

**A Comparative Study Between Fistulectomy  
And Fistulotomy With Marsupialization In  
Management Of Simple Anal Fistula**

**A Thesis**

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in **GENERAL SURGERY**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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## **List of Abbreviations**

| <b>Abbr.</b> | <b>Full-term</b> |
|--------------|------------------|
|--------------|------------------|

|            |                                          |
|------------|------------------------------------------|
| <b>ALT</b> | : Alanine Transaminase.                  |
| <b>ASA</b> | : American Society of Anesthesiologists. |
| <b>AST</b> | : Aspartate Transaminase.                |
| <b>ATZ</b> | : Anal Transitional Zone.                |
| <b>CBC</b> | : Complete Blood Picture.                |
| <b>CT</b>  | : Computed tomography.                   |
| <b>DRE</b> | : Digital Rectal Examination.            |
| <b>EAS</b> | : External anal sphincter.               |
| <b>EAS</b> | : Endo Anal Sonography.                  |
| <b>HPV</b> | : Human Papilloma Virus.                 |
| <b>IAS</b> | : Internal anal sphincter.               |
| <b>IMA</b> | : Inferior Mesenteric Artery.            |
| <b>INR</b> | : International Normalized Ratio.        |
| <b>MRI</b> | : Magnetic Resonance Imaging.            |
| <b>PT</b>  | : Prothrombin Time.                      |
| <b>VAS</b> | : Visual Analogue Scale                  |

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## Abstract

**Abstract:** Anal fistula is a common disease that has long challenged surgeons' skills. Perianal fistula, if not treated properly, will result in one of two terrible complications, recurrence or incontinence. Despite many preoperative investigations that can help to identify the correct anatomy of the fistula, one might face difficult or unexpected intraoperative findings that require wise decisions. Appropriate decisions in such circumstances have a significant impact on the outcome of surgery and the patient's quality of life. The present study is a retrospective clinical trial study including twenty five (25) patients who presented with simple perianal fistula to surgical outpatient clinic at Ain Shams University Hospitals in Egypt. The patients were divided into two groups: A. Group A: patients who underwent fistulectomy. B. Group B: patients who underwent fistulotomy with marsupialization. Fistulotomy with marsupialization is a simple, easy, and effective method for the treatment of simple perianal fistula, as it has shorter operating time with less postoperative pain and less time needed for wound healing than fistulectomy with the same incidence of postoperative complications, recurrence, and incontinence as fistulectomy.

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**Keywords:** Comparative; Study; Fistulectomy; Fistulotomy; Marsupialization; Management

## Introduction

**H**istory documents a wide range of treatments that have been undertaken over the years in an attempt to treat this problem, with no one particular treatment accepted as a gold standard. The documented history of fistula management with cutting setons initially started with Hippocrates, who inserted horsehair with lint into the fistula and, which was periodically tightened (**Francis Adams, 1849**).

The Middle Eastern physician **Albucasais (936–1013 AD)** as well as the medieval physician **John Ardenne (1307–1392 AD)** practised a variety of methods to treat fistulae. Patience was the cornerstone of their treatment; however, they found that their patients often wanted a quick fix to their ailments. The Treaties of Fistulae texts written by Ardenne describe seton use for complex fistulae. Today the material may be different<sup>6</sup> but the principle is the same (**Ardenne, 1910**).

In 1835, **Fredrick Salmon** opened ‘The Infirmary for the Relief of the Poor Afflicted with Fistula and Other Diseases of the Rectum’ following the successful treatment of Charles Dickens. The fistula became popular and by 1854 the infirmary site was relocated and re-named ‘St Mark’s Hospital for Fistula and other diseases of the Rectum (**Dukes C, Frederick Salmon, 1959**).

**Sir Lockhart-Mummery** summarised the difficulties that surgeons encountered in treating anal fistulae when he said ‘Probably, more surgical reputations have been damaged by the unsuccessful treatment of fistula than by excision of the rectum or gastroenterostomy’ and later went on to state ‘The bad results of laparotomy are generally buried with flowers, while fistulae go about the world exhibiting the unsuccessful results of the treatment (**Lockhart-Mummery, 1929**).

Anal fistula is a common disease that has long challenged surgeons skills. Perianal fistula, if not treated properly will result in one of two terrible complications, recurrence or incontinence. Despite many preoperative investigations that can help to identify the correct anatomy of the fistula, one might face difficult or unexpected intraoperative findings that require wise decisions. Appropriate decisions in such circumstances have a significant impact on the outcome of surgery and the patient's quality of life (**Abou-Zeid, 2011**).

The ideal surgical treatment for anal fistula should eradicate sepsis and promote healing of the tract, whilst preserving the sphincters and the mechanism of continence. For the simple and most distal fistulae, conventional surgical treatment such as lay-open of the fistula tract as a complete transection of the tissue between the fistula tract and anoderm is very effective with a success rate of up to 100%. Although reported incontinence rates following fistula surgery is very variable and is influenced by many factors, incontinence rate

after laying open of intersphincteric and distal fistulae seems to be under 10% (**Limura and Giordano, 2015**).

Generally there is a tendency of the female sphincter function complex to be weaker and shorter than that in male, and the external sphincter to be at its thinnest at 12 o'clock, and of the internal sphincter to be at its thickest at 9 o'clock, it was seen in all age groups except in the  $\geq 60$  years group, where the internal sphincter was not at its thickest at 9 o'clock but at 3 o'clock (**Starck et al., 2005**).

Goodsall's rule states that the external opening of a fistula situated behind the transverse anal line will open into the anal canal in the midline posteriorly. An anterior opening is usually associated with a radial tract. The exception to the rule is anterior fistulae lying more than 3cm from the anus, which may have a curved track (similar to posterior fistulae). This rule is not without many exceptions. The internal opening will decide the extent of sphincter division during fistulotomy (**Torkzad, 2010**).

The risk of postoperative incontinence was shown to be greater for females than for males. It is commonly believed that women are more prone than men to incontinence after surgical treatment for the fistula because of the smaller sphincter mechanism that may also be impaired by vaginal childbirth (**Takayuki, 2007**).

## **Aim of the Work**

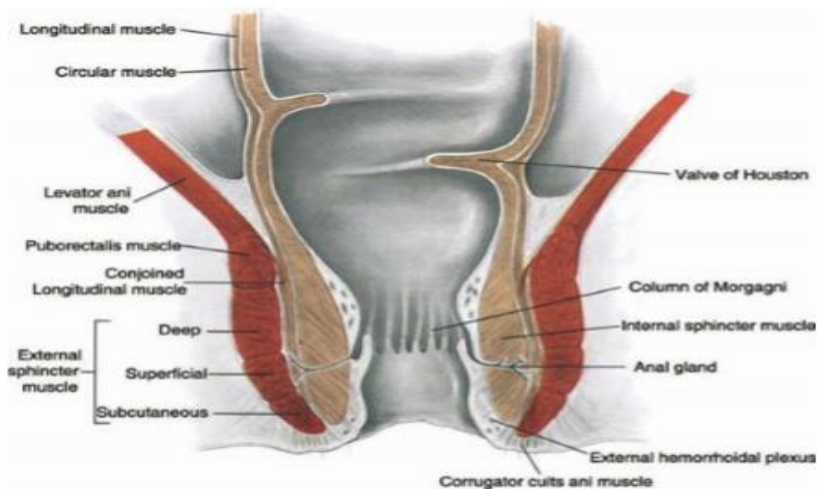
**T**his work aims at studying the simple anal fistula management as a comparative study between fistulectomy and fistulotomy with marsupializationas regards:

- Post operative pain.
- Post operative infection rate and healing time.
- Rate of post operative recurrence.
- Post operative incontinence..

## Chapter (1)

# Anatomy of the anal canal

**T**he anal canal is the terminal portion of the intestinal tract. It begins at the anorectal junction (the point passing through the levator ani muscles), is about 4 cm long, and terminates at the anal verge. This definition differs from that of the anatomist, who designates the anal canal as the part of the intestinal tract that extends from the dentate line to the anal verge (Salerno et al., 2006).



**Figure (1):** Anal canal (Gordon and Nivatvongs, 2007).

The anatomy of the anal canal and perianal structures has been imaged using endoluminal magnetic resonance imaging. Investigators found that the lateral canal was significantly longer than its anterior and posterior part. The

anterior external anal sphincter was shorter in women than in men and occupied, respectively, 30% and 38% of the anal canal length. The median length and thickness of the female anterior external anal sphincter were 11 and 13 mm, respectively. These small dimensions explain why a relatively small obstetrical tear may have a devastating effect on fecal continence and why it may be difficult to identify the muscle while performing a sphincter repair after an obstetrical injury (**Morren et al., 2001**).

### **Anatomic relations of the anal canal**

Posteriorly the anal canal is related to its surrounding muscle and the coccyx. Laterally is the ischioanal fossa with its inferior rectal vessels and nerves. Anteriorly in the male is the urethra. Anteriorly in the female are the perineal body and the lowest part of the posterior vaginal wall (**Fritsch, 2006**).

### **Lining of canal**

The lining of the anal canal consists of epithelium of different types at different levels. At approximately the midpoint of the anal canal there is an undulating demarcation referred to as the dentate line. This line is approximately 2 cm from the anal verge. Because the rectum narrows into the anal canal, the tissue above the dentate line takes on a pleated appearance. These longitudinal folds, of which there are 6 to 14, are known as the columns of Morgagni. There is a small