DIFFERENT LINES OF MANAGEMENT OF ANAL FISTULAE

ESSAY

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By

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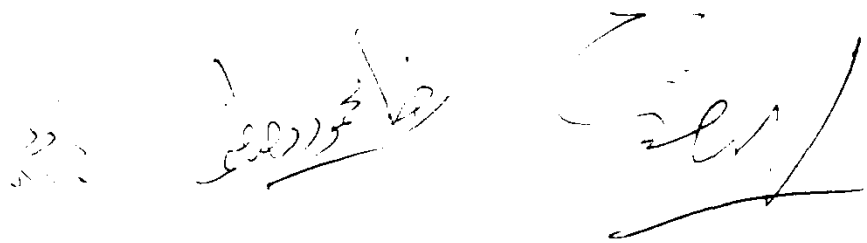

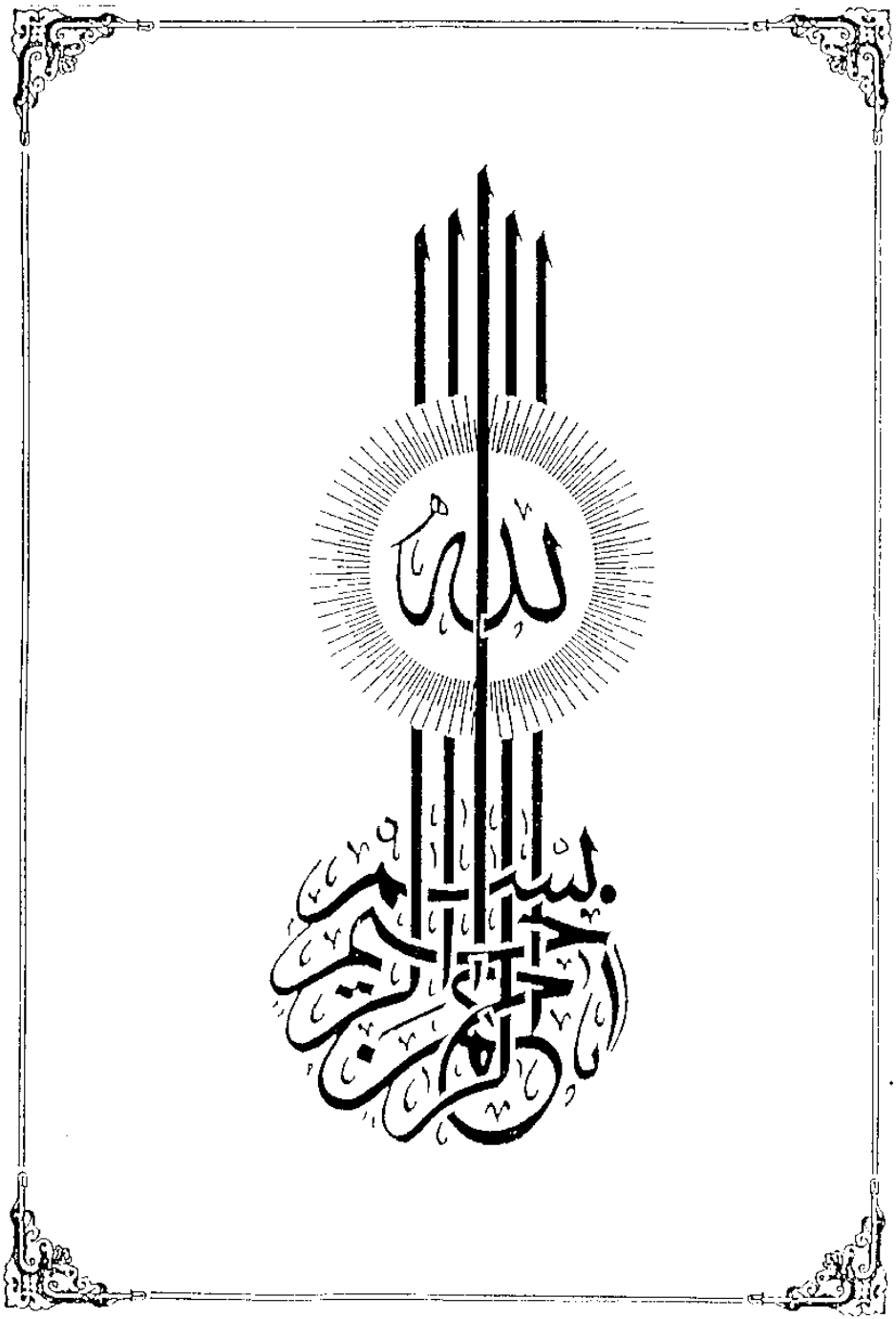

INTRODUCTION

The sofistication or the glamorous title of a study is not a function of its importance or applicability. So, an essay dealing with a classic subject-like fistula-in-ano- should not be regarded as a routine one.

Anal fistula is a very common proctologic problem as it represents about 24.4 % of all anorectal diseases. It is more common in males especially in the middle age, that is why it represents a socio-economical burden.

If the fistula is improperly treated it will lead to many complications such as branching, extension, chronicity and recurrence, it will be too difficult to treat and more agonizing to patient. That is why this subject has been studied.

Our essay includes a review of anatomy and physiology of the anal canal. Then we discuss pathology, etiology, diagnosis, differential diagnosis and treatment.

Owing to the recent advance in surgical techniques,

there are new therapeutic trends especially in treatment of the high and special types which were regarded as untreatable conditions. We will throw some spotlights on these new techniques.

Finally, we hope that this study offer some help in dealing with such conditions.

Anatomy of the anal canal

The anal canal is a short canal connecting the rectum with the exterior

It measures about 4 cm long and surrounded by a muscular compartment controlling the passage of its content. It is collapsed anteroposteriorly by the action of its sphincters.

Relations of the anal canal :

The anal canal is related laterally to the ischiorectal fossa on both sides, this fossa contains fat with the inferior haemorrhoidal vessels and nerves crossing them to the anal canal.

Posteriorly the anal canal is adherent to the coccyx with certain amounts of fibrous, fatty and muscular tissue.

Anteriorly it is related in females to the perineal body and the lower part of the vaginal wall. But in males it is related anteriorly to the central point of the perineum, the bulb of the urethra and the posterior borders of the urogenital diaphragm containing the membranous urethra.

Mucocutaneous linning of the anal canal :

As the anal canal is formed from the fusion of postallantoic gut with the proctoderm and the surface of fusion being the proctodeal membrane, so

The mucocutaneous lining of the anal canal is composed of upper mucosal and lower cutaneous part with the line of anal valves at their junction (Hilton's white line) (Last 77). This line is about 2 cm from the orifice nearly between the middle and lower thirds. This line looks in practice like dentate or pectinate line. The anal valves represent the remnants of the proctodeal membrane along each one there is a sinus called anal sinus or anal crypt of Morgagni. If infection or trauma occurs to this sinus there will be anorectal abscess. The mucosa above the pectinate line is thrown into 8-14 longitudinal folds known as columns of Morgagni, and anal valve connects every 2 columns together.

The linning epithelium above the anal valve is changed from stratified cuboidal into single columnar epithelium along a distance about 1 cm (Goligher et al. 1955).

The mucosa above the anal valves is deep purple in colour, then changes to pink colour at the anorectal ring which is the colour of rectal mucosa. Below the pectinate line the anal canal is lined with modified skin devoid of hair, sebaceous glands and it is adherent to underlying structures.

The surgical importance of anal intermuscular glands and their anatomy was researched patiently by Parks (1967). He found that they have an important role in pathogenesis of anal fistula.

Normally there are 4 - 8 glands each one opens directly to the apex of an anal crypt. The glands ramifying by their ducts into the submucosa. They never ramify above the level of the anal valves and are always present in the submucosa, internal sphincter or intersphincteric plane. The glands are lined by stratified columnar epithelium. It is not known whether the glands have a secretory function or not.

They may be the site of origen of adenocarcinoma of the upper part of the anal canal.

Musculature of the anal canal

The ano-rectal mechanism is made up of two parts both has tubular shape. They overlap each other every one covers 2 thirds of the canal. The inner one is surrounded by skeletal muscles of pelvic floor which forms at its lower most part the external anal sphincter, while the inner part which is formed of circular muscle of the viscus forms at its lower-most part the internal anal sphincter.

The internal anal sphincter:

It is a well defined rounded edge ¼ - ⅓ inch above the anal verge. This edge is the continuation of the muscle coat of the rectum which becomes thicker at the level of anal valves. The internal sphincter formed of plain muscle fibres, it is innervated from the pelvic plexus, sympathetic stimulation contracts the muscle while parasympathetic stimulation relaxes it.

The external anal sphincter:

It extends further downwards than the internal sphincter and the lower-most portion curves medially to occupy a positon below and slightly lateral to the

lower rounded edge of the internal sphincter and close to the skin of the anal orifice. Goligher stated, that the external sphincter is not divided into three separate parts, but it is one continuous sheet of muscle, but the subcutaneous portion is traversed by a fan shaped expantion of the longitudinal muscle fibres of the anal canal which split it up to 8 - 12 discrete muscle bundles. The external sphincter fuses at its upper end with the puborectalis part of the levator ani muscles.

Longitudinal muscle fibres :

It is the continuation of the outer longitudinal fibres of the rectum. The main part lies between the external and internal sphincter. It breaks up opposite the lower-part of internal sphincter into numbers of septa. Which diverge fanwise and pass radially through the lowermost part of the external sphincter. Some of these fibres attach to the skin while the rest lose themselves in the fat.

Musculus submucosae ani :

It is muscular elements mixed with elastic

fibres mainly in the submucosa of the anal canal. It continues downwards and outwards superficial to the subcutaneous part of the external sphincter to be attached to the skin of the anus and perineal region. This constitutes the corrugator cutis ani.

The levator ani muscle

It is abroad sheet of muscle which is attached to the sides of pelvic wall and unites medially with its fellow to form the greater part of pelvic floor this muscle constitutes the pelvic diaphragm and plays an important role in the process of continence.

It is consists of three parts:

1) Ileo-coccygeus: It arises from the ischial spine and posterior part of the white line of pelvic fascia covering the obturator internus muscle. The fibres run downwards, backwards and medially. The insertion is in the sides of the last two pieces of the sacrum and into the anococcygeal raphe of the levator.

2) The pubococcygeus: It arises from the back of the pubis and the anterior part of the obturator

fascia. The direction is almost horizontally backwards along the side of the lower part of rectum. It fuses with its fellow of the opposite side to constitute a broad fibrous band lying on the anococcygeal raphe. This band continues up to be inserted into the anterior aspect of the first piece of the coccyx and last piece of the sacrum.

3) The pubo-rectalis: This name is applied to those fibres of the pubococcygeus which unite to form a sling behind the rectum and anorectal junction. It arises from the lower-part of the back of symphesis pubis and the superior fascia of the anogenital diaphragm. It runs backwards along side of the anorectal junction to join with its fellow immediately behind the bowel to form a strong U shaped loop slings the rectum to the pubis.

The anorectal ring

It is a functioning ring of muscle which surrounds the junction of the rectum and anal canal.

It is composed of the upper border of the external and internal sphincters which completely encircles

the junction. In the posterior and lateral aspects of the ring there is the puborectalis sling so, the ring is stronger laterally and posteriorly. It is very important to identify the anorectal ring in anal operations for fear of its division which leads to incontinence

Nerve Supply of the Anal Canal

Motor supply :

The internal sphincter is supplied by sympathetic which is motor and parasympathetic which is inhibitory to the sphincter, the innervation reaches the muscle by the same routs as the blood supply to the lower rectum.

The external sphincter which is voluntary contracting has two sources of supply on either side, the inferior haemorrhoidal branch of the internal pudendal and the perineal branch of the fourth sacral nerves.

The levator ani muscles which are a part of the voluntary sphincter mechanism of the anus are supplied on their pelvic aspect by twigs from the fourth sacral nerve, on their perineal aspect by the inferior haemorrhoidal or perneal branch of the pudendal nerve.

Sensory innervation :

The cutaneous sensation felt in the perineal region and of the wall of the anal canal till the level of anal valves is conveyed by the afferent fibres in the inferior haemorrhoidal nerves.

The dull sensation experienced in the mucosa above the level of the valves in response to touching or pinching is possibly mediated like rectal sensation via the parasympathetic nerves.

Blood supply of the rectum and anal canal

Generally speaking their blood supply is mainly from the inferior mesenteric and internal pudendal vessels as follows :

1) Superior rectal artery :

It is the direct continuation of the inferior mesentric artery as it reaches the rectum, it divides into right and left branches each of which divides into anterior and posterior branches. It supplies the gut as far as the mucocutaneous junction of the anal canal.