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• Short Report

Management of low transsphincteric anal fistula with serial setons and interval muscle-cutting fistulotomy

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ABSTRACT

This study evaluates low transsphincteric anal fistula managed by serial setons and interval fistulotomy, with attention to healing without recurrence and preservation of continence. Following Institutional Review Board approval, consecutive anal fistula operations performed by a single surgeon from January 1, 2009 to December 31, 2013 were retrospectively reviewed using electronic medical records and telephone interviews for patients lost to follow up. Of the 71 patients, 26 (37%) had low transsphincteric fistula (23 males and 3 females; mean age: 46 years), treated at our institution by seton placement followed by interval surgical muscle cutting and subsequent seton replacement or final fistulotomy. Of the 26 patients, 22 (85%) were initially referred due to previous failed treatment, with a 30.6 month mean duration of fistula prior to referral and a mean of 2.2 (range: 0–6) prior anorectal surgeries. At a mean follow-up of 11.9 months, none of the 21 patients experienced recurrence or fecal incontinence. Serial seton with interval muscle-cutting sphincterotomy followed by complete fistulotomy is an effective treatment for the management of patients who are either initially seen for low transsphincteric fistula, or referred after failed anorectal surgery for that condition.

Keywords: low transshpincteric fistula; serial seton; fistulotomy; recurrent fistula; fecal incontinence

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1 Introduction

Transsphincteric fistulas constitute approximately 23% to 53% of all anorectal fistulas[1,2]. The cornerstone of surgical treatment is to eradicate the fistula tract without the development of recurrence, while preserving sphincter function[3]. A "lay-open" fistulotomy technique can be used initially for superficial or intersphincteric tracts in most cases, while it is rarely used for high transsphincteric fistula[4]. Low transsphincteric fistulas have their primary opening at the dentate line and usually present as an ischiorectal abscess. Similar to the high transsphincteric fistula, these patients are usually candidates for staged surgery after the abscess is drained and sepsis controlled with a seton[5,6]. To affect a cure after the seton is in place, the sphincter may be severed along the low transsphincteric tract of the fistula, prompting concern to both the patient and surgeon for development of incontinence. The safety of sphincterotomy unroofing the fistula tract has not been quantified, even with newer

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imaging techniques, and involves judgment based on the patient's pre-existing bowel habits, gender, location of the fistula and existing and remaining muscle after prior and subsequent serial fistulotomy. Many patients with this condition are referred to specialized centers after failed surgery, which may include sphincter preservation procedures such as fibrin glue, fistula plugs, advancement flaps, ligation of intersphincteric fistula tract (LIFT), prior setons and fistulotomy. The reasons for failure can include incorrect or incomplete identification of the primary opening or fistula tract, surgical technique, postoperative morbidity affecting healing[7], or paradoxically, the preservation of sphincter strength, which may disrupt a well placed plug, fibrin glue, or tract ligation in the postoperative period.

The aim of the study was to describe the use of serial setons and interval muscle-cutting fistulotomy leading to complete fistulotomy for low transsphincteric fistula at our institution, where the majority of cases had been referred after persistent or recurrent fistula.

2 Materials and methods

2.1 Study design

This retrospective study was approved by the Cleveland Clinic Florida Institutional Review Board (IRB # FLA 13-084). All consecutive patients with transsphincteric fistula who underwent serial seton interval muscle-cutting fistulotomy were selected from among those who underwent fistula surgery by a single colorectal surgeon at our institution between January 1, 2009 and December 31, 2013. Low transsphincteric fistula was defined in this study as that which traverses the lower third of the anal sphincter with the primary opening at the dentate line. Patients with fistulas due to inflammatory bowel disease, human immunodeficiency virus and malignant neoplasia were excluded. The patients' electronic medical records were reviewed for demographics, prior anorectal surgery, primary and secondary openings, number and site of fistula tracts, number of seton fistulotomies, mean bowel movement prior to and after treatment, postoperative healing time, recurrence of fistula and development of fecal incontinence.

2.2 Operative technique and management

All patients were treated in an outpatient setting. Patients were placed in the prone jackknife position with the buttocks taped apart to facilitate exposure. Either general or monitored anesthesia care with local anesthesia was utilized. After inspection, palpation, digital rectal examination and anoscopy, the secondary opening, fistula tract, and primary opening were identified. Lacrimal or standard fistula probes were utilized for tract identification. In cases where the internal opening is questionable, a crypt hook can be used to explore the tract from the primary opening, or hydrogen peroxide can be injected into the secondary opening to reveal "bubbles" at the origin of the fistula tract. After delineation of the fistula tract, the transsphincteric fistula was looped with a loosely tied seton. The skin and subcutaneous tissue distal to the secondary opening were sculptured for drainage. Any associated abscess cavities or horseshoe extensions were drained using a mushroom catheter or a "doubled" vessel loop, and removed within 1–2 weeks. Preoperative intravenous and postoperative oral antibiotics were prescribed to patients with concurrent abscess or cellulitis.

After an initial postoperative examination, patients had clinical follow-up every 2–3 weeks, where they were observed for evidence of residual or recurrent abscess due to errant index seton placement, a missed secondary tract, or premature healing around the seton preventing drainage.

We evaluate the thickness of the muscle bundle that involves the fistula as well as the muscle that will remain after the fistulotomy is completed. If the fistula involves the lower third of the muscle bundle and the primary opening is at the dentate line but seems too thick for primary fistulotomy, especially in obese patients, a portion of the muscle in the fistula tract may be surgically severed and the seton replaced; the patient's condition is observed with respect to abscess formation and continence status. After a 6–8 week period, when these clinical factors are acceptable, we proceed with final fistulotomy and marsupialization. There is also the option to perform alternative fistula procedures or retain the indwelling seton on a permanent basis.

Horseshoe or half horseshoe fistula was categorized as transsphincteric with secondary extensions.

Continence was assessed during office visits by questioning the patients for their specific bowel frequency and associated bowel control. Telephone interviews to assess continence were necessary in 4 patients who were not able to return for follow-up visits. A standardized questionnaire was not utilized. Our primary outcome was recurrence and our secondary outcome was continence status.

2.3 Statistical analysis

Data were analyzed with SPSS (Version 16.0., SPSS Inc, Chicago, IL, USA). Continuous variables were analyzed as mean or median (range), whereas categorical variables were analyzed as proportions and percentages.

3 Results

3.1 General information

Of the 71 consecutive patients with anorectal fistula, 26 (37%) were low transsphincteric and were included in this