

**New Trends In Management Of
Perianal Fistula
Essay**

**Submitted For Partial Fulfillment Of Master Degree
In General Surgery**

Presented By
Ahmed Mahmoud Oraby
M.B.,B.CH.

Under Supervision of
Prof. Dr. Sameh Abdallah Maaty
*Professor of General Surgery
Faculty of Medicine-Ain Shams University*

Dr. Ahmed Elsayed Morad
*Assistant Professor of General Surgery
Faculty of Medicine-Ain Shams University*

Dr. Hanna Habib Hanna
*Lecturer of General Surgery
Faculty of Medicine- Ain Shams University*

**Faculty Of Medicine
Ain Shams University
2011**

الجديد في علاج الناصور الشرجي

رسالة

توطئة للحصول على الماجستير في

الجراحة العامة

مقدمة من

الطبيب/ احمد محمود عرابي

بكالوريوس الطب والجراحة

تحت إشراف

الأستاذ الدكتور / سامح عبدالله معاطي

أستاذ الجراحة العامة

كلية الطب- عين شمس

الدكتور / أحمد السيد مراد

أستاذ مساعد الجراحة العامة

كلية الطب- عين شمس

الدكتور / حنا حبيب حنا

مدرس الجراحة العامة

كلية الطب- عين شمس

كلية الطب

جامعة عين شمس

٢٠١١

Summary

Fistula-in- ano is a track, lined by granulation tissue that connects deeply in the anal canal or rectum and superficially on the skin around the anus. Perianal fistula is characterized by chronic, purulent, malodorous, ulcerating, sinus tracts in the perianal tissue. The cryptoglandular hypothesis is the most accepted theory in its pathogenesis, also there are some other causes e. g Crohn's disease, ulcerative colitis, actinomycosis, foreign body, lymphogranuloma venerium and trauma. The estimated incidence is about 1: 10. 000. Most fistulae occur at the age of 30-60 years. The gender ratio in adults is (male: female) 2: 1 to 4: 1

In the standard classification of anal fistulae, the fistula is classified into two groups; low level fistulae in which the internal opening below the anorectal ring, and high level fistulae in which the internal opening at or above the anorectal ring, but the most widely used classification is that of park's in which the anal fistulae are classified into; inter-sphincteric, trans-sphincteric, supra-sphincteric, extra-sphincteric.

Radiological investigation have a limited role in evaluation of fistula in ano, most primary fistulae can be treated on the basis of clinical examination alone. However, when atypical features are present or when prior surgery has failed, radiological evaluation may be useful.

Fistulography can reveal the depth and the branches of the tracks. However, the injection of dye under high pressure carries the risk of sepsis dissemination.

With Three dimension endanal ultrasound, fistula tract is visualized as tube-like hypoechoic lesion, when hydrogen peroxide 3% is introduced into the fistula tract it generates

Acknowledgment

First to all thanks to Allah the most gracious and the most merciful, who gave me the power to perform and complete this work.

I would like to express my profound gratitude and appreciation to **Prof. Dr. Sameh abdallah maaty**, Professor of General Surgery, Faculty of Medicine, Ain Shams University, for his continuous encouragement and valuable supervision and guidance throughout this work.

Also, I would like to express deep gratitude and deepest thanks to **Ass. Prof. Dr. Ahmed ELSayed Morad**, Assistant professor of General Surgery, Faculty of Medicine, Ain Shams University, For his continuous guidance, advises and supervision.

I wish also to express my gratitude and deep thanks to **Dr. Hanna Habib Hanna**, Lecturer of pediatric and General Surgery, Faculty of Medicine, Ain Shams University, For giving me much of his effort & time and his continuous guidance, correction and explanation to finish this work.

Lastly but not least ,my thanks to my father, my mother and my fiancée whom suffer a lot throughout this work.

Contents

	<i>Page</i>
❖ Introduction	1
❖ Aim of the Work	3
❖ Anatomy of the anorectal region	4
❖ Physiology of the anorectal ring	25
❖ Incidence and etiology of perianal fistula	34
❖ Pathogenesis and pathology of perianal fistula	42
❖ Clinical presentation of perianal fistula	54
❖ Diagnosis and investigation of perianal fistula	56
❖ Treatment of perianal fistula	66
❖ Complications of perianal fistula and their management	96
❖ Summary	101
❖ References	104
❖ Arabic summary	

List of Abbreviations

- 3-D** Three dimensions
- AIDS** Acquired immune deficiency syndrome
- CD** Crohn's disease
- CT** Computed tomography
- EAS** External anal sphincter
- EUA** Examination under anaesthesia
- EUS** Endoanal ultra-sonography
- H₂O₂** ... Hydrogen peroxide
- HIV** Human immune deficiency virus
- IAS** Internal anal sphincter
- IBD** Inflammatory bowel disease
- M:F** Male to female ratio
- MRI** Magnetic resonance imaging
- TB** Tuberculosis

List of Figures

<i>Figure</i>	<i>Page</i>
Fig. (1): Musculature of the anal canal	10
Fig. (2): Levator ani muscle. A Superior. B Inferior surface	13
Fig. (3): A Anorectal spaces anterior view. B Anorectal spaces lateral view	17
Fig. (4): Arterial supply of the rectum and anal canal	19
Fig. (5): Venous drainage of the rectum and anal canal	20
Fig. (6): Lymphatic drainage of the rectum (A) and anal canal (B)	21
Fig. (7): A&B Innervation of the colon, rectum, and anal canal	24
Fig. (8): Goodsall' rule	45
Fig. (9): Inter-sphincteric fistula	48
Fig.(10): Trans-sphincteric fistula	50
Fig.(11): Supra-sphincteric fistula	50
Fig.(12): Extra-sphincteric fistula	52
Fig. (13): A malleable probe is passed from the external to the internal openings to confirm the course of the tract	57
Fig. (14): Fistulogram with water-soluble contrast material demonstrates the course of a trans-sphincteric fistula with an internal opening at the level of the anorectal ring	60
Fig. (15): Fistulogram of an extrasphincteric fistula. The tract enters the rectum at the level of the arrow	61
Fig. (16): A Anal endosonogram; arrows indicate fistula tract; B with hydrogen peroxide; arrows indicate better delineation of fistula tract	62

- Fig. (17):** A White arrowhead indicates levators; black arrowhead indicates fistula tract to rectum; black arrow shows tract crossing levator. B Arrowhead indicates tract going to skin64
- Fig. (18):** Technique for repair of a fistula. (A) Lockhart–Mummery probe in fistula. (B) Skin and an oderm incised. (C) External sphincter incised and internal sphincter exposed. (D) Entire tract unroofed and curetted. (E) One side of tract marsupialized. (F) Marsupialization completed69
- Fig. (19):** Seton71
- Fig. (20):** V-Y flap anoplasty78
- Fig. (21):** Anorectal advancement flap. **A** Transsphincteric fistula-in-ano. **B** Enlargement of external opening and curettage of granulation tissue. **C** Mobilization of flap and closure of internal opening. **D** Suturing of flap in place covering internal opening 82
- Fig. (22):** Transposition of the fistula tract. (A) Placement of a seton and division of the external sphincter. (B) Repair of the external sphincter with the tract now in the intersphincteric position. (C) The intersphincteric tract may be transposed by division and repair. (D) Completed fistula operation86
- Fig.(23):** Diagrammatic representation of a horseshoe anal fistula. The posterior midline internal92
- Fig.(24):** Classic treatment of horseshoe fistula requires excision of all openings93
- Fig.(25):** Treatment of horseshoe fistula-in-ano requires unroofing in the posterior midline to drain the deep postanal space adequately. The external openings are individually drained, with curettage only of the underlying tracts. Packing is placed through each opening and in the deep postanal space94



Introduction

Introduction

Anal and perianal diseases, especially fistula-in-ano by their nature are embarrassing to the patient. This disease not only stresses the patient through soiling and foul smelling discharge but also causes panic. On the contrary, over enthusiastic operative treatment results in ever embarrassing faecal incontinence (**Mangual, 2004**).

Fistula-in- ano is a track, lined by granulation tissue that connects deeply in the anal canal or rectum and superficially on the skin around the anus. Perianal fistula is characterized by chronic, purulent, malodorous, ulcerating, sinus tracts in the perianal tissue (**Williams, 2004**)

Fistula-in-ano can result from a number of clinical conditions. Majority of the patients give positive past history of perianal abscess. In fact, perianal abscesses are fairly common in the community due to poor personal hygiene and hot and humid climate. Multiple fistulae can occur due to other reasons like, Crohn's disease, actinomycosis, malignancy etc (**Mangual, 2004**).

The Parks classification system defining the 4 major types of anorectal fistulas in order of decreasing frequency is as follow: intermuscular (70%), trans-sphincteric (23%), extrasphincteric (5%), and suprasphincteric (2%) (**Parks, 1996**).

Simple anorectal fistulae are usually diagnosed by physical examination only, in patients suffering intermittent pain and purulent, often bloodstained, perianal discharge with a common history of anorectal abscess drainage. While physical examination is usually sufficient for assessment in

Introduction

uncomplicated abscess- fistula disease, imaging studies such as contrast fistulography, US or MRI may be useful in the evaluation of complex or recurrent disease (**Maier, 2001**).

The treatment of fistula has remained a challenging job for the surgeons. Different surgical techniques have been described in literature. These include fistulotomy, insertion of a seton, two staged fistulotomy, advancement flaps, repair of fistula using fibrin adhesive glue and rerouting the fistula. The surgical treatment of perianal fistula is followed by a high recurrence rate. So there is no single surgical intervention established for treating perianal fistula (**Qureshi et al., 2002**).

Fistulotomy continues to be the gold standard to which other therapies must be compared, also preservation of continence is an important goal (**Singer et al., 2006**).



Aim of the Work

AIM OF THE WORK

The aim of the present study is to highlight the new theories in pathophysiology, etiology of perianal fistula, different modalities and new update in management of perianal fistula.



*Anatomy of the
Anorectal Region*

Anatomy of the Rectum and Anal Canal

Surgical anatomy of the anal canal:

Two definitions are found describing the anal canal. The “anatomic” or “embryologic” anal canal is only 2.0 cm long, extending from the anal verge to the dentate line, the level that corresponds to the proctodeal membrane. The “surgical” or “functional” anal canal is longer, extending for approximately 4.0 cm (in men) from the anal verge to the anorectal ring (levator ani). This “long anal canal” concept was first introduced by **Milligan and Morgan (1934)** and has been considered, despite not being proximally marked by any apparent epithelial or developmental boundary, useful both as a physiologic and surgical parameter. The anorectal ring is at the level of the distal end of the ampullary part of the rectum and forms the anorectal angle, and the beginning of a region of higher intraluminal pressure. Therefore, this definition correlates with digital, manometric, and sonographic examinations (**Jorge and Habr-Gama., 2007**).

Relation of anal canal

Posteriorly, the canal is related to the coccyx with a certain amount of fibrous, fatty and muscular tissue intervening.

Laterally, there is ischio-rectal fossa on either sides containing fat and the inferior haemorrhoidal vessels and nerves which cross it to enter the wall of the canal.

Anteriorly, in the male the canal is related to the central point of the perineum, the bulb of the urethra and the posterior border of the urogenital diaphragm containing the membranous urethra. In the female the canal is related in front to the perineal