Review of Modern Literature
ANATOMY OF RECTAL AND ANAL CANAL :

The rectum and the anus fuse over a zone several centimeters long, and together these structures are termed the 'anorectum'. The distal anal canal is lined by modified skin (anoderm), the epithelium of the upper anal canal is columnar, and the transitional zone (cuboidal epithelium) lies between the two. The anoderm is exclusively sensitive, but the upper anal canal is relatively insensitive.

At the dentate line, an important site of pathologic problems, anal papillae project into the lumen. Flaps of skin connecting anal papillae are termed anal valves; behind these valves lie anal crypts, each containing in its depths an anal glands.

The internal anal sphincter is the thickened lower portion of the circular smooth muscle layer of the gut. This involuntary muscle
is encircled by skeletal muscle bundles compressing the external sphincter. The levators ani form the muscular floor of the pelvis. One of the levators, the puborectalis, passes around the rectum as a sling and is easily palpable posteriorly on digital rectal examination.

The rectum begins as the continuation of sigmoid colon on the pelvic surface of the third sacral vertebra. The junction being indicated by the lower end of the sigmoid mesocolon. It is approximately 12 cms long and follows the curve known as sacral flexure of the rectum. In this way it passes downwards and backwards. The downwards and forwards to become continuous with the anal canal by passing through the pelvic diaphragm. It ends by turning postero-inferiorly as the anal canal, where the ano-rectal junction is situated 2 to 3 cms beyond the tip of coccyx and immediately posterior to the central perineal tendon and to the apex of the prostate in males.

The backward bent of the gut at the ano-rectal junction being termed the perineal flexure of the rectum. The lower part frequently more dialated than the remainder to form the rectal ampula. The beginning and the end of the rectum are in the median plain. Peritoneum covers the front and sides of the upper third of the rectum, and gradually passing forwards turns off the front
THE DIAGRAM SHOWING THE RECTUM & SIGMOID COLON:

of the rectum at the junction of its middle and the lower third.

On to the back of the bladder in male and the posterior fornix of the vagina in the females and forming the recto-vesical pouch of the peritoneum and recto-uterine pouch respectively., which are about 7.5 and 5.5 cms from the anus.

The peritoneum is generally attached to the muscle coat but as it descends on the rectum the peritoneum becomes more loosely attached and separated from the muscle by fatty tissue and thus, allows considerable expansion of this part of the gut.

A number of longitudinal folds are present in the lower part of the rectum. In addition to these there are permanent transverse or horizontal folds of semilunar shape commonly three folds are present but their number is variable.

RELATION OF THE RECTUM :

Anteriorly in the male above the site of reflection of the peritoneum from the rectum the upper part of the base of the bladder and of the seminal vesicles and the recto-vesical pouch of the peritoneum and contents are in front of the rectum while
THE DIAGRAM SHOWING THE ANAL CANAL WITH MORGAGNI'S VALVE'S;
below the peritoneal reflection the rectum is related anteriorly to the lower part of the base of the bladder and of the seminal vesicle, the deferent ducts, the terminal part of the ureters, and the prostate in the male above the peritoneal reflection the uterus, the upper part of the vagina, and the recto-uterine pouch and its contents.

Posteriorly the rectum is in contact with the lower three sacral vertebrae, the coccyx, the medial sacral vessels, the braches of the superior rectal vessels, the ganglion impar in the median plane while on each side of the midline the pyriformis, the anterior remii of the lower three sacral and coccygeal nerves, the sympathetic trunk, the lower lateral sacral vessels, and the coccygeal and levator ani muscles lie behind the rectum particularly to the left side. Laterally the rectum is in contact with the peritoneum superiorly and inferiorly with the fat and fascia over the coccygeous and the levator ani muscles.

**ANAL CANAL**

This canal extends postero-inferiorly from the lower end of the ampula of the rectum suddenly narrows to the anus. It is 3.8 cms long in the adults and its superior part lies in the pelvic
cavity surrounded by the thickened inferior part of the circular muscle layers of the intestines.

RELATION OF THE ANAL CANAL :

Anteriorly the anal canal is related with the mebranous part of the urethra and the bulb of the penis in the male and the lower end of the vagina in the female. It is in contact with the ischio-rectal fossae. It is related posteriorly to the tip of the coccyx and ano-coccigeal ligament.

SURGICAL ANATOMY (87) (88) :

Lining of the anal canal :

The upper half of the anal canal is lined by mucus membrane and is plump coloured owing to the blood in the subjescent internal rectal venous plexus. In this region mucus membrane presents six to ten vertical folds, the anal canals or columns of Morgagni and is well defined in the adults. The lower ends of the columns are joint together by small cresentric folds of the mucus membrane termed as anal valves.
Above each of the anal valves lies a small recesses known as anal sinuses. The line along with the anal valves are situated is termed the pectinate line. The small epithelial projection called anal papillae are present on the edges of the anal valves. The succeeding part of the anal canal extend for about 15 mm below the anal valves is called as the transitional zone of pectine. This zone overlies the internal venous plexus and ends below at a narrow wavy zone commonly called the white line.

The anal glands extend inferiorly or superiorly into the submucosa and sometimes penetrate deeply into the internal sphincter which opens into the lining of the anal canal crypt and extends above the ano-rectal junction.

ANAL MUSCULATURE :

The superior part of the anal canal lies in the pelvic cavity surrounded by the thickened inferior part of the circular muscle layer of the intestines. The involuntary internal anal sphincter and with the lower part of the levator anii muscle. The internal sphincter muscle is pearly white in colour during the life time. Some of the more vertical fibres of the levator anii muscle pass into the longitudinal muscle of the intestines and run with it
A Diagram of the Portal Venous System to Show Its Anastomoses with the Systemic Venous System (Black)

1. Rectal Plexus
2. Left Middle Rectal Vein
3. Left Inferior Rectal Vein
4. Superior Rectal Vein
5. Inferior Mesenteric Vein
6. Splenic Vein
7. Portal Vein
8. Left Branch of Portal Vein
9. Right Branch of Portal Vein
through the bundles of the external shincter to the perineal skin, thus, anchoring the longitudinal muscle and levater ani inferiroy.

The external sphincter surrounds the lower two thirds of the anal canal. This muscle consists of three parts and each is composed of striated muscles.

1. A subcutaneous part that surrounds the anal orifice and has no bony attachment, but its fibres decussate anteriorly and posteriorly to the anus.

2. A superficial part which is oval in shape with bony attachment and ano-coccigeal ligament and pass anteriorly around the anus to the central perineal tendon and

3. A deep part which surrounds upper part of the internal shincter and is fused with the inferior part of the levator ani called pubo-rectalis.

ARTERIAL SUPPLY:

The arteries which supply the rectum and the anal canal are four in number.
1. The superior rectal artery
2. The middle rectal artery
3. The inferior rectal artery.
4. The median sacral artery

Superior rectal artery :

This is a continuation of the inferior mesentric artery which is the chief arterial supply to the rectum. It divides into two branches on the third sacral vertebra on each side of the rectum. the right one divides into an anterior and posterior division whereas the left has no branch. These three branches terminate at the columns of Morgagni at 3, 7 and 11 '0 clock which are the sites of primary piles.

Middle rectal artery :

The middle rectal artery is a small branch which arises on each side from internal iliac artery and anstomoses with superior and inferior rectal arteries.

Inferior rectal artery :

This is a branch of the internal pudendal artery, branches above
the ichial tuberosity. Escaping through the connective tissue and of the pudendal canal and arising on each side which crosses the ischio-rectal fossa medially to supply the skin and musculature of the anal canal region.

Median sacral artery:

This small vessel originally the caudal part of the aorta arising from the posterior surface of the aorta immediately above the bifercation. It descends in the median plane on the vertebral column to the coccyx, where it ends in a cellular body the Glomus Coccygium and supplies to the posterior wall of the ano-rectal junction and of the anal canal.

Venous drainage of the anal canal:

The venous plexus of the rectum lies on the surface of the rectum and in its submucosa. They drain by way of the superior, middle and the inferior rectal veins and hence form a root of communication between the portal and systemic venous systems. The rectal venous plexus is directly drain by the superior rectal vein which continues as the inferior mesentric vein and through this plexus communicates with the middle and inferior rectal
The middle rectal vein varies in size. It begins at the rectal venous plexus with tributeries from the bladder and end in the internal iliac vein. The inferior rectal vein which begins from the rectal plexus and drain the lower part of the anal canal. This, inferior mesentric vein opens in the splenic vein and it unites at a right angle with the superior mesentric vein to form the portal vein. Thus, the blockage of the portal vein leads to the distention of this plexus when distended to form haemorrhoids. The submucus plexus may even cause prolapse of the rectal mucossa through the anus.

THE LYMPH VESSELS OF THE ANAL CANAL AND THE RECTUM:

The lymphatic drainage of the rectum and anal canal follows the venous return which consists of mainly of three sets:

a) Superior rectal lymph nodes from the upper half or more of the rectum. The lymph vessels emerge from its wall and ascend along the superior rectal vessels.

b) Middle rectal lymph nodes. These are found close to the middle rectal vessels which drain into the internal iliac nodes.

c) Inguinal lymph nodes: The lymphatics pass up to the inguinal lymph nodes and drain the anus and lower portion of the anal canal. Other rectal lymph vessels pass to the sacral and
common iliac lymph nodes. Some ascend with the inferior mesentric and lumber nodes.

NERVE SUPPLY :

Above the dentate line the rectum and the anal canal is supplied by the sympathetic and parasympathetic nerve fibres. The sympathetic nerve supply is comprised by branches of inferior mesentric plexus and presacral nerves from the preaortic plexus commensing in the second, third and the forth sympathetic ganglion. While the parasympathetic supply comes from the second third and the forth sacral nerves. The main function of the sympathetic nerve is to inhibit the rectal wall and stimulate the internal sphincter whereas the parasympathetic nerves stimulate the rectal wall and inhibit the shincter.

Afferent impulses underlying sensation of physiological distention are conveyed by the parasympathetic nerves while pain impulses are conducted by both the sympathetic and the parasympathetic nerves. The inferiorhaemorrhoidal nerve supply, the distal portion of the pectinate line and the part of the external shincter. The external shincter anii is also supplied by the perineal branch of the 4th sacral nerve.
PHYSIOLOGY OF DEFAECATION (89):

Defecation is an act of emptying the distal colon from the splenic flexure through the anal orifice into the exterior which is a reflex process.

Mostly the rectum is empty of faeces. The faecal masses driven forwards by the mass movements of the colon are stored in the sigmoid of the pelvic colon. The desire to defaecate occurs when is a result of a mass movement some faecal matter enters the rectum. When faeces enter the rectum distention of the rectal wall initiate the afferent signals that spread through the mesentric plexus to initiate the peristaltic wave in the descending colon, sigmoid, and the rectum forcing the faeces towards the anus.

Various physical exercises, breakfast, glass of warm water, a cup of tea or smoking and mass movements help to provide mechanical stimulation of the intestines giving rise to gastro-colic reflex and may have the same effect.

The act of defaecation provides another instance of a reflex that
is under some degree of voluntary control. The voluntary regulation consists of the ability to inhibit the reflex under normal circumstances and to initiate it voluntarily, provided the necessary visceral stimulus is present.

The reflex centres for the defaecation have been located in the hypothalamus, in the lower lumbar and upper sacral segments of the spinal chord and in the ganglionic plexus of the gut. The reflex is initiated by the rise of intraluminal pressure of about 20 to 25 cms of water in rectum containing pressoreceptors, which not only detects increase of pressure but also differentiates whether the increase in pressure is due to gas, liquid or solid.

Many workers have measured the high pressure zone in the anal canal noted response to the distention of the colon and the rectum (Hill, Kelly et al).

Bennett showed that the relaxation in response to the rectal distention was most marked in the caudal portion of the anal canal.
It is known by several names like the piles in Latin meaning Pila i.e. a ball, derived as Haemorrhoids in Greek meaning Haima i.e. blood and Rhoos i.e. 'Flowing of blood and Fig in French. The aristocracy call them haemorrhoids.

DEFINITION:

Dilatation of the veins of the internal rectal plexus constitutes the condition of the internal haemorrhoids which are covered by the mucus membrane. The external haemorrhoidal plexus are also formed in the same way which is placed below the dentate line and around the perianal region., are external haemorrhoids being covered with skin. The union of these two types are known as 'interno-external haemorrhoids'.

ANATOMICAL CONSIDERATION OF HAEMORRHOIDS:

Haemorrhoids are the varicose and tortious veins of the anus and occur in relation to the pectinate line. They are often related to with the portal and systemic circulation. The superior haemorrhoidal veins have no valves as the part of the portal
circulation. So the veins in the anal columns have to support the pressure all the way from where the portal veins enter in the liver. The dilatation of the veins commonly occurs due to any straining at stool, chronic constipation or long standing constipation.

INCIDENCE OF HAEMORRHOIDS:

1. Haemorrhoids are rarely found in infants and children. But are usually associated with constipation in children. The condition seldom occurs before the third year of age. In 23443 patients with haemorrhoids the condition was found most frequently in the fifth decade. "Kantor's" study showed that haemorrhoids were as frequent in patients complaining of colitis (29%)

A condition associated with diarrhoea as of constipation (26%) and that the condition more frequent (38%) in the presence of the cathertic habits than in any other group.

AETIOLOGY (94):

Various aetiological factors are mentioned by authorities.
Further, they have widely emphasised that haemorrhoids frequently result from constipation. It would appear that aging may be a factor in increasing the incidence of haemorrhoids but in view of the several other factors which predispose or contribute to their cause, it will be difficult to ascertain the truth regarding the effect of aging.

HEREDITY :

It is believed that role of heredity in the formation of haemorrhoids is not uncommon and so frequently seen in the members of the same family. There may be a congenital weakness of the vein walls or an abnormally large arterial supply to the rectal plexus which may be associated with constipation and irritability of the colon.

ANATOMICAL FACTORS :

These are mainly concerned with the well known features of the portal system particularly the absence of valves and the long columns of the blood which in upright posture extend from the internal haemorrhoidal plexus to the liver. Due to this back pressure is the exerted over the haemorrhoidal veins causing
their dilatation.

Other anatomical factors are also important which are as below:

1. The collecting radicles of the superior rectal vein lie unsupported in the very loose submucus connective tissue of the rectum, where the venous return may be obstructed by impaction of the hard faecal masses in the rectal lumen.

2. When these veins pass through the muscular tissue of the rectum they become constricted by its contraction during defecation.

3. The superior rectal veins being tributeries of the portal veins have no valves.

EXCITING CAUSES:

1. Straining at stools and chronic constipation, this is associated with constipation or over purgation is considered to be a potent cause of haemorrhoids as well as, the anxiety of the patients part to empty the rectum to the last particles of the fecal material.
2. STRAINING AT WORK (OCCUPATIONAL) :

Those persons who are entwined with their heavy manual work like porters, labourers, coal heaviers are responsible for producing the disease haemorrhoids. Long sedentary occupation is frequently mentioned for the development of the haemorrhoids.

PROLONGED STANDING :

Persons who are tram drivers, conducters of public vehicles, postmen, shopkeepers, etc are prone to develop haemorrhoids after reaching middle age.

SPHINCTRIC RELAXATION :

After an illness or shock, there may be some loss of shincter tone, which may give rise to haemorrhoids, especially in the old age.

ABDOMINAL AND PELVIC CAUSES :
In women, there may be some physiological and pathological causes, which are prone to produce the disease haemorrhoids due to increase venous pressure and vericosity of veins during the last trimester of pregnancy, and also uterine fibroids, uterine retroversion, large abdominal tumour of ovarian cyst. In males urethral stricture an prostatic enlargement may give rise to habitual straining leading to formation of haemorrhoids.

PARTURITION :

In the second stage of labour, the tension is marked within the haemorrhoidal plexus and also in those who have already developed haemorrhoidal disease either prior to or during pregnancy there is great likelihood of a severe episode of acute haemorrhoids immediately following delivery.

ANAL INFECTION (97) :

This is one of the chief cause of the haemorrhoidal disease as
infected material from the bowel trapped in one or many anal crypts is directed into the ducts and glands. Hence, the anal crypts are the main source for the administration of the infection to the vascular and the perivascular structures being dialated ultimately.

PATHOLOGY (94):

Haemorrhoids are the varicose conditions of the veins which are related to the anus and originating in the sub-epithelial plexus with marked round cell infiltration of perivascular supporting tissue. They are formed by the radicles of the superior middle and the inferior haemorrhoidal veins. Internal haemorrhoids originate from the internal haemorrhoidal plexus whereas external haemorrhoids from the external haemorrhoidal plexus below the pectinate line and around the perianal region.

Internal haemorrhoides are arranged in three groups, left lateral, right posterior and right anterior at 3, 7 and 11 0 clock positions respectively according to the arterial supply of the anus.

The right branch of the superior rectal artery has two divisions
while left remains single.

PEDICAL :

All the internal haemorrhoids are divided into three parts as follows :

1. The pedicle lies in the rectum just above ano-rectal ring which is covered by pale pink mucosa through which large tributaries of the superior rectal vein can be seen. Rarely a pulsating artery can be felt in this condition. Therefore, the haemangiomatous condition of this artery is not uncommon and terminal branch of the superior rectal artery can be called as arterial piles.

2. The haemorrhoids are situated at the ano-rectal ring and ends at dentate line which are usually bright red or purple covered by mucus membrane.

SYMPTOMATOLOGY (95) (96) :

1. Bleeding per rectum: Bleeding is the earliest and principle
symptom of the internal haemorrhoid. Initially the bleeding is slight and bright red in colour. It occurs during the defaecation. Fresh bleeding per rectum off and on when the patient is constipated is the characteristic of the present feature. This may continue for months or years becoming independent on the bowel action.

2. Pain : Uncomplicated piles are generally not painful, but it is due to an acute attack of prolapsed with thrombosis. It arises from the involvement of the one or the more parts or complete external region of the haemorrhoidal plexus and much related to the external oedema, overstretching of the skin, congestion or due to the presence of some acute anal lesion such as an anal fissure and an anal abscess etc.

3. Discharge : A mucoid discharge is not an uncommon symptom of the prolapsing haemorrhoids through the rectum particularly in the third degree piles.

4. Prolapse : 'Tuttle' mentioned that prolapse meaning falling down. 'Buie' divides the types of prolapse into two categories i.e. visible and concealed. The visible prolapse may be partial or complete while the concealed rectal prolapse is an intussusception of the upper portion of the rectum. In the late
stage there is prolapse of piles which was noticed by patient while it occurs during defaecation in the beginning and haemorrhoids slips back spontaneously when expulsive efforts cesses.

5. Irritation : The irritation is the common symptom due to constant mucus discharge on the anal skin in the third degree piles.

6. Anaemia : The patient becomes gradually anaemic in the second degree piles due to the profuse bleeding from the haemorrhoids.

Table showing the classification of the piles according to the degree:
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<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>I DEGREE</th>
<th>II DEGREE</th>
<th>III DEGREE</th>
</tr>
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<tbody>
<tr>
<td>Prolapse</td>
<td>Haemorrhoids</td>
<td>Masses come out during defecation, but return spontaneously, not visible</td>
<td>Haemorrhoids remain outside anus even during act of defecation. In chr. cases manipulation is required for reduction in later stages piles remain prolapsed.</td>
</tr>
<tr>
<td>Bleeding</td>
<td>Splattering of the pan</td>
<td>Fresh bleeding per anum off and on</td>
<td>May be present or may not be.</td>
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<tr>
<td>Discharge</td>
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<td>Present</td>
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<tr>
<td>Anaemia</td>
<td>Absent</td>
<td>Patient becomes gradually anaemic</td>
<td>Patient becomes anaemic</td>
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COMPLICATIONS OF THE DISEASE HAEMORRHOIDS:

1. Profuse haemorrhage
2. Strangulation
3. Ulceration
4. Thrombosis
5. Gangrene
6. Sloughing
7. Infection
8. Suppuration
9. Fibrosis
10. Portal pyemia (Piloflebitis)

DIFFERENTIAL DIAGNOSIS (95) :

The differential diagnosis of the external haemorrhoids should include anal epithelioma, chondiloma, rectal polyp etc.

Obvious red blood passed per anum may be due to a fissure, fistula, polyps, syphilitic ulceration, amaebic proctitis. In the elderly fresh bleeding per rectum may be due to carcinoma internal haemorrhoids uncomplicated by thrombosis, oedema or other factors are unlike to cause difficulty in diagnosis. Partial rectal prolapse must be differentiated from the haemorrhoidal prolapse.

DIAGNOSIS (95) (98) :

Provisional diagnosis can be made by taking history and diagnosis can be confirmed by the rectal examination with visually, digitally and instrumentally.

1. On visual examination visually prolapsed haemorrhoids may be
diagnosed as they are seen outside the anal orifice. These prolapsing masses lie at 3, 7 and 11 o'clock positions.

2. On digital examination, the diagnosis of haemorrhoids cannot be determined by digital examination alone unless they are thrombosed or when they are prolapsed as firm and oval.

3. Instrumental examination. This examination is most useful in the examination of the anal canal, the region of the anorectal and particularly for the diagnosis of the haemorrhoids. Some of the examination which in practice are proctoscopy, sigmoidoscopy etc.

PROCTOSCOPY:

The haemorrhoids will prolapse into the proctoscope as this instrument is being withdrawn and can be diagnosed by the disposition of the branches of the superior haemorrhoidal artery which are situated at 3, 7 and 11 o'clock positions, i.e. left lateral, right posterior and right anterior respectively. And they can be identified by the pink or red covering of mucus membrane. The succeeding points are to be noted

1. The numbers and the degree and the size of the haemorrhoids
2. The surface and the appearance of haemorrhoids
3. If the haemorrhoidal bleeding persists, determination of specific bleeding haemorrhoids detection.
4. Evidence of chronicity of prolapse
5. The presence of any other rectal lesion as external tags, anal papillae, anal fissure or proctitis.
6. Presence of any gynaecological, genito-urinary or abdominal conditions, conditions like the carcinoma of the rectum, large villi, tumours, ulcerative colitis etc must be diagnosed.
7. Presence of other discharge like pus, mucus etc,

Examination of the anorectum (98) (99):

The anorectum is examined with the patient in the left lateral decubitus position or in the prone jackknife position, if a special table is available for that purpose. Good lighting is essential. The buttock are retracted to exopse the anal orifice. Digital rectal examination is performed. Anoscopy is required for thorough evaluation of the anal canal. Regid or flexible sigmoidoscopy completes the examination in some patients, but others (e.g. those with bleeding) need colonoscopy or a barium enemata.
Haemorrhoids are masses of areolar tissue containing numerous small arteries and veins. These congenital vascular cushions are located above the dentate line and are termed "internal haemorrhoids". External haemorrhoids are dilated vessels below the dentate line; they rarely cause symptoms by themselves, but they are enlarged in association with prolapsing internal haemorrhoids.

Intrarectal pressure pushes haemorrhoids downwards, the anchoring fibromuscular structures attenuate, and the tissues congest, bleed, and eventually prolapse. Small haemorrhoids that protrude a short distance into the anal canal are first-degree haemorrhoids. Second-degree haemorrhoids prolapse but reduce spontaneously. Third-degree haemorrhoids must be manually reduced, and forth-degree haemorrhoids are irreducible. Internal haemorrhoids occur in three primary locations. Right posterior, right anterior and left lateral.

Bleeding and prolapse are the most common symptoms of internal haemorrhoids. Blood is typically bright red, and it may spurt or drip from the anus. Nonspecific discomfort is noted, but pain is
usually caused by some other associated condition such as fissure or abscess.

Anoscopy reveals a mass of tissue above the dentate line; large hemorrhoids prolapse to the outside as the anoscope is withdrawn. Differential diagnosis includes skin tags, hypertrophied anal papillae, and rectal prolapse.

Acute prolapse and thrombosis of internal hemorrhoids are severely painful. The entire circumference of the anus appears to protrude, and there is extreme pain from the edema and inflammation.

Initial treatment of internal hemorrhoids involves a high-bulk diet and avoidance of prolonged sitting at stool. Proprietary remedies have little benefit. Small bleeding hemorrhoids can be treated by a "fixation procedure" that promotes adherence of the vascular cushions to the underlying sphincter. These outpatients procedures require no anaesthetic. One popular method is the injection of a sclerosing agent (e.g. 5% phenol in oil) into the submucosa of the haemorrhoid above the dentate line. This painless injection evokes fibrosis and eventually adherence of sliding mucosa. Another method is rubber band ligation, in which tiny rubber bands are slipped over each internal hemorrhoid using a special instrument. The banded tissue sloughs and fixation results. Photocoagulation using an infrared device is also
effective. Lasers can be used for the same purpose, but they are more expensive and more hazardous. Electrocoagulation with a bipolar electrode or a direct current device and thermoregulation with a "heater probe" are new alternatives. All of these procedures have the same objective, and they are similarly effective.

Forth degree hemorrhoids with large external components are not responsive to fixation procedures, and if the symptoms warrant, hemorrhoidectomy is advised. Surgical excision can be performed. Results are good, although the operation is painful, and there is loss of time from work. Complications are uncommon and recurrences are unusual.

Thrombosed external hemorrhoid is a blood clot within a complex subcutaneous external veins. This problem develops in young adults, often related to heavy exercise. A painful bluish mass is present at the anal verge. If pain does not subside after 48 hours, the thrombosed hemorrhoid can be excised.