ROLE OF MRI IN DIAGNOSIS OF PERIANAL FISTULA

ESSAY

SUBMITTED FOR PARTIAL FULFULLMENT OF MASTER DEGREE
IN
RADIODIAGNOSIS

BY:

AHMED ALI TOLBA ALI
M.B.B.CH
ZAGAZIG UNIVERSITY

Supervised by:

Prof.Dr.ALIA ABDALLAH ELFIKY
Professor of Radiodiagnosis
Faculty of Medicine
AIN SHAMS UNIVERSITY

Dr.AYMAN MOHAMMED IBRAHIM
Lecturer of Radiodiagnosis
Faculty of Medicine
AIN SHAMS UNIVERSITY

AIN SHAMS UNIVERSITY
2010

دور الرنين المغناطيسى فى تشخيص الناسور الشرجي

رسالة مقدمة من

الطبيب/ أحمد علي طلبة علي
بكالوريوس الطب والجراحة
جامعة الزقازيق

توطئة للحصول علي درجة الماجستير في الأشعة التشخيصية

المشرفون

أ.د.عاليــه عبـدالله الفقـي
أستاذ الأشعة التشخيصية
كلية الطب-جامعة عين شمس

د.أيمــن محمــد إبراهيــم
مدرس الأشعة التشخيصية
كلية الطب-جامعة عين شمس

جامعة عين شمس

٢٠١٠

بسم الله الرحمن الرحيم

قالوا سُبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

صدق الله العظيم
سورة البقرة: أية (٣٢)

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. Alia Abdallah Elfiky**, Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University, for her continuous encouragement and valuable supervision and guidance throughout this work.

I wish also to express my gratitude and deep thanks to **Dr. Ayman Mohammed Ibrahim**, Lecturer of Radiodiagnosis, 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.

List of Abbreviations

3-D ..... ……Three dimensions

AES ..... ……Anal endosonography

AIDS .... ……Acquired immune deficiency syndrome

CD ..... ……Crohn’s disease

CT ..... ……Computed tomography

EAS ..... ……External anal sphincter

EUA ..... ……Examination under anaesthesia
FID…… ……Free induction decay
FLAIR… ……...Fluid-attenuated inversion recovery

FLASH-3D……Fast low-angle shot 3-dimensional

HIV ..... ……...Human immune deficiency virus

HPV.....Human papiloma virus

IAS ..... ……Internal anal sphincter

MRI ..... ……Magnetic resonance imaging
RF……. ……Radio frequency
SNR….. ……Signal-to-noise ratio

STIR……..Short inversion time inversion recovery

TB ..... ……...Tuberculosis
TE……..Echo time

TI …….....Inversion time

TR……..Repetition time

List of Figures

Contents

Page

Introduction

Perianal fistula is a common condition defined by an abnormal perianal track that connects two epithelialized surfaces, usually the anal canal to the perianal skin **(Williams, 2004).**

Perianal fistula commonly occurs in an otherwise healthy patient, typically middle-aged men. Most experts believe that it occurs as result of anal gland obstruction, secondary abscess formation and subsequent external decompression through one of several fairly predictable routes. The internal origin of the fistula usually begins from the middle of the anal canal at the dentate line **(Pemberton et al., 2000).**

A majority of anal fistulas have a single simple fistula track that is easily identified during surgery, and surgical treatment is generally successful. However, 5%–15% of anal fistula tracks have a more complicated course, with secondary extensions outside the anal sphincter. These so-called complex fistulas are often associated with recurrent fistulas and fistulas associated with underlying Crohn disease.

Failure in accurate assessment of the secondary extensions during surgery may be responsible for the high rate of recurrence.

Diagnostic studies that allow the acquisition of accurate preoperative information on the course of the primary track and its secondary extensions may improve the surgical treatment of these complex fistulas **(Phillips, 1998).**

Contrast material–enhanced fistulography is correct in only 16% of patients, and computed tomography usually

fails to depict subtle fistula tracks and abscesses because of the inherently low softtissue contrast resolution.

Anal and transrectal endosonographic studies show better resolution of fistulas and their relation to the anal sphincter muscles. The limited field of view, however, is a considerable disadvantage, and endosonography is reported to be no more accurate than examination under anesthesia.

In general, the imaging of perianal fistulas was disappointing until the introduction of magnetic resonance (MR) imaging **(Schwartz et al., 2001).**

Magnetic resonance (MR) imaging has been shown to demonstrate accurately the anatomy of the perianal region. In addition to showing the anal sphincter mechanism, MR imaging clearly shows the relationship of fistulas to the pelvic diaphragm (levator plate) and the ischiorectal fossae

This relationship has important implications for surgical management and outcome and has been classified into five MR imaging–based grades.

If the ischioanal and ischiorectal fossae are unaffected, disease is likely confined to the sphincter complex (simple intersphincteric fistulization, grade 1 or 2), and outcome following simple surgical management is favorable.

Involvement of the ischioanal or ischiorectal fossa by a fistulous track or abscess indicates complex disease related to trans-sphincteric or suprasphincteric disease (grade 3 or 4). Correspondingly more complex surgery may be required that may threaten continence or may require colostomy to allow healing. If the track traverses the levator plate, a translevator fistula (grade 5) is present, and a source of pelvic sepsis should be sought **(Morris et al., 2000).**

Furthermore, preoperative MRI frequently alters the surgical approach and, most important, MRI-guided surgery can significantly reduce postoperative recurrence in complex cases by 75%. For these reasons, MRI may become routine for assessment of complex or recurrent fistulas **(Spencer et al., 1998).**

.