DIAGNOSIS AND DIFFERENT LINES OF TREATMENT OF ANAL FISSURE

ESSAY

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The Master Degree in
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BY

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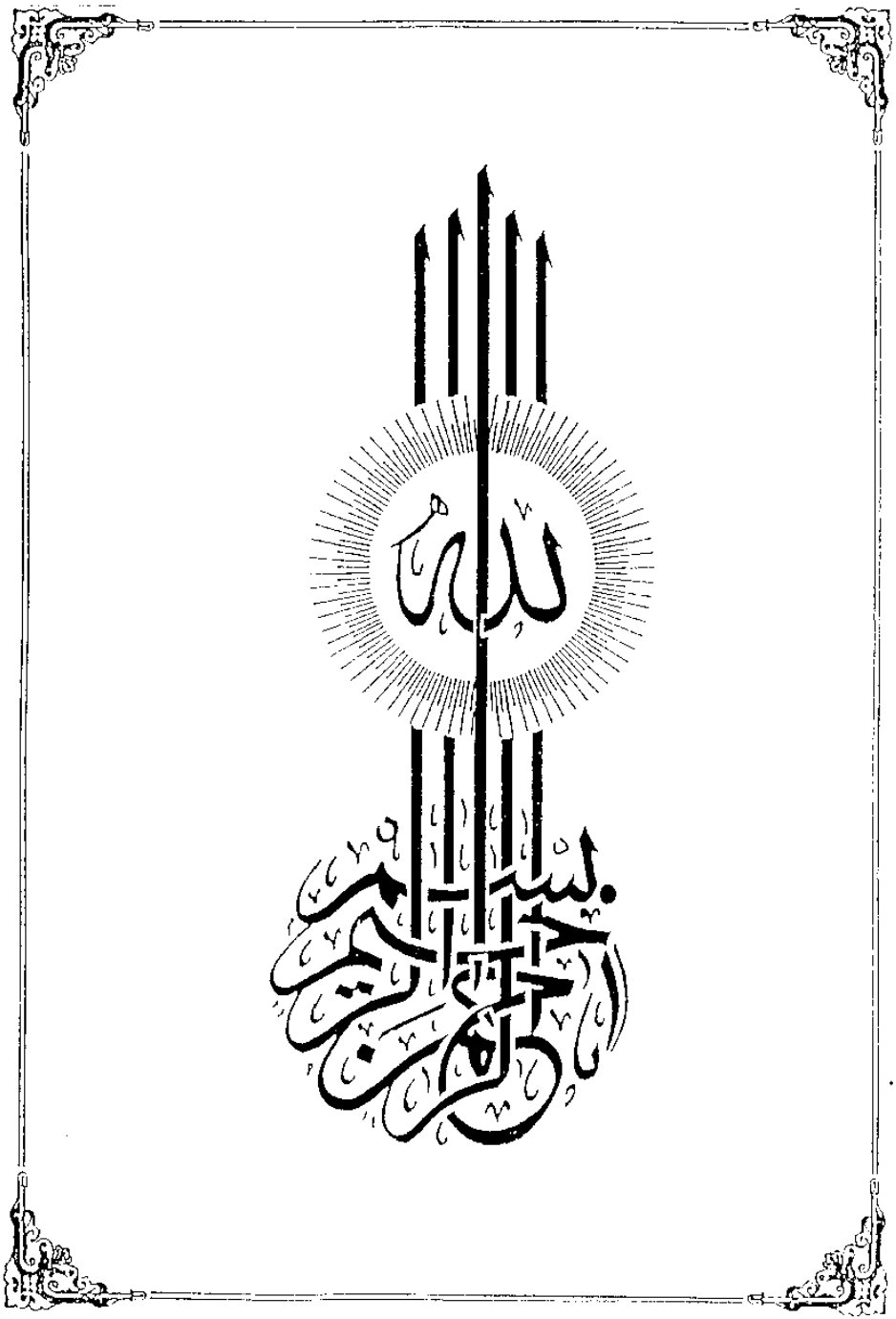

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INTRODUCTION

Anal fissure is a crack in the skin lined part of the anal canal, which often shows a considerable reluctance to heal. It is a common proctologic problem, which represents about 13% of all anorectal disorders. It represents the most frequent cause of painful bleeding per anus. It is frequently mistaken by the patient to represent haemorrhoids (Mazier et al,1978).

All age groups are affected with the peak incidence occuring in the third and fourth decades. Infants and children may also develop fissures and those may occur at the lateral margin and often are multiple (Connor,1975).

Both sexes are equally affected with females having a higher percentage of anterior fissure (10%) than males (1%). (Bennelt and Goligher,1962).

In this essay we throw spotlights on the embryology, anatomy and physiology of the anal canal, then we discuss the clinical picture, diagnosis, differential diagnosis and different lines of treatment of anal fissure.

REVIEW OF LITERATURE

Chapter 1

EMBRYOLOGY

EMBRYOLOGY OF THE ANAL CANAL

The part of hindgut distal to the allantois dilates to form the endodermal cloaca having the cloacal membrane at its ventral wall. The cloaca expands, the hindgut is received in its posterior part and the allantois in its anterior part. In the angle between the allantois and hindgut tube (in a 5 mm. embryo), a coronal septum called the urorectal septum grows down dividing the cloaca incompletely into dorsal and ventral parts. The rectum and upper part of anal canal develop from the dorsal part. The ventral part is the primitive urogenital sinus (Fig.1)(Warwick and Williams, 1973).

The urorectal septum in a 16 mm. embryo, grows downwards to fuse with the cloacal membrane dividing it into anal membrane behind and urogenital membrane infront. The region of fusion is the primitive perineum (Warwick and Williams,1973).

The mesoderm around the external margin of the anal membrane proliferates. Anal tubercles or hillocks are formed producing an ectodermal depression called the proctodaeum at the depth of which is found the anal membrane (Tench,1936).

The anal membrane disintegrates in the 3rd month and thus the lumen of the rectum is continuous with the proctodaeum i.e. exterior. Imperforate anus results from failure of disappearance of the anal membrane (Warwick and Williams,1973).

The upper part of anal canal develops from the distal end of the dorsal part of the cloaca and therefore is endodermal in origin. Its lower part develops from the proctodaeum i.e.it is ectodermal and is lined with stratified squamous epithelium. The anal valves represent the line of fusion between the two parts (Fig.1)(Mahran et al,1970).

In the upper part, the mucous membrane is supplied by autonomic nerves, the arterial blood supply is mainly from the superior rectal artery, the venous drainage is by the superior rectal vein which continues as the inferior mesenteric vein (a tributary of the portal venous system), and the lymphatics drain with those of the rectum.

In the lower part, the lining is skin which is supplied by spinal nerve (inferior rectal nerve), the arterial blood supply is from the inferior rectal artery,the venous drainage is by the inferior rectal vein which passes to the internal pudendal vein (a systemic vein), and the lymphatics drain with those of the perianal skin into the superficial inguinal lymph nodes (Griffiths,1961).

The different nerve supply of the two parts is correlated with a response to different types of stimuli; the lower part is very sensitive and responds to touch, pain and thermal stimuli like skin in general. The upper part, like the gut, has a high threshold for the above stimuli and responds more

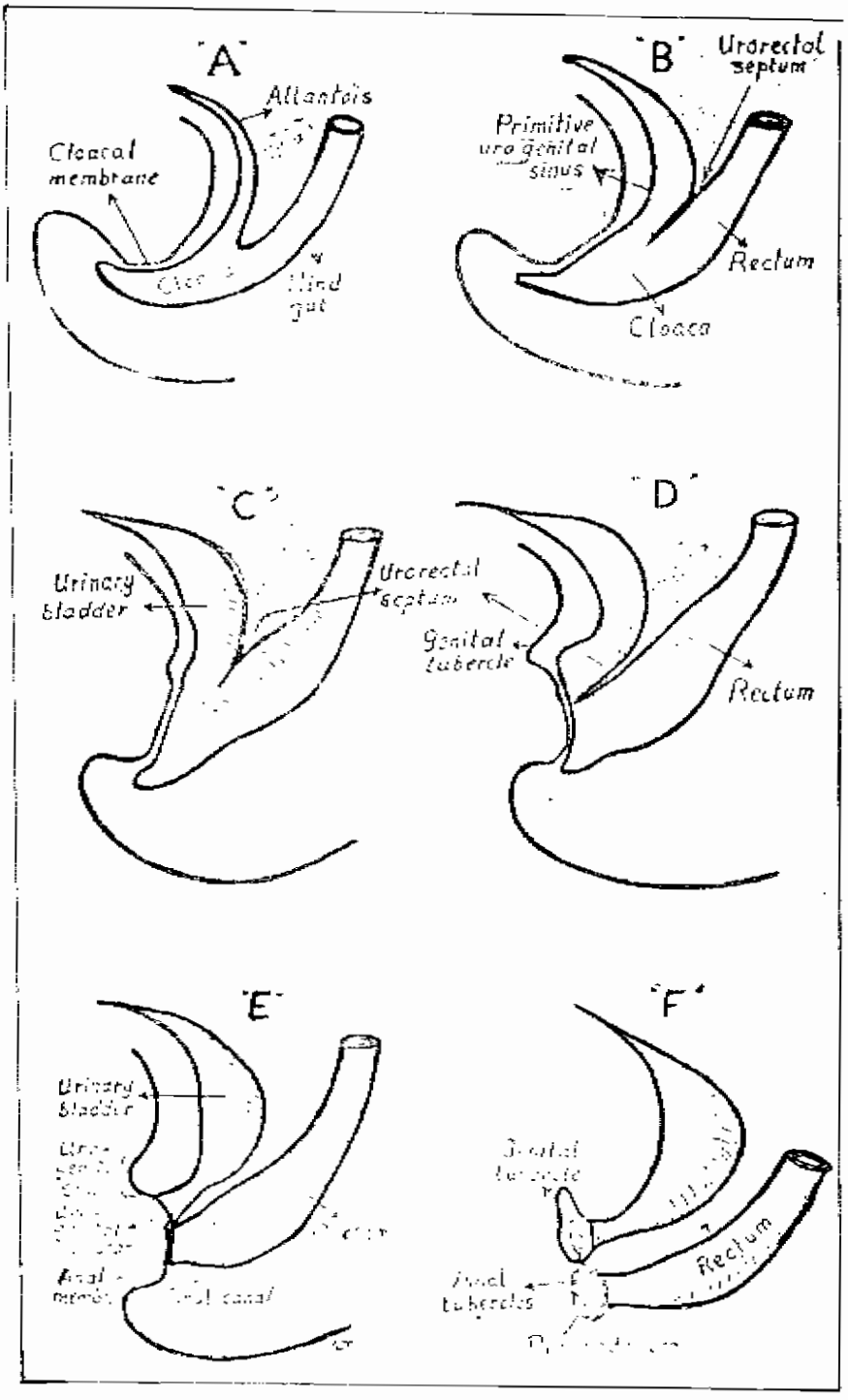

Fig. 1 Diagrams illustrating stages of development of rectum and anal canal. (From Mahran et al 1970).

readily to the increase in tension. Fissure in ano is very painful because it involves the lower sensitive part of the anal canal. In injection of piles the needle is inserted into the insensitive upper part and not into the sensitive ectodermal part of the anal canal (Warwick and Williams, 1973).

Chapter 2

ANATOMY

ANATOMY OF THE ANAL CANAL

The anal canal begins where the lower end of the ampula of the rectum suddenly narrows, passing downwards and backwards to end at the anus. The anorectal junction is situated 2-3 cm. infront of, and slightly below the tip of the coccyx. The anal canal is about 3.8 cm. long in the adult, its anterior wall being slightly shorter than its posterior, and in the empty condition its lumen has the form of an anteroposterior longitudinal slit (Fig.2.1),(Warwick and Williams,1973).

Posteriorly, the anal canal is in contact with a mass of fibrous and muscular tissue, termed the anococcygeal ligament, which separates it from the tip of the coccyx. Anteriorly, it is separated by the perineal body from the membranous part of the urethra and the bulb of the penis in male, and from the lower end of the vagina in the female. Laterally, it is related to the ischiorectal fossae. Over its whole length it is surrounded by sphincter muscles, which normally keep the canal closed (Warwick and Williams, 1973).

The lining of the anal canal consists of an upper mucosal and a lower cutaneous part, the junction of the two being marked by the line of the anal valves about three-fourths of an inch from the anal orifice and opposite the middle or the junction of the middle and lower thirds of

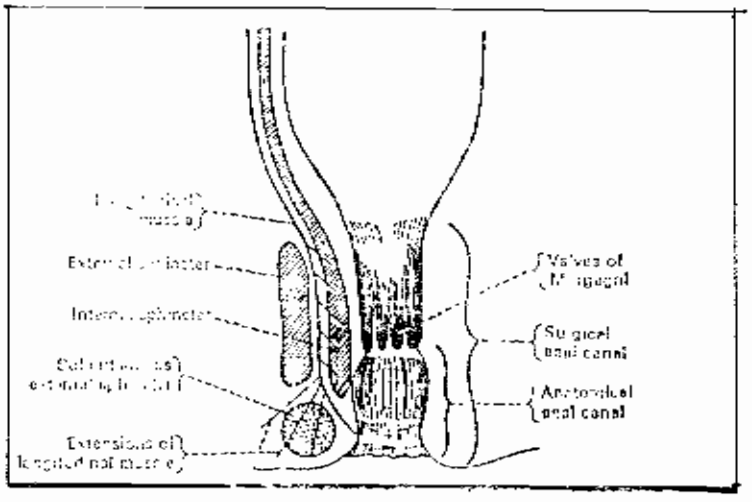

Fig 2.1 The surgical and anatomical anal canals.
(From Du Plessis 1975).

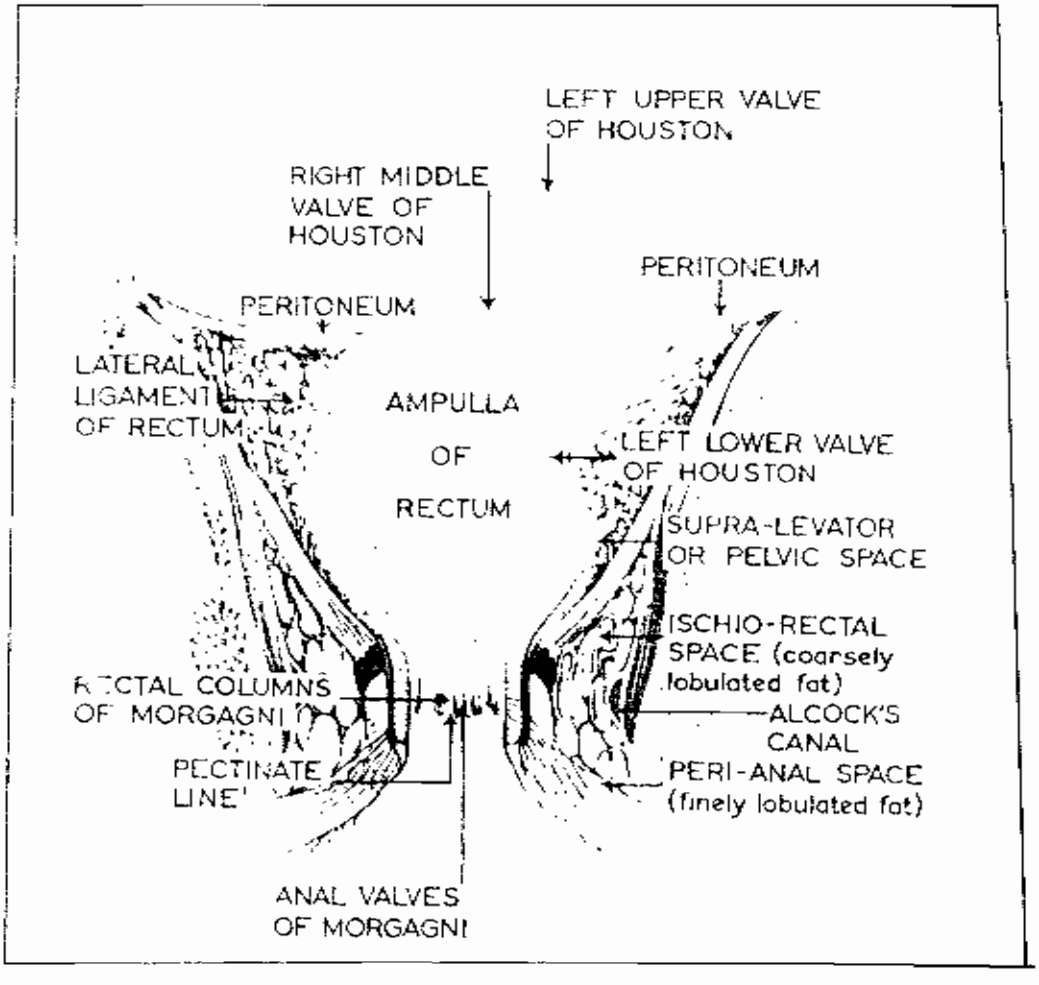

Fig. 2.2 A coronal section of the pelvis, rectum and anal canal showing the mucocutaneous lining of the anal canal and the tissue spaces around it (From Goligher, 1980).