(ANORECTAL SUPPURATION)

THESIS

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BY

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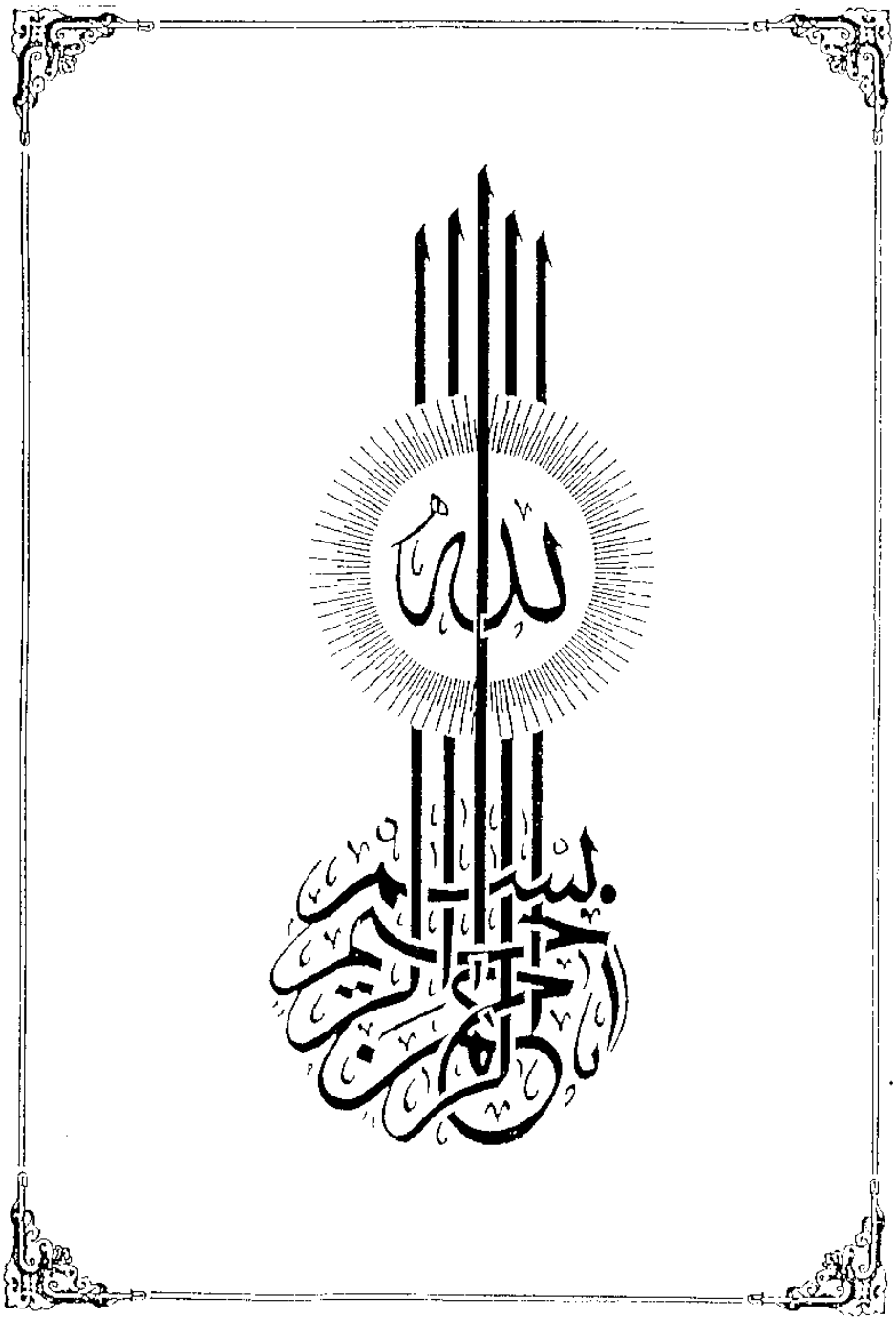

INTRODUCTION

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The condition of peri-anal suppurations is very common and usually face every surgeon, So, proper understanding of the anatomical, physiological and pathological basis is required for proper management.

Abscess formation in the tissues adjacent to the anal canal and lower rectum is common and unlike many acute suppurative lesions, it has a peculiar tendency to persist in a chronic form or followed by fistula formation which may be very troublesome for the patient.

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ANATOMY AND PHYSIOLOGY

Anatomy Of The Anal Canal

This short passage though only 3 cm. long is of the greatest surgical importance, both because of its role in the mechanism of rectal continence and because it is prone to certain diseases.

In the normal living subject the anal canal is completely collapsed owing to the tonic contraction of the anal sphincters, and the anal orifice is represented by an anteroposterior slit in the anal skin.

Posteriorly the canal is related to the coocyx with a certain amount of fibres, fatty and muscular tissue intervening. Laterally there is the ischiorectal fossa on either side with its contained 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 triangle (urogenital diaphragm) containing the membranous urethra . In the female, the canal is related in front to the perineal body and to the lowest part of the posterior

vaginal wall.

The mucocutaneous lining of the anal canal :-

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 anal line of the anal valves about 2 cm. from the anal orifice and opposite the middle or the junction of the middle and the lower thirds of the internal sphincter.

This level is also sometimes referred to as the pectinate or dentate line because of the serrated fringe produced by the valves.

The pectinate line marks the junction of the postallantoic gut and the proctoderm, the valves themselves representing the remnants of the proctodeal membrane. Above each anal valve is a little pit or pocket known as anal sinus or sinus of Morgagni. Above the pectinate line, the mucosa is thrown into 8 to 14 longitudinal folds known as columns of Morgagni, each adjacent two columns being connected below at the pectinate line by an anal valve. The mucosa immediately above the

valves is lined by epithelium consisting of several layers of cuboidal cells, traced upward these give way to a single layer of columnar cells. (Goliger, J.C. 1975).

As Milligan et al. (1937) have pointed out, there are colour changes also in the living anal mucosa when followed upwards from the pectinate line. For 1 cm. above the line, the mucosa is deep purple in colour, but about the anorectal ring it changes to the pink colour of the rectal mucosa.

Below the pectinate line the anal canal is lined by a modified skin devoid of hair and sweat and sebaceous glands and closely adherent to the underlying tissues. The lining of this part of the canal for about 1 cm. below the anal valves appear thin, smooth, pale and stretched. This are sometimes know as the pectin (Stroud 1896). Traced furtner inferiorly, the lining becomes thicker and just outside the anal orific acquires the hair follicles, glands and other histological features of the normal skin (Fig. 1).

Anal intermuscular glands :-

It is offen possible to demonstrate extention of the anal mucosa through the substance of the wall of the anal canal. These are the anal glands or ducts. There are apparantly 4 to 8 of these glands in the normal anal canal as a rule. Each has a direct opening into the apex of an anal crypt and occassionally 2 glands open into the same crypt.

It is highly doutful wether the anal glands have any secretory function, they appear to be simply blind outgrowth of the anal crypts. Their surgical significance arise from the fact that they may provide an avenue of infection from the anal canal to the submucous and intersphincteric spaces; they may also be the site of origin of an adenocarcionma as has been pointed by Dukes and Galvin 1956 (Fig. 2).

The musculature of the anal canal :-

The internal anal sphincter :

Superiorly it is continuous with the circular muscle coat of the rectum, and inferiorly it ends

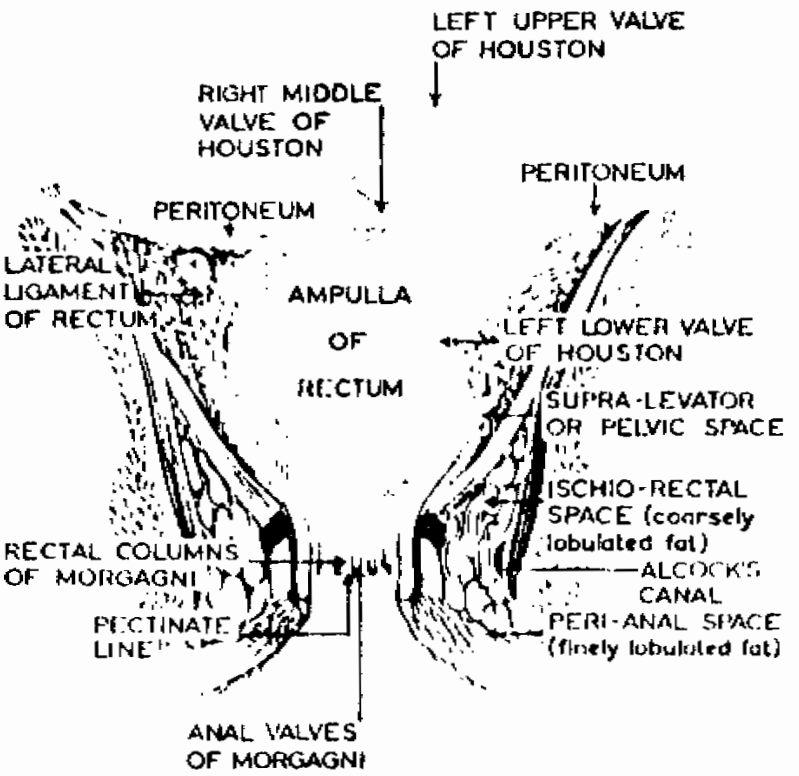

Fig. 1 : A coronal section of the pelvis and rectum showing the lateral cures and valves of Houton.

with a well defined rounded edge 6-8 mm. above the level of the anal orifice and 12 to 8 mm below the level of anal valves.

A remarkable feature of this muscle is that the muscle fibres are grouped into discrete elliptical bundled which in the upper part of the sphincter lie obliquely with their transverse axis running internally and downwards. This obliquity becomes progressively less as the internal sphincter is traced downwards so that the lower part of the muscle bundles lie horizontally. Sections stained by weigert's method show that the internal sphincter consists of plain muscle fibres.

The external anal sphincter :-

The external anal sphincter is seen to extend farther downward than the internal sphincter, and the lowermost portion curves medially to occupy a position below and slightly lateral to the lower rounded edge of the internal sphincter and close to the skin of the anal orifice.

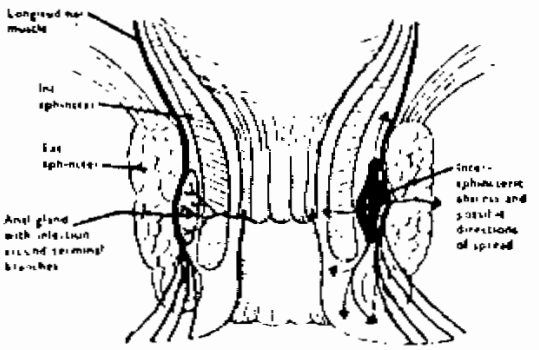

Fig. 2 : The genesis of intersphincteric abscess from anal glandular infection, and the possible avenues of extension.

Contrary to the account of Milligan and Morgan (1934) there has been no suggesstion in our histological sections of division of the external sphincter into three separate parts the muscle is one continous sheet. However the lowermost or subcutaneous portion of it, does differ from the rest in that it is traversed by a fan-shaped expansion of the longitudinal muscle fibres of the anal canal which split it up into 8 to 12 discrete muscle bundles (Goligher 1975).

At its upper end the external sphincter fusess with the pubo-rectalis part of the levator ani muscle and it is quite impossible in histological sections to say when one muscle ends and the other begins. Both muscles are made of stripped muscle fibres.

The longitudinal muscle fibres :

The main layer of longitudinal fibres in the anal canal is seen to lie between the internal and external sphincters.

Histologically, this layer consists of nonstripped muscle fibres mixed with elastic tissue.

Traced upwards it is continous with the outer longitudinal muscle layer of the rectal wall and is joined by some stripped fibres of the levator ani.

Traced downwards it is seen to break-up opposite the lower of the internal sphincter into a number of septa which diverge fanwise and pass radially through the lowermost part of the external sphincter.

An additional layer of longitudinal fibre, first described by Fine and Lewes (1940) is one that lies on the inner aspect of the internal sphincter under the anal mucosa and skin. They have named it musculus submucosae ani composed of unstripped muscle fibres together with elastic fibres. Inferiorly, a few of the fibres of the musculus submucosae ani become continuous around the lower edge of the internal sphincter with the innermost fibres of the main intersphincteric longitudinal layer. But the