Lateral Subcutaneous Sphincterotomy with Fissurectomy versus Anal Dilatation with Fissurectomy in the Treatment of Chronic anal Fissure

(A Comparative Randomised Study)

Thesis

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Farid Moris Farid

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List of Abbreviations

Abb.	Full term
5-HT	5-hydroxytryptamine
ACD	Anal canal diameter
ACL	Anal canal length
AD	Anal dilatation
ADP	Adenosinediphosphate
AF	Anal fissure
AIDS	Acquired immunodeficiency syndrome
ASCRS	American Society of Colon and Rectal Surgeons
ATP	Adenosine triphosphate
BTX	Botox
CAF	Chronic AF
CAF	Chronic anal fissure
CLL	Conjoined longitudinal layer
CNS	Central Nervous System
CS	Chemical sphincterotomy
DV	Dynamic viscosity
EAS	External Anal Sphincter
GIT	Gastrointestinal tract
GTN	Glyceryltrinitrate
IAS	Internal Anal Sphincter
IBS	Irritable bowel syndrome
IRP	Intra-rectal pressure
ISDN	isosorbide dinitrate
IV	Intravenous
LIS	Lateral internal sphincterotomy

List of Abbreviations Cont...

Abb.	Full term
LL	Longitudinal muscle layer
LM	Longitudinal muscle
MR	Magnetic resonance
MRI	Magnetic resonance imaging
MSA	Muscularis submucosae ani
NOS	Nitric oxide synthase
NSAIDs	Nonsteroidal anti inflammatory drugs
PA	Puboanalis
PB	Perineal body
PC	Pubococcygeous muscle
PR	Puborectalis
RAER	Rectal anal excitatory reflex
RMC	Rectal motor complex
SP	Symphysis pubis
TP	Transverse perinei muscles

INTRODUCTION

Although anal fissure appears to be a common problem, data are limited about the incidence, risk factors, and associated comorbidities of this disorder so a study was done on 1243 cases of anal fissure, including 721 (58.0%) in female patients and 522 (42.0%) in male patients; 150 (12.1%) of the 1243 cases were children aged 6 to 18 years. The annual incidence of anal fissure was 0.11% (1.1 cases per 1000 person-years) in patients aged ≥6 years, 0.05 % in patients aged 6 to 18 years, 0.15% in patients aged ≥18 years, and 0.10% in patients aged ≥65 years. The highest incidence of anal fissure (0.18% per year) was in women aged 18 to 34 years. Up until age 35, the annual incidence of anal fissure was higher in females than in males; after age 35, the incidence was higher in males, particularly for ages 55 to 64 years (men 0.15% vs women 0.11% ***(Miner et al., 2013).***

Anal fissure is a small split or tear in the anoderm distal to dentate line usually in the posterior midline ***(Zaghiyan and Fleshner, 2011).***

Anal fissure can be acute or chronic. Acute fissures are shallow tear in the anoderm. Symptoms associated with acute fissures include anal pain, spasm, and/or bleeding with defecation. Chronic fissures are present for more than 6 to 8 weeks. Features of chronic fissure are exposed fibers of internal

anal sphincters at the base, hypertrophied anal papilla proximally, and a skin tag or sentinel pile distally ***(Beaty and Shashidharan, 2016).***

Secondary anal fissures may have characteristic features in the patient's history such as risk factors for anal cancer, or medical conditions such as Crohn's disease, tuberculosis, sarcoidosis, HIV/AIDS and syphilis. These fissures often lie laterally or are multiple in number. Further investigations must be performed as the underlying cause will determine subsequent management ***(Schlichtemeier and Engel, 2016).***

The etiology of a typical anal fissures is not so clear but it generally arise with local trauma caused by diarrhea, constipation, childbirth, medication as well as constant saddle vibration (amongst professional mountain-bikers) and using a jet of water from a bidet-toilet. A new theory explains that AF healing depends on biochemical processes in the anal passage. Eruption of tissues in the fissure region during defecation releases platelet products such as ADP, ATP, 5-HT, platelet activation factor, thrombin and substance P which cause the contraction of smooth muscles (of Internal Anal Sphicter and vessels) and result in difficulties in AF healing. Thus, anal fissures often become chronic ***(Madalinski, 2010).***

Treatment of anal fissure is dependent on normalizing stool bulk, avoiding constipation and Relief of the spasm of the internal sphincter that is associated with relief of pain and

healing of the fissure. It can be either surgical or pharmacological, such as nitroglycerine, calcium channel blockers, and topical anesthetics/steroids have proven efficacy, as does botulinum injection with adequate fluid and fiber intake. The current evidence is not sufficient to label one of these options as the preferred treatment for anal fissure, but Healing of chronic fissure by conservative treatment occurs in about 50% of the patients ***(Etzioni, 2011).***

Surgery remains the most effective long-term treatment and should be offered for cases of chronic or complicated anal fissure but also for acute anal fissure with severe pain or for recurrent fissure despite optimal medical treatment. Surgical treatment is based on two principles that may be combined: decreasing sphincter tone and excision of the anal fissure ***(Higuero, 2015).***

The Lateral internal sphincterotomy which is the most acceptable operation may permanently lower the anal resting pressure and allow healing in more than 95 percent of cases, although it may be followed by soiling in a significant number of patients and **the Controlled anal dilatation** obtains high healing rates, adequate reduction in mean resting anal pressure and low rates of recurrence or incontinence and similar to those found in surgery. Because of the availability of such technique, controlled anal dilatation has become a reliable, easily reproducible, easier to learn and perform, and non-operator-dependent procedure ***(Santander et al., 2010).***

There is no general agreement on ideal surgical technique for chronic anal fissures so it is a subject of controversy, therefore we will carry out a controlled comparative randomized study of the two procedures, the treatments will be allocated at random with sealed envelope technique.

AIM OF THE WORK

To compare the results of these two procedures ***Lateral subcutaneous sphincterotomy and anal dilatation*** in treatment of idiopathic chronic anal fissure in terms of recurrence rate, complications and patients' satisfaction.

Chapter 1

DEFINITIONS

A Fissure-in-ano is a painful linear ulcer situated in the anal canal and extending from just below the dentate line to the margin of the anus. It is a very common condition that causes suffering out of proportion to the size of the lesion ***(Gordon, 2007).***

Chronic Anal Fissure:

If an anal fissure (AF) does not heal in at least six weeks, it may be recognized as chronic AF (CAF) but the chronological definition of AF is rather loose.

A morphological description offers a more precise definition. The CAF presents thickened edges with usually visible, internal anal sphincter fibers at the fissure base. It may also be associated with an external skin tag (the sentinel pile) at the lower end of the fissure and/or a present papilla at the upper end of a fissure (hypertrophied anal papilla). These features of fissure chronicity are attributed to chronic infection and are caused by development of fibrotic connective tissue ***(Hananel and Gordon, 1997; Williams et al., 1995; Farouk et al., 1994).***