoidoscopy- A thin, flexible tube with a lighted camera inside the tip to visualize the lining of the rectum and sigmoid colon as a magnified image on a computer.

9) Colonoscopy- It's like sigmoidoscopy, having advantage to examine the entire colon or large intestine.

10) Biopsy- Biopsy should be performed from the tract to rule out other underlying conditions like malignancy, inflammatory bowel disease etc.

Treatment of Fistula in ano

Treatment of anal fistula should be aimed with minimal or without any injury to the sphincter muscles complex and control of localized sepsis without loss of anal continence. It often depends on the location of fistula, complexity and the strength of the patient's sphincter muscles. The best approach requires that each patient is accessed individually. Treatment modality depends on the A) location and anatomy of the fistulous tract B) amount of anal sphincter involved in the fistula and C) underlying disease process.

General principles of management of fistula in ano includes -

1. There should be good local sepsis control.
2. Obliteration of the internal opening is the key to the success of treatment.
3. The part of the fistula tract that is outside the sphincter should be lay open and drained.
4. If <30% of the sphincter muscle length is enveloped by the fistula tract, it can be safely cut without fear of major incontinence.
5. If >30% of the sphincter muscle length involved, then it would be safer to use a seton or adopt other advanced techniques.

Various Treatment Modalities of Fistula in ano

Traditional modalities of surgical treatment include fistulotomy (ie.lay open of fistulous tract) and fistulectomy (ie.excision of the tract). These modalities have its own benefits and risk factors like recurrence, increased chances of postoperative anal incontinence, soiling and fecal leakage etc. These risk factors necessitated the development of newer modalities of treatment which do not involve cutting of the sphincter complex. They include-

1) **Fistulotomy:** It is most commonly employed method in simple or low anal fistula in ano. In fistulotomy procedure first probing done to find out the depth and location of internal opening of the fistula. Then the tract is laid open, scraped and its contents flushed out and

then its sides sutured. Complex fistula, such as a horseshoe type where large amount of sphincter muscle involved, the surgery may be performed in multi-sittings. The surgery may need to be repeated if the entire tract can't be removed. Recurrence rate after following this technique varies from 0-9% and anal incontinence varies from 0-33%[8].

2) **Fistulectomy:** It is a surgical procedure where a fistulous tract is excised completely, to be send for histopathological examination and wound is allowed to heal primarily. If wound size is big then primary closure can be done.
3) **Seton placement:** Setons are the alternative of treatment for high trans-sphincteric and anterior trans-sphincteric fistula in women and they should be used in patients with high probability of incontinence[9,10]. Two types of setons are used for management of fistulas. The cutting setons which incise through the tissues and the non- cutting setons which facilitate in the drainage of the fistula.
4) **Advancement rectal flap procedure:** This is often done to reduce the amount of sphincter muscle to be cut. An advancement flap procedure may be considered if fistula passes through the anal sphincter muscles. Fistulotomy procedure carries high risk of causing anal incontinence. This involves cutting or scraping out the fistula and covering the hole where it entered the bowel with a flap of tissue taken from inside the rectum, which is the final part of the bowel. This has a lower success rate than a fistulotomy but avoids the need to cut the anal sphincter muscles.
5) **Collagen plug:** A plug of collagen protein may be used to close the fistula tract. It was first introduced in 2006 by Robb & colleagues. It is based on the fact that the internal opening of the fistula is closed with plug. It is a biological plug designed from lyophilized porcine small intestine submucosa. It acts as a strong triggering agent for growth of fibroblasts and promotes the growth of native tissues. Most common cause of failure with plug is due to dislodgement of the plug. Enlargement of fistula tract by curettage or over debridement of the tract increases the risk of dislodgement. It has achieved a wide range of success from 14% to 87%[11].
6) **Fibrin glue:** Fistula obliteration by fibrin glue is a promising new option for non operative treatment of fistula in ano. Specially, this technique is highly efficacious for simple, non-ramificated transsphincteric and intersphincteric fistulas. Many different substances are used to obliterate the fistula tract. Cynocrylate glue, protamine and most recently fibrin glue have been used. It was introduced as a haemostatic agent during world war-I and was subsequently used for fistula in ano by Hjortup and colleagues in 1992. It is a mixture of fibrinogen, thrombin and calcium ions which combined to form a

soluble clot due to cleavage of fibrinogen to fibrin. This clot seals the fistula tract in 30-60 seconds. Within 1-2 weeks the tract is replaced by synthesized collagen with minimal damage to the sphincter. Success rates of this procedure ranges from 31-85%[12,13,14]. Treatment with fibrin glue does not stop the patient from getting any other modality of treatment. Failure of the treatment may occur due to several reasons, including dislodgement of the glue, inadequate removal of granulation tissue and abscess formation.

7) **Ligation of Intersphincteric tract (LIFT):** It is an advanced technique first described in Thailand by Rojanasakul[15]. It is based on the closing of internal opening and removing the infected cryptoglandular tissue via the intersphinctreric space. In this procedure, the intersphincteric space is opened via a small incision made in the intersphincteric groove and the fistula tract is identified as it crosses from the internal to the external sphincter. It is clearly defined and ligated with a suture. The technique disconnects the internal and external openings, thus allowing for fibrosis of the tract without any damage to the anal sphincter. This technique could be economically beneficial in the long term due to the decreased risk of recurrence and shorter healing time. The reported success rate of the procedure was 58%[16].
8) **Video assisted anal fistula treatment (VAAFT):** It was first developed by Meinero and Mori in 2006[17]. VAAFT is a novel minimally invasive and sphincter-saving technique for treatment of complex fistula in ano. Karl Storz video equipment kit consisting of a fistuloscope (Karl Storz), an obturator, a unipolar electrode and endobrush. The fistuloscope has an 8 degree angled eye piece, equipped with an optical channel along with a working and irrigating channel. The main feature of the VAAFT technique is that the procedure is performed entirely under direct endoluminal vision. VAAFT consists of a diagnostic phase, followed by an operative phase. Key steps are a) visualization of the fistula tract using the fistuloscope, to identify any possible secondary tracts or chronic abscesses, b) correct localization of the internal opening of fistula under direct vision, with this approach the internal opening can be found in 82.6% of cases, c) endoscopic treatment of the fistula and d) closure of the internal opening using a stapler or cutaneous-mucosal flap.

Advantage of VAAFT

- The surgical wounds are extremely small, minimal pain and early recovery.
- Risk of incontinence are very less**.**

- Very good minimally invasive approach for complex, deep seated abscesses and fistulas especially Crohn's fistulas.
- VAAFT can be combined with any other technique like seton and standard open surgical procedures by direct visualization and approach to high internal opening.

Disadvantage of VAFT: a) Risk of reopening of internal opening of fistula, b) Risk of recurrence.

RESULTS AND DISCUSSION

Fistulectomy is associated with a higher rate of incontinence since muscle separation necessarily occurs after excision of the complete tract. Primary closure of the wound can be done when the wound left after fistulectomy is linear, but a high percentage of these wound break down to heal by secondary intention. While these new treatment modalities have much to offer in terms of sphincter preservation and low risk of postoperative incontinence, they are technically more complicated and require expertness. Moreover, the long term effectiveness of these techniques remains to be followed up. The time-tried technique of fistulotomy along with seton insertion currently remains the standard of care for majority of the fistulas presenting to a primary surgical care clinics.

CONCLUSION

Fistulectomy as a procedure led to more incidences of incontinence. The duration of hospital stay is same in both fistulotomy and fistulectomy treated patients. In all cases of fistulectomy, excised tissue should be send for histopathology as it might be a tubercular fistula-in-ano, malignant conditions, inflammatory bowel disease etc. The treatment of fistula in ano should be individualized from case-to case, depending on the locally available resources and infrastructure. Advanced therapeutic tools like VAAFT, LIFT procedure etc, are important in terms of sphincter preservation and less hospital stay time.

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