

**A STUDY OF COMPARISON BETWEEN OPEN
AND CLOSED HEMORRHOIDECTOMY**

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In partial fulfillment for the award of the degree of
MASTER OF SURGERY
IN
GENERAL SURGERY



DEPARTMENT OF GENERAL SURGERY
KILPAUK MEDICAL COLLEGE
CHENNAI -600010.

MAY - 2018

DECLARATION BY THE CANDIDATE

I, **Dr.S.KADHIRVEL**, solemnly declare that the dissertation titled “ **A STUDY OF COMPARISION BETWEEN OPEN AND CLOSED HAEMORRHOIDECTOMY** is a bonafide work done by me at Kilpauk Medical College, Chennai during 2016-2017 under the guidance and supervision of **PROF. Dr.V.RAMALAKSHMI** and **PROF.Dr.R.KANNAN** Kilpauk Medical College, Chennai.

This dissertation is submitted to Tamilnadu Dr. M.G.R Medical University towards partial fulfillment of requirement for the award of **M.S. degree (Branch -I) in General surgery.**

Place: Chennai

Date:

(Dr.S.KADHIRVEL)

CERTIFICATE BY THE GUIDE

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Date :

Place : Chennai

DR.V.RAMALAKSHMI M.S

Professor

Department of General surgery,
Kilpauk Medical College,
Chennai - 600010.

ENDORSEMENT BY BY THE HOD AND
THE HEAD OF THE INSTITUTION

This is to certify that this dissertation entitled “**A STUDY OF COMPARISION BETWEEN OPEN AND CLOSED HEMORRHOIDECTOMY**” is the bonafide original work **DR.S.KADHIRVEL** in partial fulfillment of the requirements for M.S. Branch -I (General surgery) Examination of the Tamilnadu Dr. M.G.R. Medical University to be held in MAY - 2018. The period of study from 2016 to 2017.

DR.R.KANNAN M.S,
Professor and
Head of the Department,
Department of General surgery,
Kilpauk Medical College,
Chennai - 600010.

Prof. Dr.P.VASANTHAMANI
M.D., D.G.O.,MNAMS, DCPSY, MBA
Dean,
Kilpauk Medical College,
Chennai- 600010.

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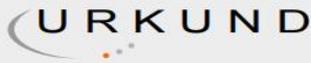
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INTRODUCTION

Haemorrhoids is one of the commonest clinical condition that we have come across in our surgical practice. It is one of the commonest troublesome disease also. From the ancient days-that is from the period of Hippocrates-the piles was treated by many modalities (Smith 1961). Even at present it was claimed that all faculty of medicine-sidha, Ayurvedha and Homeo -Successfully in practices. But most of them are not proven one with scientific data. In Allopathy even though conservative managements are successful, in most of the cases surgery becomes the main stay of treatment.

By common consent the term 'haemorrhoids' and piles are used to represent the same, but they have entirely different meaning. The term 'haemorrhoids' is derived from the Greek adjective "haemorrhoids" meaning bleeding (Haima=blood, rhoos=flowing) and emphasizes the most prominent symptoms in the majority of cases. But it cannot be accurately applied to all the conditions diagnosed as haemorrhoids, because most of them do not have bleeding tendency at all. The term 'pile' on the other hand, derived from the Latin word pila, a ball, can be aptly used for all forms of haemorrhoids, or piles for literally every such condition does produce a swelling of some kind, even though it may not show externally.

Epidemiological study based on nation wide health questionnaires and hospital based proctoscopic study shows the prevalence varies from 4.4% to 86% (Emin A Carapeti 1998) and Buie (1960) reported an incidence of 52% in 1000.

The dietary habits have some influence on the haemorrhoids formation and low fiber intake increases the risk of haemorrhoids formation (Graham Stewart 1962). Despite the wide belief, fiber intake and prevalence of haemorrhoids are not associated with a reduction in the haemorrhoids formation (Emian carapeti 1998).

The haemorrhoids is usually diagnosed by their external appearance, symptoms from the patients, proctoscopic examination, per rectal examination and sigmoidoscopic examination. To rule out carcinoma rectum all cases should be screened by sigmoidoscopy.

Profuse haemorrhage, /strangulation, thrombosis, ulceration, gangrene, fibrosis and suppuration are the complication of haemorrhoids. The treatment differs for complicated and uncomplicated haemorrhoids. Even emergency procedure may also be indicated in case of pain, profuse bleeding and strangulation. All patients having haemorrhoids cannot be treated with only one procedure and each of them have to be evaluated correctly with clinical findings, proctoscopic and sigmoidoscopic examination.

AIM OF THE STUDY

The Aim of this study is to compare these techniques with respect to

- Post operative complications such as pain, urinary retention, soiling, wound healing, minor bleeding
- Length of hospital stay,
- Operating time ,
- Duration of inability to work,

Other late complications of surgery if any (stricture, anal stenosis)

REVIEW OF LITERATURE

As early as 2250BC- The symptoms of haemorrhoids described by the code of king Hammurabi of Babylon.

In 1700BC. 1552BC. Egyptians were the first people who medically recorded the remedies for haemorrhoids.

In 460 – 375 BC- The treatment of haemorrhoids by cauterization and excision was described by Hippocrates. Treatises and he was the first person to use speculum to inspect rectum, which is the base for endoscopy development.

In 25BC- AD - Celsus was described ligation of piles in 50 patient and the use of Aloe vera plant for treating haemorrhoids described by Dioscorides in AD 41-68.

In 130-200AD - Marcus Aurelius Galen physician of Roman emperor described the treatment of haemorrhoids with ointment, Laxatives and leeches.

In 4th – 5th century Susruta Samhita from India described the use of cauterization and clamp. Byzantine physicians used thread to ligate the base of the haemorrhoids and then followed by its excision in 5th - 10th century

During this time EL-Zahraway physician from Arab described the use of cauterization and irons. John of Ardenne wrote an article on

haemorrhoids management as well as use of enema in between 1307-1370. The father of endoscopy philp Bozzini (an Italian – German physician) used an aluminum tube to see the genito-urinary tract in 1806.

Frederick salmon from London constructed the St. Marks hospital mainly for the treatment of fistula and haemorrhoids in 1835. In 1935, E.T.C. Milligan and Morgan did ligation .and excision of haemorrhoids at St. Marks hospital now which is the gold standard treatment for haemorrhoids.

In 1952 modification of the Milligan-Morgan method was introduced by Ferguson. In 1960 rubber-band ligation was introduced. A.G Parks did the closed method of haemorrhoidectomy in 1955.

In 1970s Cryotherapy, infrared coagulation, diathermy and laser cauteries were developed for treatment of haemorrhoids. Latest technology for haemorrhoids. treatment was introduced by A.Longo in Italy - procedure for prolapsed Haemorrhoids (PPH) - stapled Haemorrhoidectomy.

ANATOMY OF ANAL CANAL

Rectum at its lower end suddenly narrows, begins as Anal canal passing downwards and backwards to end at the anus^{1,2}. It is about 3.8 cm long in adult, its anterior wall being shorter than its posterior wall and in the empty condition its lumen has the form of an antero-posterior or tri radiate longitudinal slit³.

Anal canal-Relations

1. Anterior

Both sexes – perineal body

Males – bulb of penis .and membranous urethra

Females – lower part of vagina

2. Posterior

Anococcygeal coccyx tip

3. Lateral

Ischio-rectal fossa

Anal canal inner portions

It is sub divided into three parts:

Upper part (mucous) – 15 mm long.

Middle part (Transitional zone or pecten), - 15 mm long

Lower part (cutaneous) – 8 mm long.

Upper part

Columnar epithelium lining the rectum which is pink in colour extends into anal canal. The upper half(15 mm) of the anal canal is also lined by mucous membrane .The epithelium in this region mostly lined by stratified squamous epithelium in some cases it is stratified columnar in type, with stratified polyhedral cells and a single layer of simple columnar cells like as in the rectum⁴. Anal canal in its upper part the mucous membrane presents six to ten vertical folds, the anal columns, which are well marked in the child but not well defined in the adult .Each column contains a terminal end of superior rectal artery and vein, these ends being largest in the left lateral, right posterior and right anterior quadrants of the wall of the anal canal; enlargements of venous ends in these. three sites constitute primary internal haemorrhoids. The lower ends of the columns are joined together by small crescentic valve like folds of mucous membrane, the anal valves, above each of which lies a small recess or anal sinus. The sinuses, deepest on the posterior wall of the canal, may retain faecal matter and become infected, leading to abscess formation in the wall of the anal canal; the anal valves damaged by hard faeces, producing anal fissure⁵. The line along which the anal valves are situated is termed as pectinate line; it lies opposite the middle of internal sphincter and is commonly considered to be the site at which the anal membrane is situated in the early fetus; thus it represents the place of junction of the endo dermal part of anal canal (developed from

cloaca) and the ectodermal part (derived from the anal pit or proctodeum)^{6,7}

b. Middle part (Transitional zone or pecten)

It is the centre part of the anal canal, which extends about 15 mm below the anal valves. Its epithelium is stratified and is intermediate in thickness between the epithelium lining the upper part and the skin lining the lower part. Transitional zone also overlies part of internal rectal venous plexus and is shiny and bluish in appearance. Its sub mucosa contains fairly dense connective tissue, in contrast with the lax connective tissue, in upper half of anal canal, suggesting a firm support and anchorage of the lining of pecten to the surrounding muscle coats of this part of the anal canal .The transitional zone ends, below at a narrow wavy zone, commonly called the “white line of Hilton”; this line is bluish pink. in colour and is only rarely recognizable macroscopically. It’s only interest lies in the fact that it is situated at the level of interval between the subcutaneous part of external sphincter and the lower border of the internal sphincter ,and on digital examination of anal canal an anal inter sphincteric groove can be felt at this site.

c. Lower part (Cutaneous)

It is about 8 mm long lying below the white line and is lined by true skin, which may be dull white or brownish in colour and contains sweat glands and sebaceous glands.

Anal cushions

These are small sub mucous masses comprising of fibro elastic connective tissue, smooth muscle, dilated venous space and arterio venous anastomosis. Usually anal cushions forms at left lateral (3 O' clock), right posterior (7 O' clock) and right anterior (11 O' clock) positions in the upper anal canal. Smaller cushions may also present between them. The opposition of these anal cushions assists the sphincter in maintaining watertight closure of anal canal. Excessive straining at stools may cause enlargement of these cushions and formation of haemorrhoids⁸.

Anatomical and surgical importance of the dentate (pectinate) line

It forms the watershed between visceral structures above and somatic structures below the line. The mucosa above the line has an autonomic nerve supply and is thus insensitive to cutting and pricking, whereas the skin below is supplied by inferior rectal branch of the pudental nerve and is acutely sensitive to these stimuli. The venous drainage of the mucosa is upwards into the inferior mesenteric and portal circulation, whereas that of skin below is to the systemic circulation. This is relevant to the spread of malignant tumours. The lymphatic drainage above the dentate line is upwards and is similar to that of the rectum whereas below lymph drains down and out to the inguinal lymph nodes. The lymphatic spread of malignant tumours and of infections in this area

will thus differ. Internal haemorrhoids develop just above this line. The anal glands open into anal sinuses above the anal valves at this level. and infection in an anal gland may lead to an anal abscess, which may extend into the ischiorectal space or the perianal space .A crack or fissure in the skin of the anal canal extending from the dentate line to the anal verge, and usually lying in the midline, is associated with local inflammation and spasm of sphincter, causing severe pain on defaecation in this sensitive area with its rich somatic nerve supply. A fissure in ano is sometimes caused by rupture of one of the anal valves. In the finer control of continence, stimulation of nerve endings in the region of the dentate line may initiate reflex or voluntary changes in the sphincter tone.

Musculature of anal canal

Muscles of anal canal can be regarded as forming tube within a funnel. The sides of the upper part of the funnel are the levator ani muscles and the stem of the funnel is the external. sphincter, which is continuous with levatorani. The tube inside the stem of the funnel is the internal sphincter.

Internal anal sphincter

Internal sphincter is the continuation of the circular muscle coat of the rectum which is involuntary in nature and surrounds the upper 3/4th of the anal canal, and commences where rectum passes through the pelvic

diaphragm and ends at the anal orifice. It is 2.5 cm long and 2.5 mm thick. Spasm of this muscle play a major role in fissure and other anal affections.

External anal sphincter

External sphincter sub-divided into deep, superficial and subcutaneous portions, but considered to be one muscle (Goligher) and voluntary in nature and it is made up of striated muscle and surrounds the whole length of anal canal and nerve supply from inferior rectal nerve and perineal branch of 4th sacral nerve.

Anorectal ring

This ring, formed by fusion of deep external sphincter and internal sphincter with puborectalis. In the anal canal examination which is easily felt. Because this puborectalis muscle are absent anteriorly this ring not well marked and damage to this ring cause rectal incontinence

Conjoint longitudinal coat

At the level of anorectal junction puborectalis muscle unites with longitudinal muscle coat of rectum forms the conjoint longitudinal coat , between external and internal anal sphincters, soon it becomes fibro elastic and at the level of white line it breaks up into a number of fibro elastic septa which spread out fanwise, pierce the subcutaneous part of

external sphincter and are attached to the skin around the anus⁹. The most lateral septum forms the perianal fascia and most medial one, the anal inter muscular septum, is attached to the white line. In addition, some of the strands pierce obliquely the internal sphincter and end in sub mucosa below the anal valves.

Surgical significance of the anal musculature

Integrity of the sphincter mechanism and its nerve supply mainly responsible continence, and on maintenance of the anorectal angle. Incontinence due to damage of pudendal nerve or damage of sphincters¹⁰

BLOOD SUPPLY OF THE ANAL CANAL

Arterial supply

Superior haemorrhoidal artery

This is terminal branch of inferior mesenteric artery reaches the back of the upper end of rectum in front of the third piece of sacrum and divides into two main branches in the right side and one in the left side. They descend on the rectal wall posteriorly, then inclining more towards the lateral aspect one generally breaking up into smaller branches and penetrate the muscle coat to reach the sub mucosa in which they proceed downward as straight vessels they run in the column of Morgagni and terminate usually above the anal valves as a capillary plexus. The right

branch sub divides into two major branches, which run down the right anterior and right posterior aspect of rectum while the left branch continues undivided down the left lateral aspect. As the superior haemorrhoidal veins closely accompany the arteries, this arrangement of arterial branches is said by Miles to account for the occurrence in cases of internal haemorrhoids of two main haemorrhoids on the right side but only one on the left side. This arrangement is said to account for the positions of three primary piles but WHF Thompson (1975) has disproved this hypothesis in an injection preparation of cadavers.

Middle haemorrhoidal artery

These artery arise from anterior division of internal iliac or from their inferior vesicle branches and proceed. medially and forward below the pelvic peritoneum in the tissue of the lateral ligaments to reach the rectal branches of superior and inferior haemorrhoidal vessels. Middle haemorrhoidal artery may be absent, double or triple on one or both sides.

Inferior haemorrhoidal artery

Arises indirectly from the internal iliac through its internal pudental branch passing through the Alcock's canal in the fascia of the outer wall of the ischio rectal fossa, it runs medially and slightly forward breaking up into branches, which penetrate the external and internal sphincters and reach the sub mucosa and subcutaneous tissue of the anal canal and

communicate with the branches of the inferior haemorrhoidal artery of the opposite side possibly from the middle haemorrhoidal of both sides. Thus, the anal part of mucous membrane is supplied by the inferior haemorrhoidal artery.

Middle sacral artery

Artery arises from the back of the aorta just above its bifurcation and runs down in front of the last two lumbar vertebrae and terminal branches may descend along the anococcygeal raphae of the levator muscle to reach the anal canal and rectum to contribute to their blood supply.

Venous drainage

The sub mucous or internal haemorrhoidal plexus lies in the upper part of anal canal and lower rectum which unite to form the superior haemorrhoidal vein, they drains into the inferior mesentric vein (portal system). Subcutaneous or external haemorrhoidal plexus of veins drain the anal orifice and lower anal canal which drains into inferior haemorrhoidal vein, which enters the systemic circulation via the internal iliac vein. The middle haemorrhoidal vein, which is relatively unimportant, also enters internal iliac vein. There are communicating veins between these two plexus of veins. The veins have discrete dilatations.

along their course particularly below the dentate line in the sub-ano dermal tissues.

Lymphatic drainage

Lymphatics above the pectinate line into the internal iliac nodes. Below the pectinate line drain into the medial group of the superficial inguinal nodes.

Nerve Supply

Anal canal above the pectinate line is supplied by the autonomic nerves, both sympathetic (inferior hypogastric plexus, L1, L2) and parasympathetic (pelvic splanchnic S2, S3, S4) nerves. Both nerves carries pain sensation .Area below the pectinate line, it is supplied by somatic (inferior rectal S2, S3, S4) nerves. Contraction and relaxation of internal sphincter by sympathetic nerves and the parasympathetic nerves respectively .Inferior rectal and perineal branch of fourth sacral nerve supplies the external sphincters.

SURGICAL PHYSIOLOGY

Skin of the perianal region and modified skin below the pectinate line exhibits the same sensitivity to simple touch, pain, heat and cold, as does the skin of the other parts of body . Area above the pectinate line in anal canal is insensitive to pain sometimes produce vague sensation of

discomfort, which is more acute near anal valves. Reflex defecation mainly depends on the highly sensitive area of anal canal. Lower rectum distension causes relaxation of external sphincter in lower animals while in man and other social animals external sphincter remains contracted until the proper environment available for defecation. Anal canal sensation differentiate between flatus and faeces.

Anal continence

Anal continence mainly depends not only the muscular apparatus but also sensory mechanism which detect the rectal status whether it is empty or loaded with faeces. It is also depends on an acquired capacity to suppress the natural urge to defecate¹¹.

Sensory component

The normal sensation of rectal distension due to faeces generated in the wall of the rectum proper and is mediated via the sacral parasympathetic nerves. This sensory apparatus in the anal canal is important in differentiation of contents of the rectum and to facilitate the appropriate voluntary motor response.

Motor component

Internal and external sphincters provides the muscular control

Anorectal manometry in haemorrhoids

Normal range of anal sphincter tone is about 60-110 cms of water with episodes of spontaneous fall in resting anal pressures termed sampling reflexes. Higher sphincter pressures with higher than normal distribution of type I muscle fibres in the external sphincter suggest a state of tonic contraction of muscle in some patients. Manometric studies classified the patients with haemorrhoidal disease into those with high anal pressure presenting with bleeding PR most commonly seen in young patient and those with low anal pressure presenting with prolapsed pile mass mostly seen in older individual¹²

Epidemiology (or) Age Incidence:-

The prevalence of haemorrhoids in US is 4.4% between the age of 45 and 65(Springer).

More common in both men and women and men seems to be affected more than 40% to 60% (Stevan Magilan)¹³.

The problem start at age 18 usually from poor dietary habits and frequently increase at age 36 except in pregnant and post partum women and men who lifts heavy weight and strain in stools. The incidence apparently increases with age 80 that at least 50% people over age 50 have some degree of hemorrhoids formation. (Steven Magilan) Prevalence varies from 4.4 in the general population to 36.4% on general

practice. The annual rate of office visits for haemorrhoids is 12 for every 1000 patients in US. The prevalence similar between the sexes and increases with age until the seventh decade.

Haemorrhoids are more common between the 20th and the 50th years during active part of life. They are encountered frequently in old age but are almost unknown in infancy. They are more frequently in men than in women in a ratio of 2:1. But this may mean only that women are more reluctant to submit to examination. Haemorrhoids can occur at any age and affect both of 50years.

FAMILIAL PREDISPOSITION

The condition is so frequently seen in members of the same family that there must be a predisposition factor. Such as congenital weakness of vein walls or an abnormally large arterial supply to the rectal plexus (Arcibald Ian Stewart 1992).Just as with varicose veins of lower extremities heredity seems to be an important etiological factor in many cases of piles (Clark et al 1969).A family history of piles is common, though this may result from an increased awareness and a greater inclination to report them or from cultural of environmental factors rather than genetics (Robin Ks Philips 1998).

ETIOLOGY

1. Local

Anorectal deformity, Hypotonic anal sphincter

2. Abdominal

Ascites

3. Pelvic

Gravid uterus, uterine neoplasm, ovarian neoplasm.

4. Neurological

Paraplegia, Multiple Sclerosis.

Etiopathogenesis

Sliding downward of the anal cushion is the correct etiologic theory. Haemorrhoids results from disruption of anchoring and flattening actions of the muscles sub mucosae ani (Treitz's muscle) and its richly intermingled elastic fibers, downward sliding of the anal cushion associated with gravity, straining, irregular bowel habits.

It was originally reported that the vascular cushions from the termination of the vascular supply within the anal canal contributed to the maintenance of anal continence, Haemorrhoids disease as a result of abnormalities within the connective tissue of these cushions, producing bleeding with or without prolapse of the haemorrhoidal tissue. This can

occur as the result of excessive straining, constipation or low-fiber intake¹⁴.

When the man in upright posture lack of valves in portal system and raised intra abdominal pressure were thought to contribute to the development of anal varicosities. Haemorrhoids to be haemangiomas or to result from changes in the erectile tissue that forms parts of continence mechanism such as hyperplasia of the corpus cavernosum recti. Repeated infection of anal lining secondary to trauma at defecation has been postulated as a cause of weakening and erosion of the walls of the veins of sub mucosa. These hypothesis difficult to accept, as one of the truly incredible properties of anal canal in its resistance to infection.

Low fiber diet have high gut transit time and associated with passage of smaller harder stools that require more straining to expel, which obstruct the venous return as a result engorgement of the anal vein¹⁵.

Raised anal canal resting pressure and development of haemorrhoids are well known cause but anal hypertonia causes symptoms of haemorrhoids or anal cushion hypertrophy causes anal hypertonia in a subject of debate. Haemorrhoidal symptom present even in whom the anal canal is relatively patulous.

Anal cushion contain high proportion of collagen than muscle fibers and are fragmented and disorganized caudal displacement of anal cushion and mucosal trauma fragmentation of supporting structures leads to loss of elasticity of cushion such that they no longer retract following defecation.

CLINICAL PRESENTATION

There are two cardinal symptoms of internal haemorrhoids, bleeding and prolapse. Pain is not usually considered to be a symptom of uncomplicated internal piles however a history of minimal pain was elicited¹⁶.

BLEEDING:-

This is usually the first symptom and occurs initially as a slight streak of blood on the motion or toilet paper, especially when the patient is constipated. As this stage it can often be avoided by securing regular easy bowel actions. Later it takes place more readily and the patient may find that there is a steady drip of blood for a few minutes after the motion has been passed. At a still later stage, when the piles have become much larger, bleeding may occur apart from defecation at any time when the piles prolapsed and become congested. Under these circumstances the patient may find that he is apt to loss blood quite spontaneously into his

clothing and ,may suffer several severe haemorrhages in this way (Mackenzie 1981).

Stelzer (1958) emphasized that the blood which escapes from haemorrhoids is bright red in colour and therefore it is arterial rather than venous in character. He explained this fact by his finding of arteriovenous communications in the corpus cavernosum recti. According to the Clark et al (1969) U.K.Jain (1989) bleeding was the first symptom .

PROLAPSE:-

As a rule onset of prolapse is late in haemorrhoids. It occurs initially during defecation, the pile appear at the anal orifice at the height of the expulsive effort, and slip back immediately afterwards. Later the piles tend to remain in a prolapsed position after the motion has been passed and the patient finds it necessary to replace them digitally into the anal canal. At this stage they are also liable to come down on any exertion such as sneezing , coughing, lifting, walking or on passing flatus. So that the patient may find himself. frequently inconvenienced by the piles prolapsing at various times during the day. Finally a stage is reached when the piles are more or less permanently prolapsed, with anal mucosa. exposed and in contact with the under garments (Mackenzie 1981). According to Clark et al (1969) U.K. Jain (1989) and Emin a carapeti (1998) prolapsed was the common symptom after the bleeding.

DISCHARGE:-

A mucoid discharge from the rectum can occur in any case with prolapsing piles but is most severe in patients with piles that are in a permanently prolapsed condition, The soiling of the under clothing with mucus and sometimes fecal matter then becomes a troublesome symptom. (Mackenzie 1981). Discharge was the presenting symptom in 34% of patients in Clark et al (1969) study, 28% in Emin a carapeti (1998) and only 6% in U.K. Jain (1989) study.

ANAL IRRITATION

Irritation of the perianal skin, due to its becoming moist and soodden from discharge, is almost in variable accompaniment of large third-degree haemorrhoids. It may also occur in idiopathic forms with less severe degree of prolapsed, when its relationship to the piles is far from clear (Mackenzie 1981). Anal irritation was present in 24% of patients in Clark et al (1969) study, 17% in U.K. Jain (1989) study and 26% Emin a carapeti (1998) study.

SYMPTOMS OF SECONDARY ANAEMIA

It is important to remember that bleeding from internal haemorrhoids can be a cause of secondary anemia. In addition to the local symptoms, the patient may complain of breathlessness on exertion,

dizziness on standing, lethargy and pallor due to increasing anemia.
(Clark et al 1969)

NATURAL HISTORY AND COMPLICATIONS

Data on natural history of untreated haemorrhoidal disease are scanty. We do not know what proportion of people who suffer at sometime from bleeding, prolapse, pain or pruritis subsequently have no further trouble or have intermittent minor symptoms or what proportion later have severe complications. We do not know why some patients become progressively worse and develop complications.

COMPLICATIONS

Profuse haemorrhage

It occurs in the early stages of second degree haemorrhoids which is not rare one. The bleeding occurs mainly externally, and also internally when its retracted during that situation rectum is found to contain blood.

Strangulation

Due to prolapse of internal haemorrhoids which is gripped by the external sphincter which causes congestion followed by impedance of venous return and more commonly seen in Second-degree haemorrhoids. When prolapsed internal haemorrhoids not reduced within 1 or 2 hours

leads to strangulation followed by thrombosis ,which produce severe pain.

Thrombosis

After thrombosis haemorrhoid become dark purple or black and feels solid associated with oedema of the anal margin accompanies thrombosis. Once the thrombosis has occurred, the pain of strangulation largely passes off, but tenderness persists.

Ulceration

Strangulation and thrombosis causes Superficial ulceration of the exposed mucous membrane .

Gangrene

Strangulation is sufficiently tight to constrict arterial supply of the haemorrhoids leads to gangrene of the haemorrhoids which cause sloughing is usually superficial and localized, sometimes a whole haemorrhoids slough off, leaving an ulcer, which heals gradually. Very rarely, massive gangrene extends to the mucous membrane within the anal canal and rectum and can be the cause of spreading anaerobic infection and portal pyaemia.

Fibrosis

Internal haemorrhoids was converted into fibrous tissue after thrombosis. The fibrosed haemorrhoids is at first sessile, but by repeated traction during prolapse at defaecation, it becomes pedunculated and constitutes a fibrous polyp that is readily distinguished by its white colour from an adenoma, which is bright red. Fibrosis in an external haemorrhoids favours prolapse of an associated internal haemorrhoids.

Suppuration

It is uncommon and occurs as a result of infection of a thrombosed haemorrhoids. Throbbing pain is followed by development of perianal swelling and perianal or sub mucous abscess.

Portal Pyaemia

Infected haemorrhoids is the potent cause of portal pyaemia and liver abscess. Although cases do occur from time to time, which is rare complication . It can occur when patients with strangulated haemorrhoids are subjected to ill-advised surgery and also reported to follow banding.

CATEGORIZATION OF HAEMORRHOIDS

1. First degree piles are cushions that do not descend below the dentate line on straining. By this strict definition everyone, even those without symptoms, fits into this category. The definition therefore has to be qualified to include only those individuals with symptoms, usually bleeding.
2. Second-degree piles are cushions and can be seen at the exterior, only to disappear again immediately straining stops¹⁷.
3. Third-degree piles are cushions that descend to the exterior on straining or defecation and remain outside until they are digitally replaced into the anal canal, where they remain until the next bowel movement or possibly the next act of straining.
4. Fourth-degree piles is the term sometimes used to describe mucosal-covered internal cushions that are permanently outside the anal verge and return at once outside when they are replaced. It otherwise called procedentia (or) prolapsed haemorrhoids.

External Hemorrhoids

If consist of dilated vascular plexus located below the dentate line and covered by squamous epithelium .This type of hemorrhoids cause severe pain only when it gets thrombosed.

Physical examination

Inspection during straining preferably in left lateral position-Digital rectal examination and anoscopy. Digital rectal examination enables assessment of internal and external haemorrhoidal disease and anal canal tone and exclusion of other lesion especially low rectal or anal canal neoplasms. Anoscopy is the definitive examination, but a flexible procto sigmoidoscopy should always be added to exclude proximal inflammation. or neoplasia¹⁸.

Colonoscopy or barium enema should be added if the haemorrhoidal diseases is unimpressive in the history is somewhat uncharacteristic or the patient is older than 40 years or has risk factors for colon cancer such as family history.

MANAGEMENT

Various modalities of treatment are available with medical and surgical management. Here the medical management was not taken for this study. The surgical management of haemorrhoidectomy was divided into nonsurgical and surgical management.

Uncomplicated Haemorrhoids

Non Surgical Haemorrhoidectomy

- A) Sclerotherapy
- B) Rubber band ligation
- C) Bipolar Diathermy
- D) Cryotherapy
- E) Infra red photo coagulation

Surgical haemorrhoidectomy

- A) Milligan Morgan open haemorrhoidectomy
- B) Ferguson. Closed haemorrhoidectomy
- C) Stapled haemorrhoidectomy
- D) Ligation with Excision
- E) Sub mucosal Haemorrhoidectomy
- F) Excision with suture of individual piles over a clamp
- G) Excision of individual piles by suture without clamp
- H) Excision of the entire. pile bearing area with suture
- I) Excision with clamp and cautery
- J) Under running of pedicle and excision

MEDICAL MANAGEMENT

The small piles which are discovered during the course of a routine examination for another condition and which have caused no symptoms are usually best left without treatment of any kind. But if the patient has had any complaint referable to his piles then active treatment by injections, rubber band ligation or other measures should be advised^{18,19}. Whatever may be the state of general health there can seldom be any justification for treatment of piles by medical measures alone as is sometimes recommended, like in pregnancy.

Medical measures have usually consisted advice regarding diet to overcome habitual constipation. In recent years the prescription for this purpose unprocessed bran or other preparation like fibrogel to increase the bulk of stools.

One controlled trial Broader et al (1974) showed only a very slight insignificant advantage for such an agent over a non bulk forming placebo but Webster et al (1978) in their trial found fibrogel to be significantly more successful than a placebo. Local Medical treatment for piles has comprised the use of ointments and suppositories of various kinds, one of the ,most popular of the latter being anusol. They have the great psychological advantage of being applied directly to the site of origin of their symptoms. If the patients is anemic an iron mixture should be. prescribed to help to correct this state of affairs.

Bleeding from first and second degree haemorrhoids often improves with addition of dietary fiber stool softeners, increased fluid intake and avoidance of straining associated pruritis may often improve with improved hygiene.

Regulation of diet and avoidance of prolonged straining at the time of defecation comprise the initial treatment of mild symptoms of bleeding and prolapse.

Increasing the fiber content of the diet to at least 25-35 grams daily with raw vegetables, fruits, whole grain cereals and often hydrophilic bulk forming agents can reduce and often alleviate all symptoms.

UNCOMPLICATED HAEMORRHOIDS

NONSURGICAL HAEMORRHOIDECTOMY

INVASIVE THERAPY

Principles

Three broad methods have developed in parallel with each one relating to hypothesis^{20,21}; they are:

- Prevention of prolapse by mucosal fixation.
- Prevention of congestion or venous impedance by stretching or by dividing the Internal sphincter.
- Excision of the engorged internal vascular cushions.

Mucosal fixation

By creating sub mucosal fibrosis or full thickness ulceration the mucosa. and the sub mucosal vascular cushions can be fixed to the underlying muscle coat . The fibrosis or ,scarring prevents or minimizes prolapse of the cushions through or into the anal canal ,during defecation. Methods of fixation includes: Ligation or suture ,Injection of an irritant sclerosant; creating an ulcer by strangulation, burning or freezing.

A) SCLEROTHERAPY

Injection of sclerosant (most commonly 5% con. sodium tetradecyl sulphate or phenol in almond or arachis oil) has been used for the treatment of Hemorrhoids. 3-5 ml of sclerosant injected submucosally more superficially which leads to fibrosis and reduce the degree of prolapse Deep injection produce. damage to prostate, seminal vesicles and peri rectal sepsis ,recto vaginal fistula.

The first persons to practice injection of haemorrhoids was Morgan in 1869, who treated a case of piles with an injection of persulphate of iron. Colles in 1874 also used this method. Mitchall in 1871 treatment many hundred cases or piles by injection with a solution containing one part of carbolic acid to two parts of olive oil with good result.

The object of injection treatment for piles is quite different from that similar treatment for varicose veins of lower limbs. In the treatment

of varicose veins by injections, the aim is to damage the intima and produce intravascular thrombosis. No such effect is sought with injection. for veins of a haemorrhoids. Even with a vigorous thrust of the needles into the center of piles, the point usually ends up between the veins and not in their lumen.

In practice the injection is given into the sub mucous areolar tissue in which haemorrhoidal veins lie, and the effect of the irritant solution is to produce an inflammatory reaction. The histological features of this reaction were studied by Dukes(1924) and Pruitt (1931). Internal piles were excised at varying times after administration of haemorrhoidal injection of 10% to 20% phenol in glycerin and water. They found that within 24hours of injections there was a marked edema. of perivenous tissues, with infiltration by leucocytes, red blood cells and many large mononuclear cells, often arranged as clusters around the vessels. They also observed the proliferation of fibroblast which increased during the succeeding few days. It is specially to be noted that at this stage, there was no thrombosis of the vessels, but clotting become increasingly. evident after the fifth day, when there was an increase in the fibrous elements of the sub mucosa, More recently Graham-Stewart (1962) using oily fibrous solution, reinvestigated the histological reaction to sub mucosal injection of sclerosants, and found that a cellular response consisting of multinuclear giant cells, histiocytes, lymphocytes and eosinophills concentrated round the globules of fat in the submucosa.

Extravasations of RBCs was minimal and there was no evidence of early changes of fibrosis or of thrombosis in any of blood vessels.

Surprisingly, he observed identical reaction after injection of 5% phenol in almond oil and after injections of pure almond oil.

Clinically the fibrous indurations at the site of the injection is the outstanding feature two or three weeks after the injection and it presumably corresponds to the increase in the amount of fibrous tissue as observed histologically by Dukes (1924). The typical fibrous indurations is not present in all patients and this be related to Graham Stewart (1962) observation that as much as half or two- third of a haemorrhoidal injection may subsequently escape though the injected site of mucosa in to the lumen of the bowel.

Two Possible model of action may be postulated.

1. Conceivably, the fibrous tissue that forms surrounds and constricts the veins in the sub mucosa. If the injection has given low in to the pile itself the fibrous tissue may provide a supporting and encasing layer protecting the veins from trauma associated with the passage of faeces. It also contacts on vessels and may even obliterate their lumen or lead to thrombosis as has been shown^{24,25}.
2. If the injection has been given above the pile, the fibrosis will constrict and possibly completely obliterate the radicles of the

superior haemorrhoids vein and accompanying branching of the superior haemorrhoidal artery in the pile pedicle. This will protect veins of the pile itself from becoming distended by increased backpressure in the portal system during the exertion of defecation and straining. The consequence of these changes will be to diminish venous congestion in the pile and to reduce the tendency to bleed. In fact this devascularization is the main effect of injection treatment.

3. The fibrosis may also increase the fixation of the pile or its pedicle to the underlying muscular coat and in that way it may reduce the amount of prolapse, but though sometimes very striking this is a much less certain effect. So the injection treatment is chiefly directed at the control of bleeding where bleeding is slight or absent but when the piles are large and fibrosed and prolapsed freely, injection treatment is less likely to be beneficial.

B) RUBBER BAND LIGATION

This type of treatment useful for first second third Haemorrhoids.

The Haemorrhoids is visualized with the aid of anoscope and grasped with forceps. The redundant tissue is pulled into a double sleeved cylinder on which there are two latex bands. The bands are discharged

from the cylinder and the haemorrhoidal bundle is ligated which is slough out within 10days.

Precaution

Ligature must be placed at 1-2 an above the dentate line to avoid extreme discomfort. Ideally the ligatures should be placed at the top of Haemorrhoidal cushion.

About 25%of patient experience mild dull anorectal discomfort lasting for 2-3 days following the procedure. Mild analgesia and warm. bath is sufficient to relive the discomfort.

Ligation can be performed every 2 – 4 weeks until all symptoms of bleeding or prolapse are alliviated.

Complication

Rectal pain, fever, Inability to void .

Contraindication

Patient taking anti-platelet or blood thinning medications ,patient on infective endocarditis prophylaxis , immunodeficient patients, bleeding diathesis, portal hypertension.

This modality of treatment was proposed by Blaisdell(1958) and was developed by Barron (1963) .With this Barron rubber band ligation an assistant is required. Two recent instruments were designed to overcome this problem.

One is Van Hoorn ligating proctoscope and another one is Thomson ligator . No anesthetic is required for rubber band ligation and 2 or 3 haemorrhoids at the same session will be treated by this technique.

A controlled trial conducted by Murie et al (1980), shows the 79% only cured. With an another study conducted by Greca et al 1981 shows 64% only cured.

C) **BIPOLAR DIATHERMY**

Haemorrhoidal tissue ,including mucosa and sub mucosa by using electrical current coagulated by bipolar diathermy . Two second pulse of energy generated by the bipolar diathermy for the treatment. This method is useful for small degree bleeding haemorrhoidal treatment.

Coagulation and ultroid (direct-current)therapy are the another variation on energy to destroy internal haemorrhoids.

Infrared coagulation generates heat energy for 14.5 seconds via tungsten halogen lamp resulting in destruction of mucosa and sub mucosa

at the application site. The depth of the penetration of this injury is usually 3 mm.

Ulroid uses electrical current that is applied 10 minutes to treat one complex.

Local issue destruction and fixation of Haemorrhoidal tissue at appropriate level is the aim of treatment.

No advantage of these type of treatment compared to sclerotherapy.

DIRECT CURRENT THERAPY

Equipment

Mono polar low voltage instrument including a generator unit, attachable handle, single use sterile probes, a grounding pad and a non-conductive anoscope.

Method

The probe is placed onto and then into the haemorrhoids. Now electric current up to 16mA is passed through the probe. The mode of action of this device by the production of NaOH at the negative electrode not by thermal. The main disadvantage of this method is to apply a probe at least for a period of 10 minutes to haemorrhoids.

CRYO SURGERY

Recent advances in cryogenic techniques have made it easily possible to freeze limited areas of living human tissue in any parts of the body. Such tissue, after being frozen solid, undergoes a gradual necrosis, due partly to thrombosis of the microcirculation²³. (Fraser and Gill 1967).

The method of Cryodestruction has in the last few years been applied by many surgeons to the treatment of haemorrhoids (Lewis et al 1969; Lewis 1973; Lloyd Williams et al 1973; O' Connor 1976). One of the great advantages claimed for this method is that it is painless, rendering it specially suitable for application to outpatient without anaesthesia.

The authors such as Lewis (1973), Lloyd Williams et al (1973) and O' Conner (1976) have reported very favorably on cryo surgery for haemorrhoids, particularly in regard to the avoidance of discomfort and the rapid return to work, often the day after treatment I.P. Elhence et al (1987). A controlled trial conducted by Clark et al shows 83% of cure rate with cryo surgery. Another trial conducted by U.K. Jain (1989) shows 92% of cured rate with this method of treatment.

INFRARED COAGULATION

The infrared coagulator was developed by Nath et al (1977) for coagulating bleeding points and was adopted to the elective treatment of haemorrhoids by Neiger(1989).

Neiger claims that control of bleeding from haemorrhoids is achieved more rapidly with infrared coagulation than with injection therapy. Laicester et al (1981) also favorable for infrared than injection therapy and he have the success rate of 79% with this method. A controlled trail conducted by Templeton and Ambrose et al 1983 shows that infrared coagulation was equally good with rubber band ligation.

LASER HAEMORRHOIDECTOMY

Use of carbon dioxide laser for haemorrhoidectomy has been described recently (China YW, 1995). It has been said to be less painful as the laser burns and seals vessels and nerves simultaneously but according to others (Dozois RR)¹⁹, it offers no advantage over conventional haemorrhoidectomy. Its role is still being evaluated.

SURGICAL HAEMORRHOIDECTOMY

Surgical treatment

- Indication
- Third and fourth degree haemorrhoids
- Second degree haemorrhoids that have not been cured by non-operative. treatment
- Fibrosed haemorrhoids
- Internal-external haemorrhoids when the external haemorrhoids in well defined
- Haemorrhoids are complicated by strangulation or associated pathology such as ulceration fissure or fistula.

METHOD OF MILLIGAN MORGAN OPEN

HAEMORRHOIDCTOMY

The ligature and excision operation is virtually identical with that described by Milligan et al (1937).

POSITION OF PATIENT

The patient is placed in the lithotomy position with the buttocks projecting well beyond the end of the table.

ANAESTHESIA: SPINAL ANAESTHESIA

Application of skin forceps

The skin covered components of each main piles are now seized in artery forceps and retracted outwards. This has the effect of causing the lower poles of the mucosal-covered parts of the piles to protrude to a varying extent, depending on the degree haemorrhoids formation present.

Application of Mucosa forceps

The purple anal mucosa of each pile is now taken in another forceps and drawn downwards and outwards. This pulls the pile well out of the anus and brings in to view pink rectal mucosa at its upper pole.

Demonstration of triangle of exposure of Milligan

The traction of three piles is maintained till pink rectal mucosa shows not only at the upper part of the piles, but also the mucosal folds running between the piles. This indicates that the piles have been drawn to their maximum extent so that the ligatures will be applied at their upper poles and not in the middle^{26,27,28}.

Isolation of pedicle of left lateral pile

The two forceps attached to the left lateral pile are taken in the palm of the operator's left hand and drawn downwards and to the

opposite side, while the operator's index finger rests in the anal canal and exerts pressure outwards and downwards on the upper pole. With blunt-pointed scissors in his right hand, he now makes a V-shaped cut in the anal and peri anal skin corresponding to this pile, the limbs of the V abutting on the mucocutaneous junction but not extending into the mucosa, the point of the V lying 2.5-3cm distal to the junction. It will be found that if the tip of the surgeon's index finger is pressed firmly against the end of the scissors as the two parts of this cut are made, the lower edge of the internal sphincter is laid bare, and holding the edge of the skin wound aside exposes it quite clearly. If the 'skin forceps' is drawn well medially to expose the outer raw surface of the pile, it will be seen that longitudinal strands of fascia and muscle descent into it from the region immediately internal to the inferior margin of the internal sphincter. These represent the musculus sub mucosae ani on its way to be attached to the anal skin. In the classic low ligation technique they are not divided, and the only further dissection of the pile consists of making slight nick in the mucosa above and below to narrow the mucosal pedicle somewhat before applying the ligature. But sometimes recently we have to free the pile further by dissecting it off the internal sphincter for 13-20mm This involves division of the longitudinal fibers as they proceed from between the imbricate bundles of the internal sphincter into the substance of the pile. As each set of fibers is severed with scissors with scissors just medial to the pile internal sphincter muscle bundle pulled down from a

higher level, then latter slips laterally and its place is then taken by a still higher bundle. Finally the mucosa is cut upwards for about 6mm on either side of the pedicle, care being taken to make these cuts parallel or slightly converging as they ascent otherwise a very broad mucosal pedicle may bleed in an embracing manner.

Application of ligature to left lateral pile

A 30 cm strand of No. 15 braided silk is used for this purpose, applied as a simple ligature usually without trans fixation of the pedicle. The strength of the material allows it to be tied with great force, which makes for a very secure ligature despite the fact that it does not transfix the tissues. There is no reason, however, why it should not be inserted. on a as a trans fixation ligature, for catgut is more likely to slip. As at the ligature is tied the ‘mucosa forceps ‘ is removed and applied to the ends of the ligature, so that the left lateral pile is now held by a skin forceps. and a ligature with forceps on its tails. The surgeon gives these forceps to the assistant to hold outwards to the left whilst he turns to the right posterior pile.

ISOLATION AND LIGATION OF PEDICLE OF RIGHT POSTERIOR PILE.

This follows the same lines as the isolation of the left lateral pile but the pile forceps are held in the surgeon’s right hand and retracted to

the right, whilst the scissors cuts are made with the left hand. Also, in making the skin cut it is important to note carefully the position of the skin wound of the left lateral pile, and to preserve an intact bridge of skin and mucosa running into the anal canal between it and the right posterior pile.

Isolation and ligature of right anterior pile

Lastly, pedicle of the right anterior pile is prepared and tied along the same lines, care being taken to preserve the skin mucosa on either side of it.

Excision of piles and cutting of tails of ligatures

It was noted that as each pile was isolated and ligated it was not excised but, on the contrary, was retracted in position outside the anus till all the piles had been similarly prepared. Now all three are excised leaving at least 1-2cm of tissue beyond the ligatures, and as the tails are cut short the stump of the piles recede within the anus.

Passage of finger to assess the size of lumen of anal canal

A finger is passed to determine the size of the passage at the site of the ligature for it is possible to narrow the lumen unduly. Usually any tightness can be stretched adequately with the finger.

Insertion of dry gauze into anal and canal trimming of anal wounds

To reduce the pile pedicles completely a dry gauze swab is inserted into the anal canal, and the three anal skin wounds are examined in turn. Any loose edges are trimmed with scissors to leave three pear-shaped raw areas, which experience has shown heal more satisfactorily as a rule than do smaller hemorrhoid wounds.

Application of Milton gauze dressing, wool and bandage

The dressing applied is a gauze swab soaked in Milton, bunched up and placed on the anal orifice and external wounds. This is covered with further swabs soaked in Milton, and with dry gauze and wool maintained in position by means of a firm T-bandage.

METHOD OF CLOSED HAEMORRHOIDECTOMY**Position of Patient**

This operation is done quite conveniently in the standard lithotomy position.

Anesthesia

This we have done all cases under either spinal or caudal or epidural. But it can be done under local anesthesia but we have not tried. Even if a full general or caudal anesthetic. is preferred, a local infiltration

of the anal tissues with adrenaline 1 in 2000 dilution in saline is highly desirable for its haemostatic properties during the operation. Insertion of a Hill-Ferguson anal retractor.

Once relaxation of the sphincters has been obtained by local or general anesthesia, a Hill-Ferguson retractor is inserted into the anal canal to open it up and expose fully the haemorrhoids arising from the opposite anal wall^{29,30}.

Incision around the hemorrhoid

The extent of the proposed haemorrhoidectomy on this first pile outline by a light elliptical incision with the scalpel, extending from the level of the anorectal ring above to the perianal region below. This incision is deepened with the scalpel or scissors down to the underlying sphincter musculature, and the haemorrhoids is dissected off these structures from either side and from the perianal end. Haemorrhage is controlled temporarily by suction or gauze swabbing till individual bleeding points can be coagulated with diathermy.

Closing the haemorrhoidectomy wound

It only remains to suture the gap in the lining of the anal canal caused by the excision of the haemorrhoid. This is accomplished by a running suture of 3/0 chromic catgut.

Dealing with the remaining hemorrhoids

The remaining two hemorrhoids are dealt with in like fashion, the anal retractor being repositioned to expose each in turn. When all three piles have been removed, the patient is left with three sutured wounds extending out into the perianal region. No dressing is required, but the anal orifice and perianal region is covered with a piece of dry gauze and pad of cotton wool, held in position by a T-bandage³¹.

Five steps in stapled Haemorrhoidectomy:-

1. Reduce the prolapsed issue.
2. Gently dilate the anal canal to allow it accept the instrument.
3. Place a purse –string suture
4. Place and fire the stapler
5. Control any bleeding from the staple line.

Advantages

Less post –operative pain

Less pain with first bowel movement

Early resumption of normal activities.

Disadvantages

Anastomotic dehiscence necessitating colostomy

Rectal perforation

Severe pelvic infection

Acute rectal obstruction

FORMAL HAEMORRHOIDECTOMY

Six main types of operation are available for the treatment of uncomplicated haemorrhoids.

1) LIGATION AND EXCISION

As practiced by the ancients and by most surgeons in the middle ages down to the first part of the 19th century, this operation consisted of applying a ligature to the entire haemorrhoids, including skin and mucosa covered portions, and cutting off some of the pile distal to the tie. In those pre-anesthetic days it must have been an incredibly painful procedure aggravated by the fact that the skin was included within the ligature²². This technique is continued till Fredrick salmon (1896) introduced his modification, which consisted of making a cut with scissors. at the muco cutaneous junction of the pile an stripping the mucosa covered protion up to the top of the anal canal where it is ligated and the excess excised. The criticism that came to be leveled at salmon's stripping operation which was practiced by later surgeons such as Anderson (1909) Millian (1930) and Gabriel wide scarring and fibrous stenosis requiring and dilatation.

To overcome this weakness of the Salmon operation, Lockhart Mummery (1934) recommended keeping the ends of the main haemorrhoidal ligatures long and suturing them to the edge of the skin wounds below, so as to draw the pile pedicles down and provide a mucosal covering to the raw areas in the canal. Miles (1919) employed a different device to obviate this drawback to the ligature, but through the perianal and anal skin up to but not beyond the mucocutaneous junction. This separated V-shaped piece of skin, together with the mucosal part of the pile, was then included in the ligature which, when tied dragged the mucous down to the level of the mucocutaneous junction and thus avoided extensive denudation of the anal canal of its mucous lining. This might be regarded as a low ligation in contrast with Salmon's operation over 5000 times with apparently good results. Incidentally, Miles never excised end of the pile distal to the ligature because he thought that the escape of blood might reduce the size of the pile stump and predispose to slipping of the tie. The entire haemorrhoids was thus left to slough off at the mucocutaneous junction and thus avoided extensive denudation of the anal canal of its mucous lining. This might be regarded as a low ligation in contrast with Salmon's operation of high ligation but it was none the less a very radical method which Miles performed over 5000 times with apparently good results. Incidentally, Miles never excised end of the pile distal to the ligature because he thought that the escape of blood might

reduce the size of the pile stump and predispose to slipping of the tie .The entire haemorrhoids was thus left to slough off³².

In 1937 Milligan et al described a low ligation technique similar in essentials to that of miles (1919): they emphasized that the ligated pedicle in their operation was tethered in the lower part of the anal canal by the longitudinal fibers running through the internal sphincter and so was prevented from riding up and leaving a large raw area in the wall of the anal canal this maintains the mucosal cover, they claimed, avoided the risks of stricture formation associated with high ligation³³. Their writings have been very influential and as a consequence their techniques is perhaps the most widely used in UK.(Table XI)

1) SUBMUCOSAL HAEMORRHOIDECTOMY

More recently, Parks(1956) proposed a modification of the ligature operation, originally suggested by petit (1774) and cooper (1809, which may be termed a sub mucosal haemorrhoids with high ligation, This operation is performed entirely within the anal canal with the aid a bivalve speculum, which exposes the throughout its length. The sub mucous and subcutaneous tissue overlying the pile are then infiltrated with a weak solution of adrenaline (1 in 2000) not less than 20ml being used for each pile in turn. A longitudinal inverted racket-shaped incision is made with scissors in the covering of the haemorrhoids the handle is placed in the mucosa and the circular portion in the skin of the anal canal

and perianal region. Muco- cutaneous flaps are next raised on either side particular care being taken to divide the mucosal suspensory ligament. Then starting from below the pile is dissected off the underlying sphincter muscles to the upper end of the anal canal, where the slender pedicle is tied off with 3'0 catgut and the rest of the pile excised. The flaps back more or less accurately on the raw area, covering most of it except for the lower portion which extends out into the perianal region where small open wound remains. One or two catgut stitches may be used to bring the flaps together and fix them to the internal sphincter but it is easy to tear the very friable mucosal leaves by so doing.

2) EXCISION WITH SUTURE

A. EXCISION OF INDIVIDUAL PILES WITH SUTURE OVER A CLAMP

This method was introduced by Mitchell (1903) of Belfast. As performed by him, no attempt was made to define and narrow a pile pedicle the pile was merely drawn as far as possible and a large pair of straight artery forceps placed readily across its base, including skin and mucosa- covered portions. That part of the pile lying distal to the clamp was then excised. Next a catgut suture on a curved needle was knotted, the rest of the suture being left loose after insertion till finally the forceps was released and withdrawn. The stitch was then tightened and this effectively controlled all bleeding³³. By this method no raw areas. were

left to granulate and Mitchell claimed that the wounds were invariably soundly healed within 8-10 days, but gave no actual details of the number of cases treated. It will be noted that in this original version the skin was clamped and sutured along with mucosa. Many other surgeons subsequently modified the technique to provide for a preliminary skin cut and the preparation of a pedicle to the pile as in the ligature operation. The pedicle was then treated by Mitchell's method of clamping and suturing.

This has been a very popular method in USA where it is generally associated with the name of Earle (1911). Bacon (1949) of Philadelphia varied the technique further by passing the suture not over but, as a continuous mattress stitch, under the clamp and stated that this controls haemorrhage satisfactorily. Mitchell's method has never enjoyed the same popularity in Britain, where the ligature operation has usually held the field³⁴.

B. EXCISION OF INDIVIDUAL PILES AND IMMEDIATE SUTURE WITHOUT A CLAMP

More recently a method of haemorrhoidectomy without the use of a clamp has been strongly advocated by Ferguson (Ferguson and human 1959; Ferguson et al 1971; Ganchrow. et al 1971) and has been widely adopted in the USA and in some centers in Australia. In this so-called 'closed haemorrhoidectomy' technique an anal retractor like a Sims

vaginal speculum is inserted into the anal canal and exposes the haemorrhoids on the opposite wall³⁴. A complete haemorrhoidectomy with high ligation then carried out, and the resulting longitudinal wound on the lining of the canal and in the perianal skin is closed with a continuous suture of 3'0 catgut. The remaining two piles are then dealt with in turn in the same way, leaving the patient with three sutured wounds.

EXCISION OF THE ENTIRE PILE-BEARING AREA WITH SUTURE(WHITEHEAD HAEMORRHOIDECTOMY)

This is the operation described by whitehead (1882) of Manchester³⁵, which provides for excision of the entire pile bearing area of the anal canal as a tubular segment, the lower edger of the rectal mucosa then being sutured circumferentially to the skin of the anal canal. Whitehead actual performed the excision in piecemeal fashion through a circular incision in the lower part of the canal just at or above the dentate line. He then made series of longitudinal incisions extending upwards from it, separating the anal mucosa into areas corresponding to the main piles. The areas were stripped up and ligated individually at the anorectal junction, the rectal mucosa then being down and sutured to the skin pectin, providing the anal canal with a new mucosal lining. The lower limit of the excision should be in the mucosa just above the dentate line, so that the suture line will be in the anal canal.

With large haemorrhoids, the lower skin-covered parts of the piles are said to shrink up subsequently.

EXCISION WITH CLAMP AND CAUTERY

Though cauterization had been used as a treatment for haemorrhoids from antiquity, the modern clamp and cautery method probably originated with Cusack (1846) of Dublin. As in method of excision with suture over a clamp, So in the clamp and cautery operation some surgeons place the clamp radial across the skin and mucous of the base of the pile³⁶. Others make a cut at the mucocutaneous junction or in the anal canal. and apply the clamp to the mucosal pedicle thus created. A specially heavy clamp such as Smith's or Ferguson's is used with plastic plates fitted to the under aspect of the blades to diminish conduction of heat to the skin. Moist packs are placed under the clamp on either side. further to protect the skin. Most of the pile protruding beyond the clamp is than excised with angled scissors, Leaving about 6-7mm of tissue to be cauterized. The cautery should be heated to a dull red heat, it is then applied firmly to the projecting remnant of pile and held in contact with the blades of the clamp for 2 minutes to heat them. and thus cauterized and 'gum together' the tissue included in their grasp. Finally the clamp is released, allowing the linear eschar to recede, and the other piles are dealt with in turn.

3) **UNDERRUNNING OF PEDICLE AND EXCISION**

Joshi (1987) modified the excision of pile mass after under running the pedicle. This method is particularly useful in Tropical countries like India. The method minimize the blood loss by ligating the pedicle prior to excision of the pile mass³⁷. In this method there is no need of anesthesia and useful in bleeding piles and anemic patients.

COMPLICATIONS OF HAEMORRHOIDECTOMY

1. Pain – 71%
2. Retention of urine – 16.4%
3. Reactionary or secondary haemorrhage – 7.6%,
4. Re-operation requirement – 1%
5. Rare complications include:
 - Anal stenosis – 2.9%
 - Anal fissure – 0.5%
 - Abscess – 0.6%
 - Fistula in ano – 1.2%
 - Long-term incontinence 16%

Other complications include skin tags, pseudo polyps and epidermal cysts. Anal leakage and soiling is common (50%) during early postoperative period but settles in 6-8 weeks. Causes include anal dilatation, loss of sensation and transient reduction in anal canal pressures. Return of anal canal pressure to normal has been described³⁸.

TREATMENT OF COMPLICATED HAEMORRHOIDS

Strangulation, Thrombosis, Gangrene and haemorrhage

In these cases it was formerly believed that surgery would promote portal pyrexia however if adequate antibiotic cover is given from the start this is not found to be so, and immediate surgery can be justified in many patients³⁹.

In some patients early surgery is not advised, Best adequate pain relief Bed rest with frequent hot baths and warm (or) cold saline compresses with firm pressure usually cause the pile mass to shrink considerably in 3-4 days.

An anal dilatation technique has in the past been used as an alternative treatment to surgery for painful strangulated hemorrhoids. However because of the risk of incontinence this is no longer advised⁴⁰.

The cause usually lies in a bleeding diathesis or the use of anti-coagulants. If such cause are excluded a local compress containing adrenaline solution with injection of morphine and blood transfusion if necessary will usually suffice. However after adequate blood replacement ligation and excision of the piles may be required.

MANAGEMENT OF HAEMORRHOIDS IN SPECIAL CIRCUMSTANCES

Pregnancy

Haemorrhoidal disease can develop for the first time during pregnancy or become exacerbated by the presence of gravid uterus. There is often increased constipation and increased venous compression in the pelvis. Conservative measures should be used if at all possible as symptoms usually rapidly resolve postpartum. Thus, patients should be advised about diet and be prescribed laxatives and topical agents. However, if prolapse and thrombosis occur, there is no clear cut answer as to whether surgery should be employed. Anal stretch should not be done because of increased risk of incontinence in a patient whose sphincter is already under jeopardy from pregnancy and subsequent birth trauma. A haemorrhoidectomy can be performed using intravenous sedation and local anesthesia provided the pregnancy is otherwise uncomplicated. A closed haemorrhoidectomy in left lateral decubitus during 2nd and 3rd trimesters (Milsom, 1992). If prolapse and thrombosis occur during delivery (Schottler et al) recommend haemorrhoidectomy immediately postpartum.

Inflammatory bowel disease.

Exacerbation of haemorrhoidal disease is not uncommon in patients with inflammatory bowel disease. One might conclude that treatment of

haemorrhoids is relatively safe for patients with ulcerative colitis, but hazardous for those with Crohn's disease. Haemorrhoidectomy in ulcerative colitis is preferred when rectal inflammation is in remission and when it is unlikely that a pouch procedure will be considered in the future.

Immunocompromised states

Drug therapy

Patients who are receiving immunosuppressive therapy such as steroids, chemotherapeutic agents or anti-rejection drugs, and who develop haemorrhoids, should be treated conservatively as possible. If surgery becomes necessary, appropriate precautions should be taken to prevent sepsis and necrosis of wounds. Thus, a complete bowel preparation should be used and antibiotic prophylaxis should be continued for five days

Leukemia and Lymphoma

Biopsy should be contemplated and if haemorrhoids are diagnosed they should be treated conservatively. Surgery should be performed only when the haematological disorder is quiescent and then only using small excisions for prolapsed haemorrhoids and prophylactic antibiotics should be given.

METHODOLOGY

Type of Study : Prospective study
 Sample Size : 54

A prospective randomized study, in which 54 patients with II and III degree Hemorrhoids to be selected.

Group I having 27 patients to be treated with open Hemorrhoidectomy

Group II having 27 patients to be treated with closed Hemorrhoidectomy.

Open Hemorrhoidectomy to be performed according to Milligan Morgan technique

Closed Hemorrhoidectomy to be performed according to Ferguson technique

SAMPLE SURVEY:

- Two-sided significance level(1-alpha) : 95
- Power(1-beta, %chance of detecting) : 80
- Ratio of sampling size, open/closed : 1
- Percentage of OPEN cases with pain relief : 66
- Percentage of CLOSED cases with pain relief : 96
- Risk/prevalence difference : 30
- Sample size for closed hemorrhoidectomy : 27
- Sample size for open hemorrhoidectomy : 27

INCLUSION CRITERIA

- Age more than 21 years
- Both Genders
- Patients with, G-III ,G-IV hemorrhoids admitted with c/o bleeding per rectum, mass descending per rectum, discharge per rectum.
- GII hemorrhoids not cured by non-operative methods
- Internal-external haemorrhoids when the external haemorrhoids is well defined
- Hemorrhoids satisfying above criteria may be either in primary or secondary positions.

EXCLUSION CRITERIA

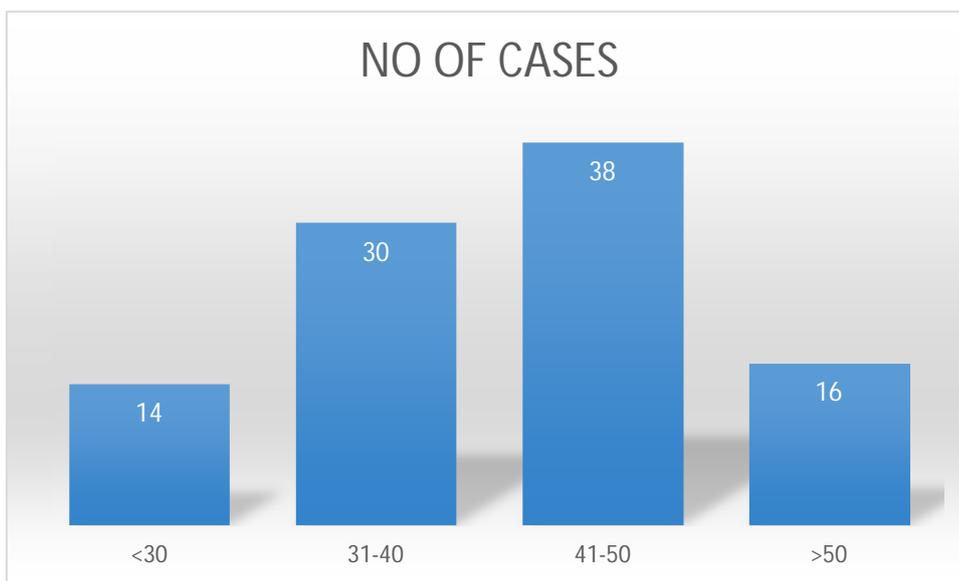
- Hemorrhoids associated with complications (ulceration, recurrent cases, strangulation)
- Hemorrhoids associated with other perianal conditions like fissure in ano, fistula in ano, perianal infections
- Patients with altered bowel habits, chronic constipation.

Type of analysis : Clinical data analysis

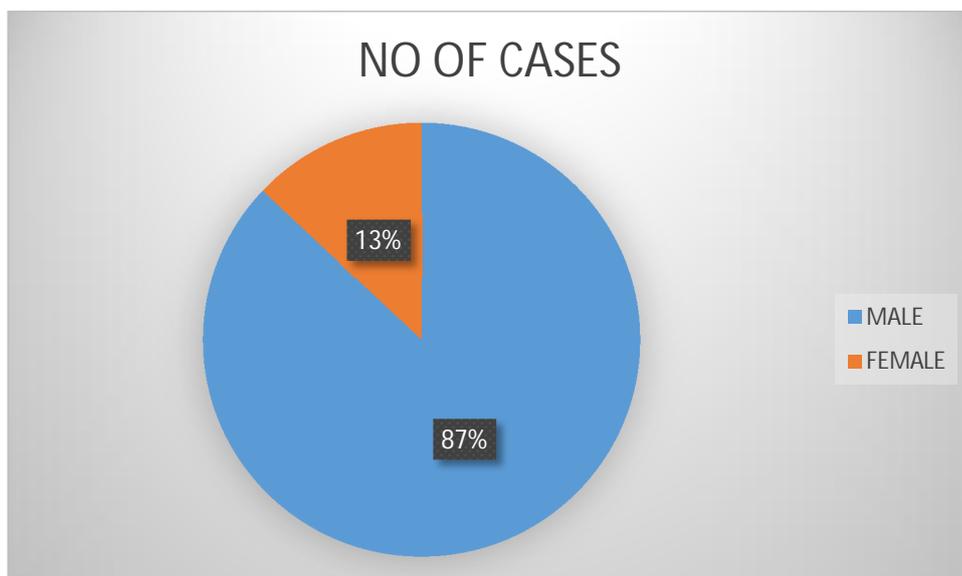
Data collection : The data of each patient collected in a specially designed proforma which is enclosed.

RESULTS OF STUDY

AGE INCIDENCE



SEX INCIDENCE



In our study we have taken 54 cases of hemorrhoids in Kilpauk Medical College Hospital during the period from 2016-2017.

The incidence of Haemorrhoids apparently increases with the age. In this study the majority of cases were above 40years of age and constituting about 38%.

Table 1

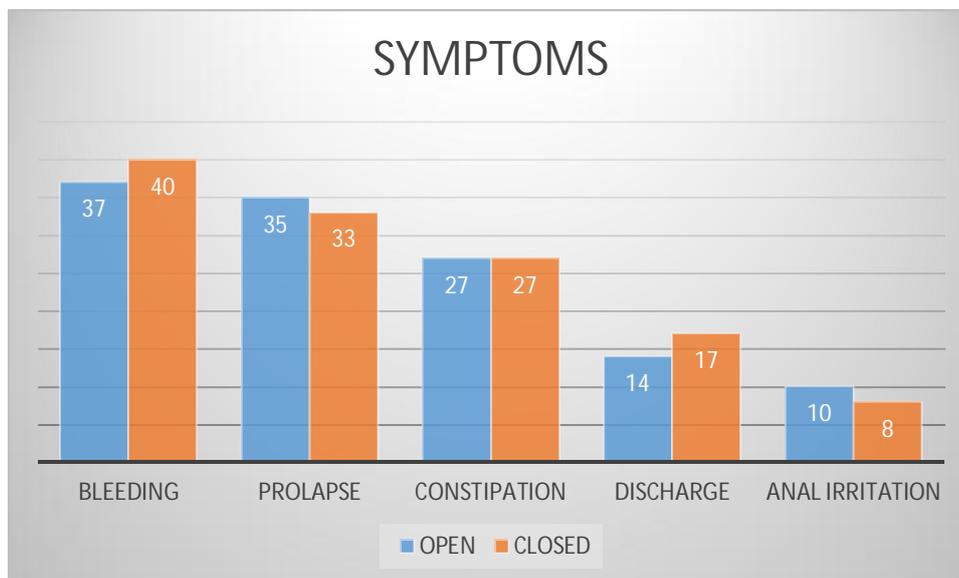
| Age of years | No. of Patients | Percentage |
|---------------------|------------------------|-------------------|
| <30 | 4 | 7% |
| 31-40 | 14 | 26% |
| 41-50 | 21 | 39% |
| >50 | 15 | 28% |

SEX INCIDENCE

Among the 54 cases, 47 were males and 7 were females and ratio

Table 2

| Total no. of Patients | Male | Female |
|------------------------------|-------------|---------------|
| 54 | 47 | 7 |

Figure 11:CLINICAL PRESENTATION**FAMILIAL PREDISPOSITION**

Only two patients have the positive family history. Their fathers had previous history of Hemorrhoids.

CLINICAL PRESENTATION**Table 3**

| Symptoms | Percentage |
|-----------------|------------|
| Bleeding | 74% |
| Prolapse | 62% |
| Constipation | 50% |
| Discharge | 32% |
| Anal irritation | 15% |

In our study bleeding and prolapsed were the two cardinal symptoms.

Bleeding

In this study bleeding was one of the main presenting feature in most of the cases Among the 54 cases the bleeding was the presenting feature in 40 cases.

Prolapse

Prolapse is the main presenting feature in this study. Among 54 cases 33 patients had prolapse.

Constipation

Among 54 patients in this study,27 patients had constipation

Discharge

Among 54 patients in this study , 17 patients have had discharge

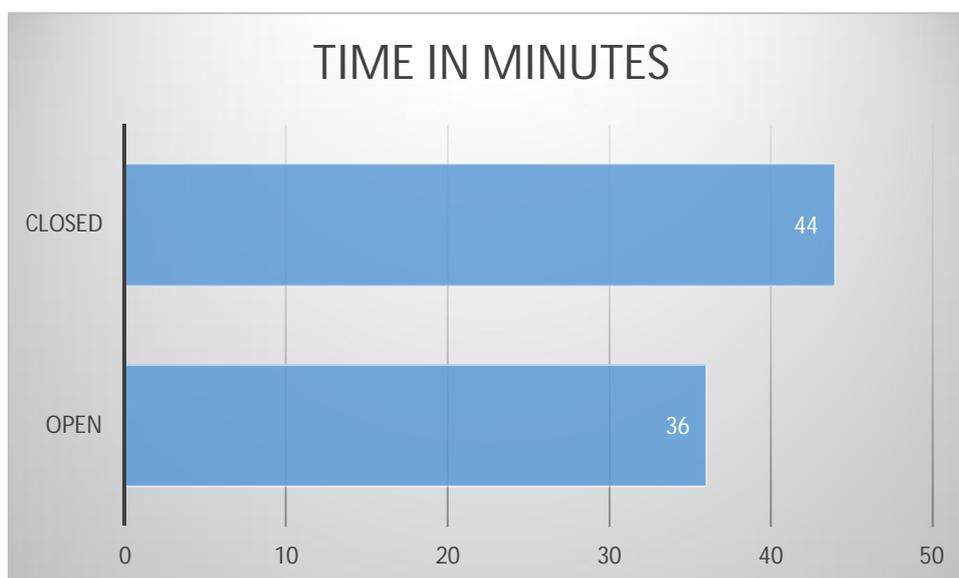
Anal irritation

Among 54 patient in this study ,8 patient had anal irritation

Symptoms of secondary anemia

In this study among these 54 patients 22 patient were anemic and about 10 had the symptoms of secondary anemia and 3 patients were severely anemic.

OPERATING TIME IN MINUTES



OPERATIVE TIME

Table 4

| | Open Method | Closed method |
|----------------|--------------------|----------------------|
| Operating time | 36 ± 7(minutes) | 44 ± 8(minutes) |

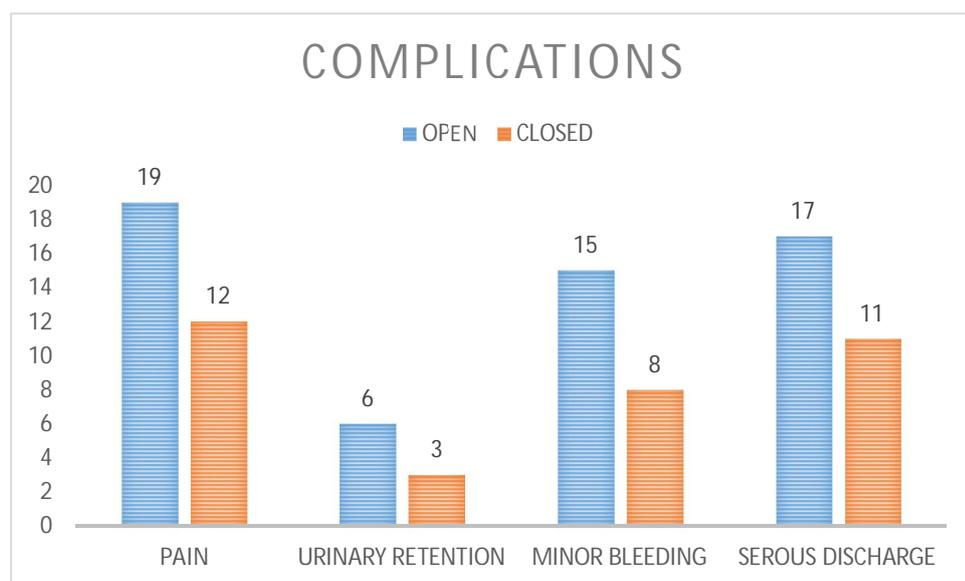
The operating time is shorter in the group I open method . In closed method the operating time was slightly longer

POST OPERATIVE PAIN

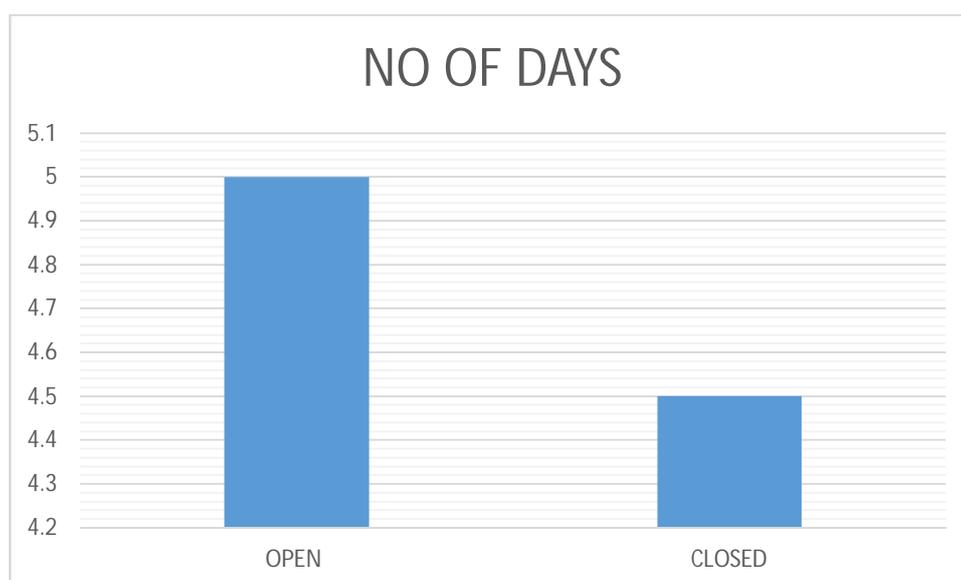
The increased pain after haemorrhoidectomy is considered to be the main reason why patients resist operation. There were various modifications in procedures for reduction of post operative pain and

studies were conducted to assess the severity of pain. In this study we compared the open technique (Milligan Morgan operation) with closed haemorrhoidectomy (Ferguson method)

IMMEDIATE POST OPERATIVE COMPLICATION



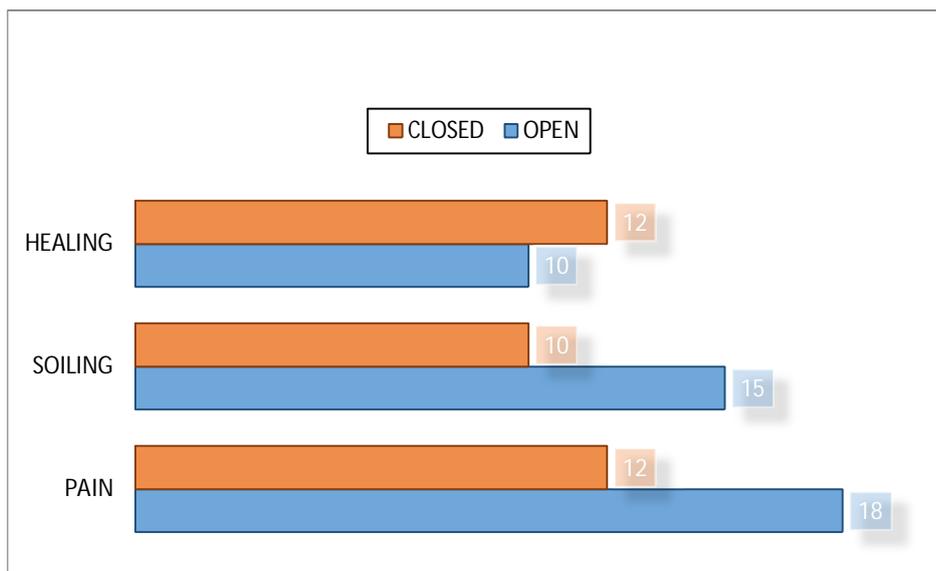
LENGTH OF HOSPITAL STAY



IMMEDIATE POST OPERATIVE COMPLICATION

Table -6

| COMPLICATION | OPEN METHOD | CLOSED METHOD | 'p' value |
|-------------------|-------------|---------------|-----------|
| PAIN | 19(66%) | 12(44%) | 0.027 |
| URINARY RETENTION | 6(22%) | 3(10%) | 0.102 |
| MINOR BLEEDING | 15(56%) | 8(32%) | 0.016 |
| SEROUS DISCHARE | 17(62%) | 11(42%) | 0.045 |



AT 3 DAYS FOLLOW-UP

Table -6

| COMPLICATION | OPEN METHOD | CLOSED METHOD | P VALUE |
|---------------------|--------------------|----------------------|----------------|
| PAIN | 18(66%) | 12(44%) | 0.027 |
| SOILING | 15(55%) | 10(37%) | 0.045 |
| HEALING | 10(37%) | 12(44%) | 0.024 |

LENGTH OF HOSPITAL STAY

The length of hospital stay in each group was as follows.

Table 7

| | Open method | Closed method |
|-----------------------------------|--------------------|----------------------|
| No of days | 5 days | 4.5 days |
| The duration of inability to work | 14 days | 10 days |

Reactionary or secondary haemorrhage

Reactionary bleeding is due to slippage of pedicle or to a small bleeding point in one external anal wound. In this study none of the patients in both group developed reactionary or secondary haemorrhage.

Anal Fissure

In both groups no one developed this complication.

Formation of skin tags

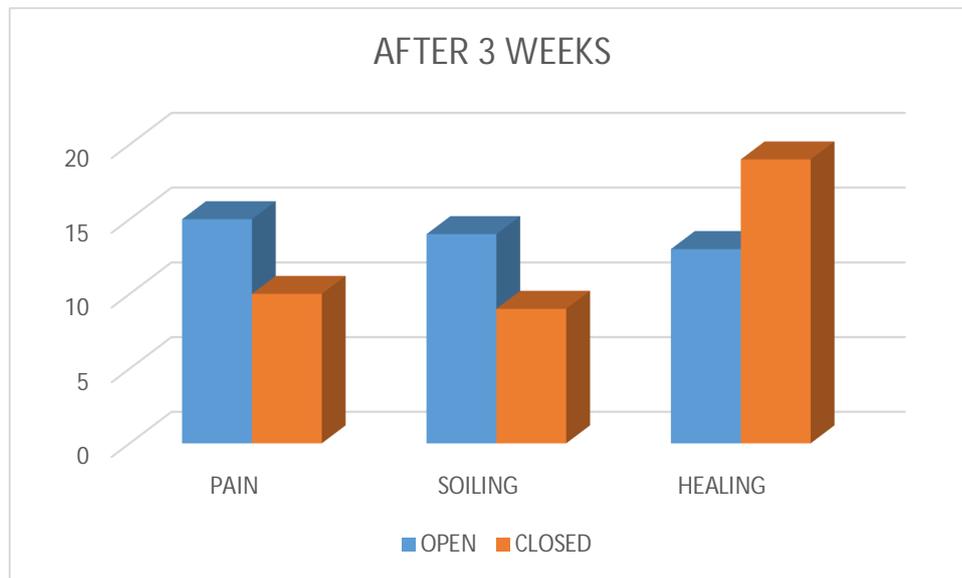
The skin tags after open method was found to be about 4% and 2% for closed method.

Table 8

| | No of patients developed skin tags |
|---------------|---|
| Open method | 2 |
| Closed Method | 1 |

Anal stenosis

No one developed anal stenosis in both groups during the follow up period

AFTER 3 WEEKS FOLLOWUP**Table 9**

| COMPLICATION | OPEN METHOD | CLOSED METHOD | P VALUE |
|---------------------|--------------------|----------------------|----------------|
| SOILING | 14 | 9 | 0.044 |
| PAIN | 15 | 10 | 0.028 |

After three weeks follow up, pain and soiling was found to be more in open method compared to closed method which is statistically significant.

AFTER 3WEEKS -HEALING

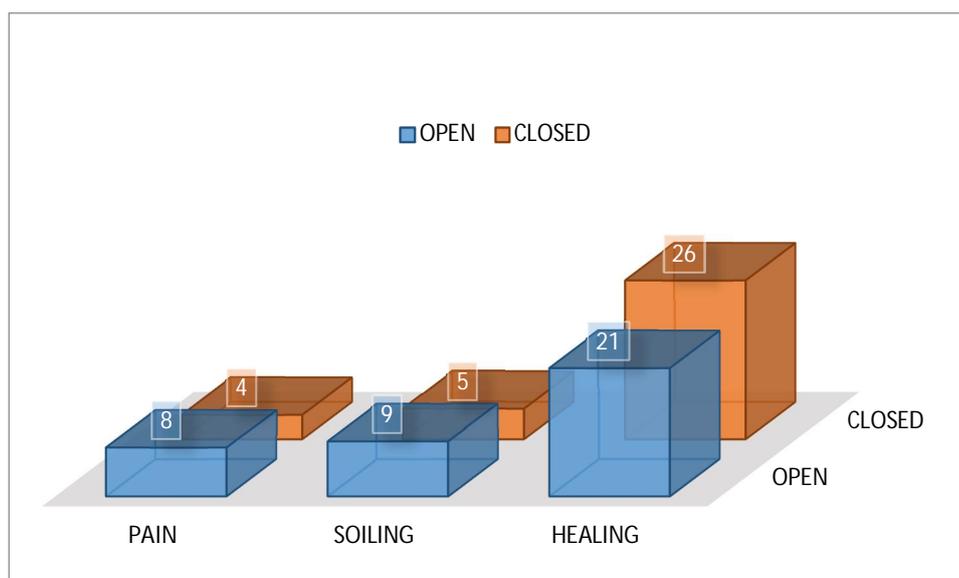
Table 10

| OPEN METHOD | CLOSED METHOD | P VALUE |
|--------------------|----------------------|----------------|
| 13 | 19 | 0.025 |

After 3 weeks follow up healing found to be good in closed method compared to open method which is statistically significant

AFTER 6WEEKS FOLLOWUP

Figure17



AFTER 6WEEKS FOLLOWUP

Table 11

| COMPLICATION | OPEN METHOD | CLOSED METHOD | P VALUE |
|---------------------|--------------------|----------------------|----------------|
| SOILING | 9 | 5 | 0.043 |
| PAIN | 8 | 4 | 0.038 |

After 6 weeks follow up pain and soiling found to be more in open method compared to closed method which is statistically significant.

AFTER 6 WEEKS FOLLOWUP -HEALING

Table 12

| OPEN METHOD | CLOSED METHOD | P VALUE |
|--------------------|----------------------|----------------|
| 21 | 26 | 0.007 |

After 6 weeks follow up healing found to be better in closed method compared to open method which is statistically significant.

AFTER 3 MONTHS- FOLLOWUP

Table -6

| COMPLICATION | OPEN METHOD | CLOSED METHOD |
|---------------------|--------------------|----------------------|
| PAIN | 2 | 1 |
| SOILING | 0 | 0 |
| HEALING | 27 | 27 |

DISCUSSION

AGE INCIDENCE

Table 13

| Authors | Over the age of 50 years |
|------------------------|---------------------------------|
| Clark et al (1969) | 50% |
| Cuschieri (1996) | 50% |
| Our study (2016- 2017) | 28% |

According to Clark et al (1969) and Cushieri (1996), half of the patients with haemorrhoids belong to the age group of above 50years. In our study the percentage does not coincide with above authors findings.

SEX INCIDENCE

Table 14

| Authors | Male | Female |
|-----------------------|-------------|---------------|
| Goligher (1969) | 66% | 33% |
| Emina Carapeti(1998) | 60% | 40% |
| Our study (2011-2012) | 87% | 13% |

According to Goligher (1969) and Emin a carapeti (1998), male have predominance than female and so also our study.

CLINICAL REPRESENTATION

In our study Bleeding and prolapse were the cardinal symptoms in haemorrhoids as listed below, and the bleeding was the presenting feature in 74% of patients and prolapse was the presenting feature in 62% of patients.

The study made by the following authors is comparable to that of our study.

Table 15

| Authors | Bleeding | Prolapse | Discharge | Anal irritation |
|-----------------------|-----------------|-----------------|------------------|------------------------|
| Clark et al (1967) | 62% | 70% | 34% | 24% |
| U.K.Jain (1989) | 96% | 75% | 6% | 17% |
| Emina carapeti (1998) | 70% | 68% | 28% | 26% |
| Our study | 74% | 62% | 32% | 15% |

Operative time

Operative time was less in open haemorrhoidectomy than in closed haemorrhoidectomy which does not carry any statistical significance.

Table 16

| | Open method | Closed method |
|----------------|--------------------|----------------------|
| Operative time | 36±7 | 44±8 (minutes) |

Post operative pain**Table 17**

| Study | Results |
|--------------|------------------------------|
| Roetal 1987 | No difference was identified |
| Closed : 18 | |
| Open : 22 | |
| Hoetal 1997 | No difference was identified |
| Closed : 33 | |
| Open : 34 | |

Post operative pain significantly differs in both the groups. Pain experienced after surgery is due to ligation of sensitive epithelium below the dentate line and hence closed method should have less pain than the open haemorrhoidectomy.

POST PROCEDURE COMPLICATION

Table 18

| COMPLICATION | OPEN METHOD | | CLOSED METHOD | |
|--------------|-------------|-------------------|---------------|-------------------|
| | OUR STUDY | AINUL HADI ET AL. | OUR STUDY | AINUL HADI ET AL. |
| PAIN | 19(66%) | 06(24%) | 12(44%) | 02(08%) |

P value in our study is < 0.027 and in Ainul et al. study p value is < 0.01 . And both the study shows closed method have less post operative pain compared to open method.

Length of hospital stay - The length of hospital stay shows long in group I patients but statistically not significant.

Table 19

| | No.of days |
|--------------------------|------------|
| OPEN METHOD (group I) | 5 (3-6) |
| CLOSED METHOD (group II) | 4.5 (3-5) |

Reactionary or secondary haemorrhage

There was no reactionary or secondary haemorrhage occurred in both the group.

FOLLOWUP AT 3 WEEKS

Table 20

| COMPLICATION | OPEN METHOD | | CLOSED METHOD | |
|--------------|-------------|---------------|---------------|--------------|
| | OUR STUDY | ARBMAN ET AL. | OUR STUDY | ARBMAN ETAL. |
| PAIN | 15(58%) | 54% | 10(36%) | 46% |
| SOILING | 14(54%) | 78% | 9(34%) | 27% |

P value for pain and soiling at 6 weeks in this study are < 0.028 , and <0.025 respectively. Arbman et al. study concluded that at three weeks pain and soiling are higher in open method compared to the closed method. Arbman et al study coincide with our study.

HEALING AFTER 3 WEEKS

Table 21

| COMPLICATION | OPEN METHOD | | | CLOSED METHOD | | |
|--------------|-------------|---------------|-----------|---------------|---------------|-----------|
| | OUR STUDY | ARBMAN ET AL. | S.Y.ET AL | OUR STUDY | ARBMAN ET AL. | S.Y.ET AL |
| HEALING | 48% | 18% | 18% | 70% | 86% | 75% |

In open method healing after 3 weeks found to be better in our study compared to above mentioned study but healing is better in closed

method when compared to open method as per the tabular column shown above, and the healing is better after three weeks with p value <0.025 .

FOLLOWUP AT 6 WEEKS

Table 22

| COMPLICATION | OPEN METHOD | | CLOSED METHOD | |
|---------------------|--------------------|----------------------|----------------------|---------------------|
| | OUR STUDY | ARBMAN ET AL. | OUR STUDY | ARBMAN ETAL. |
| PAIN | 34% | 24% | 16% | 19% |
| SOILING | 36% | 52% | 18% | 28% |

Pain and soiling at 6 weeks follow up is more in open method when compared to closed method as per the results mentioned above. P value in our study for pain and soiling at 6 weeks are <0.038 and <0.043 respectively.

HEALING AFTER 6 WEEKS

Table 23

| COMPLICATION | OPEN METHOD | | CLOSED METHOD | |
|---------------------|--------------------|----------------------|----------------------|---------------------|
| | OUR STUDY | ARROYO ET AL. | OUR STUDY | ARROYO ETAL. |
| HEALING | 78% | 40% | 96% | 90% |

Healing after 6weeks was better in closed method when compared to open method as shown in the tabular coloumn with p value for our study <0.007 .

Formation of skin tags

Skin tags formed only in 4 patients in open group and 2 patients in closed group. But the incidence was not significant.

Table 24

| Name of procedure | No of patients developed (Skin tags) |
|--------------------------|---|
| Open | 4 |
| Closed | 2 |

Anal stenosis and incontinence

Anal stenosis and incontinence was not found in either group of patients.

SUMMARY AND CONCLUSION

The following are the findings in our study of 54 patients with haemorrhoids treated at Kilpauk Medical College Hospital, Chennai during the period 2016-2017.

1. Post operative pain was significantly lower in closed method when compared to open method.
2. Pain and soiling are lower in closed method compared to open method after 3 to 6 weeks follow up.
3. Wound healing was better in closed method compared to open method after 3 to 6 weeks follow up .
4. After 3 months follow up, closed method shows better outcome compared to the open method.
5. The operating time was slightly lower in open haemorrhoidectomy than in closed haemorrhoidectomy.
6. The peak age incidence is in between 40-50 years. There is male preponderance.
7. Most of our patients had bleeding and prolapse as presenting features.
8. Familial preponderance in our study is only 2%.

PROFORMA

Name:

IP No:

Age:

Sex:

PRESENTING COMPLAINTS

- Bleeding Per Rectum : Yes/No/Duration Nature:
- Mass Per Rectum : Yes/No/Duration
- Straining at defecation : Yes/No/Duration
- Painful defecation : Yes/No/Duration
- Constipation : Yes/No/Duration
- Discharge Per Rectum : Yes/No/Duration Nature:
- Anal irritation : Yes/No/Duration

PAST HISTORY

- Surgeries
- Medical conditions: Diabetes/ Hypertension/ Tuberculosis/
Asthma.

FAMILY HISTORY

PERSONAL HISTORY

- Diet
- Sleep

Colonoscopy for patients more than 40 years of age

DIAGNOSIS:

INVESTIGATIONS

- Hb%:
- TC:
- DC:
- ESR:
- RBS:
- Blood urea:
- Serum creatinine:
- BT: CT:
- Chest x-ray:
- ECG:

PREOPERATIVE PREPARATION

- Overnight fasting;
- Injection TT;
- Shaving of relevant parts;
- Proctoclysis enema - on the previous night;
- Soap water enema - on the morning of day of surgery.

PROCEDURE

Anaesthesia :

Position:

Hemorrhoidectomy

- Duration at each site:

Postop

- Antibiotic:
- Analgesic:

TYPE OF SURGERY

- Open hemorrhoidectomy
- Closed hemorrhoidectomy

OTHER VARIABLES

- LENGTH OF HOSPITAL STAY
- OPERATING TIME

FOLLOW UP-

3 days,

2 weeks ,

4 weeks ,

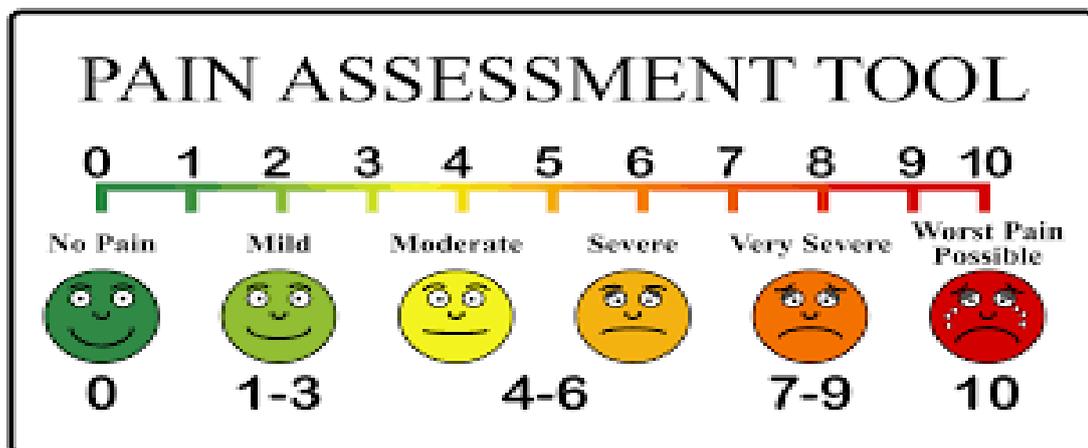
3 months

for pain, soiling, healing and late complications.

SCORING SHEET

1) Pain score

| | |
|---|------|
| No pain | 0 |
| Mild pain(relieved by oral medications) | 1-3 |
| Moderate pain(relieved by parentral medications) | 4-7 |
| Worst pain(relieved only by sedation) | 8-10 |



2) Urinary retention : yes/no

3) Minor bleeding

Surface area of pad soakage <1/4 : yes/no

4) Serous discharge:

Surface area of pad soakage<1/4 : yes/no

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MASTER CHART

| SL. NO. | NAME/ IP. NO | AGE/ SEX | SURGERY | | COMPLICATIONS | | | | FOLLOW-UP | | | | | | | | | | | |
|---------|----------------------|----------|---------|--------|---------------|-------------------|------------------|----------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| | | | OPEN | CLOSED | PAIN | URINARY RETENTION | SEROUS DISCHARGE | MINOR BLEEDING | 3 DAYS | | | 2 WEEKS | | | 4 WEEKS | | | 3 MONTHS | | |
| | | | | | | | | | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING |
| 1 | KUPPUSAMY 75538 | 41/M | + | | + | | + | | + | + | | + | + | | | | + | | | + |
| 2 | LAWRENCE 76615 | 56/M | + | | + | + | | + | + | | + | | + | + | | | + | | | + |
| 3 | RAMAR 78402 | 41/M | + | | | | | + | + | + | + | + | + | + | + | + | + | | | + |
| 4 | MURALI 78560 | 36/M | + | | + | + | | + | + | | + | + | | | | | + | | | + |
| 5 | MUTHULINGAM 79507 | 68/M | | + | + | | | + | | | + | | + | | + | + | | | | + |
| 6 | SINGADURAI 79585 | 47/M | | + | | | | | | + | | | | | + | | + | | | + |
| 7 | KALIM 79794 | 42/M | | + | + | | | + | + | | | + | | + | | | + | | | + |
| 8 | GANESAN 80443 | 60/M | + | | | | | + | + | | + | | | | | + | + | | | + |
| 9 | SHANMUGAM 80726 | 50/M | | + | + | | | + | + | | | | | + | | | + | | | + |
| 10 | MOHAN 81486 | 30/M | | + | | | | + | | | | + | + | | | | + | | | + |
| 11 | BHAVANI 81969 | 48/F | + | | + | | | + | + | | + | | + | | + | | | | | + |
| 12 | PERUMAL 82896 | 34/M | | + | + | | | + | + | + | | + | | + | | | + | | | + |
| 13 | SUDHAKARAN 83774 | 45/M | | + | + | | | + | + | | + | | | + | | + | | | | + |

| SL. NO. | NAME/ IP. NO | AGE/ SEX | SURGERY | | COMPLICATIONS | | | | FOLLOW-UP | | | | | | | | | | | |
|---------|------------------------|----------|---------|--------|---------------|-------------------|------------------|----------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| | | | OPEN | CLOSED | PAIN | URINARY RETENTION | SEROUS DISCHARGE | MINOR BLEEDING | 3 DAYS | | | 2 WEEKS | | | 4 WEEKS | | | 3 MONTHS | | |
| | | | | | | | | | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING |
| 14 | ARUMUGAM 84710 | 57/M | | + | + | + | | | + | + | | + | | | | | + | | | + |
| 15 | MANIGANDAN 84736 | 29/M | | + | | | | + | | | + | | + | + | | | + | | | + |
| 16 | DEVIKA 86471 | 32/F | | + | | + | | | | | + | | | + | | | + | | | + |
| 17 | MARIYAMMAL 86508 | 35/M | | + | + | | | + | + | | | + | | | + | | + | | | + |
| 18 | SAHIB ZADU 86570 | 70/M | + | | + | + | | | + | | + | + | | | | + | | | | + |
| 19 | SELVARAJ 87013 | 65/M | + | | + | | | + | + | | | + | + | | | | + | | | + |
| 20 | KASTURI 89051 | 45/F | + | | | + | + | | | | + | | | | + | | + | | | + |
| 21 | GOWTHAM 89300 | 46/M | | + | + | | | | + | | | + | | + | | | + | | | + |
| 22 | RANGANATHAN 89371 | 70/M | + | | | + | | + | + | | + | | + | | | + | + | | | + |
| 23 | LATHA 90109 | 43/F | | + | | | | + | | + | | | | + | + | | + | | | + |
| 24 | SAMUEL 90279 | 42/M | + | | + | | | + | + | | | + | + | | | + | + | | | + |
| 25 | PANEER SELVAM 90307 | 32/M | + | | | + | | + | + | | | | | | | + | | | | + |
| 26 | DANIEL 91341 | 36/M | + | | + | | | + | + | | + | | + | + | + | | + | | | + |
| 27 | KARUNAKARAN 91853 | 45/M | + | | + | | | + | + | | | + | | | | + | + | | | + |

| SL. NO. | NAME/ IP. NO | AGE/ SEX | SURGERY | | COMPLICATIONS | | | | FOLLOW-UP | | | | | | | | | | | |
|---------|--------------------------|----------|---------|--------|---------------|-------------------|------------------|----------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| | | | OPEN | CLOSED | PAIN | URINARY RETENTION | SEROUS DISCHARGE | MINOR BLEEDING | 3 DAYS | | | 2 WEEKS | | | 4 WEEKS | | | 3 MONTHS | | |
| | | | | | | | | | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING |
| 28 | LATHEEF 92504 | 27/M | | + | + | | | | + | | | + | | + | | | + | | | + |
| 29 | PALANI 93208 | 45/M | + | | + | | | + | | + | | + | + | | | | + | | | + |
| 30 | FAKKRUDIN 93973 | 41/M | | + | | | | + | | | | | | + | | + | + | | | + |
| 31 | RAGAVAN 94274 | 54/M | | + | | | | + | | | + | | | + | | | + | | | + |
| 32 | DURAIABABU 94739 | 70/M | + | | + | | | + | + | | | + | | | + | | + | | | + |
| 33 | MATHIALAGAN 95592 | 47/M | | + | | | | + | | + | | | + | + | | | + | | | + |
| 34 | PERUMAL 96157 | 57/M | + | | + | | | + | + | + | | + | + | + | | + | | | | + |
| 35 | CHOKKALINGAM 96449 | 43/M | + | | | | | + | | + | | | + | | | | + | | | + |
| 36 | CHINNADURAI 96488 | 48/M | + | | + | | | + | + | | + | | + | | | | + | | | + |
| 37 | BHUVANESHWARI 96910 | 38/F | | + | | | + | | | | | | + | + | | | + | | | + |
| 38 | MAYILVANNAN 98268 | 45/M | | + | + | | | + | + | | | + | | + | | | + | | | + |
| 39 | RAVICHANDRAN 99266 | 57/M | + | | | | + | + | | + | | | | | + | | + | | | + |
| 40 | ASHOK KUMAR 99790 | 61/M | | + | + | | | | + | | | + | | | | | + | | | + |
| 41 | PRAGADEESHWARAN 99959 | 44/M | + | | + | | | + | | + | + | + | | | + | | | | | + |

| SL. NO. | NAME/ IP. NO | AGE/ SEX | SURGERY | | COMPLICATIONS | | | | FOLLOW-UP | | | | | | | | | | | |
|---------|------------------------|----------|---------|--------|---------------|-------------------|------------------|----------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| | | | OPEN | CLOSED | PAIN | URINARY RETENTION | SEROUS DISCHARGE | MINOR BLEEDING | 3 DAYS | | | 2 WEEKS | | | 4 WEEKS | | | 3 MONTHS | | |
| | | | | | | | | | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING | PAIN | SOILING | HEALING |
| 42 | DAYALAN 100148 | 53/M | | + | | | | + | | | | | + | + | | + | + | | | + |
| 43 | KANNAN 100359 | 35/M | | + | | | | + | | + | + | | | + | + | | + | | | + |
| 44 | GREYGORI 101031 | 48/M | | + | | | | + | | + | | | + | + | | | + | | | + |
| 45 | KATHIRVEL 101560 | 70/M | + | | | + | | + | | | | | + | | + | | + | | | + |
| 46 | ANANDHI 101650 | 42/F | + | | + | | | + | + | | | + | | | | | + | | | + |
| 47 | VIJAYA 101981 | 60/F | | + | | | | + | | + | | | + | + | | | + | | | + |
| 48 | VIJAY 102518 | 35/M | + | | + | | | + | + | | + | | + | + | | + | | | | + |
| 49 | YESURAJ 102662 | 24/M | + | | + | | | + | + | | | | + | | + | | + | | | + |
| 50 | MARAKKAYAR 102740 | 35/M | + | | + | | | + | | + | | | + | | | | + | | | + |
| 51 | VELU 103204 | 38/M | + | | + | | | + | + | | | + | | | | | + | | | + |
| 52 | LAKSHMIPATHY 104707 | 32/M | | + | | | | + | | + | | | + | + | | + | + | | | + |
| 53 | RISHI 105697 | 39/M | | + | + | + | | | + | | + | | + | + | + | | + | | | + |
| 54 | MANIKAM 105731 | 36/M | | + | | | | + | | + | | | + | + | | | + | | | + |