

A Thesis in General Surgery

**RIGHT ILIAC FOSSA MASS A
CLINICAL STUDY**

**Submitted in partial fulfilment of the
Requirements for the Degree of
M.S General Surgery
(Branch I)**



**Kilpauk Medical College
The Tamil Nadu Dr. M.G.R Medical University
Chennai
April 2016**

DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation titled **“RIGHT ILIAC FOSSA MASS A CLINICAL STUDY”** is a bonafide and genuine research work carried out by me under the guidance of Dr.V.Ramalakshmi M.S., Professor, Department of General Surgery, Kilpauk Medical College, Chennai.

This dissertation is submitted to THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI in partial fulfillment of the requirements for the degree of M.S. General Surgery examination to be held in April 2016.

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The Proposal is APPROVED.

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ABSTRACT

BACKGROUND AND OBJECTIVE

Mass in the right iliac fossa is a common clinical entity encountered in surgical practice. It is one diagnosis that has a varied range of pathologies and fits in aptly to the description that the abdomen is a Pandora's box.

The main intention of this study is to know the varying modes of presentation, different modalities of diagnosis, treatment and management of right iliac fossa mass and to identify factors which can help in better management of these cases.

METHODS

Fifty patients presenting to the general surgery department of Govt. Royapettah Hospital and Kilpauk Medical hospital, Chennai with a clinical diagnosis of Right Iliac Fossa Mass were included in the study. Period of Study was from November 2014 to August 2015.

Inclusion criteria:

Masses in right iliac fossa arising from the appendix, caecum, terminal ileum, retroperitoneal connective tissue and psoas abscesses are included

Exclusion criteria:

1. Female patients with pathology related to uterus and its appendages.
2. Right iliac fossa masses secondary to extra-abdominal pathology.
3. Masses from structures which abnormally present in the right iliac fossa.
4. Bony swellings of the region.

5. Patients with right iliac fossa mass who are terminally ill.
6. Children less than 10 years of age.

A detailed clinical history was elicited and a careful general physical and systemic examination was carried out along with the necessary investigations.

Appropriate management was done

Follow up period – 1 month

RESULTS

The Data obtained in the study was analysed, and it was found that the male to female ratio was 2.8:1. Most patients were of appendicular pathology. Appendicular mass was seen in 22 patients and appendicular abscess in 6 patients. Appendicular pathology was seen in younger age groups and Carcinoma caecum was common in older group. Patients were also analysed based on clinical parameters, few laboratory investigations and the mode of treatment. The results are published in this study.

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INTRODUCTION

INTRODUCTION

Mass in the abdomen, by reason of their wide spread implications, has since long inspired the minds of many workers. Mass in the right iliac fossa is an common entity. Pandora's box-hackneyed phraseology is apt in case of mass in the right iliac fossa.

Patient with mass in the right iliac fossa may confront the surgeon, pediatrician obstetrician and gynaecologist. A thorough understanding of the anatomy and pathological processes that may occur within the abdomen are essential for an accurate diagnosis and management. Some patients will need immediate surgical intervention, whereas others will improve with conservative treatment.

This challenging task of finding certain well defined clinicopathological aspects of mass in the right iliac fossa has inspired me in undertaking this study.

The purpose of the present study is to finding certain well defined clinicopathological entities, in mass in the right iliac fossa, the relative occurrence of various pathologies, as seen in Govt. Royapetah Hospital, Kilapuk Medical College, Chennai in the overall endeavour to reduce morbidity and mortality rates. Relevant literature has been reviewed with.

AIMS & OBJECTIVES

OBJECTIVES

- To study various diseases which can presents as mass in the right iliac fossa.
- To study age and sex distribution of various conditions.
- To study percentage of various diseases presenting as mass in the right iliac fossa.
- To study various modes of management.
- To analyse the efficiency of current treatment and its prognosis in our setup.
- To follow up the studied cases for further management and to detect complications.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

The history of disease is at least as old as the history of mankind. One can assume that surgical disease or the surgical response to disease, is of similar age. The progress of human ability to improve the well being of humanity by means of surgery is fascinating indeed. It was not until the introduction of anaesthesia and antisepsis that abdominal surgery became a practical therapeutic approach for patients. Important contribution to the success of abdominal surgery included the introduction and development of antibiotics after World War II and developments in the metabolic care of the post operative patient started in the late 1940's and continues still.

Lorenz Heister, German surgeon published in 1718 a case of appendicitis. He discovered it when he was dissecting the body at Altdorf.

Claudius Amyand, British surgeon, recorded first successful appendicectomy in 1736.

The term "appendicitis" was coined by Reginald Heber Fitz, a Boston Surgeon in 1886.

Charles McBurney, in November 1889, described the point of maximum tenderness in acute appendicitis 5 years later in 1894, McBurney described his muscle splitting or introduced his gridiron incision.

It should be noted that the understanding of this common entity and the operative procedures for it were worked out by the co-operative efforts of physicians of several specialities. The first book on appendicitis appeared in 1895. It was written not by a surgeon, but by a physician Dr. Herbert Hawkins.

Sir Frederick Treves, was great advocate in the plan of conservative management with interval operation.

Lord Moynihan of Leeds in England and others at the end of the century leads the vigorous campaign for withholding purgatives.

A new approach for the management of peritonitis appeared in 1902 when A.J. Oschner of Chicago recommended conservative therapy for diffuse peritonitis resulting from perforated appendix.

R.T Shackelford in 1955 said the most common tumour of the appendix is mucocele which may occur spontaneously or after an attack of appendicitis.

In 1908 CA. Williams reported 19 cases of primary carcinoma of appendix.

Obern Dorfer in 1907 used the term carcinoid in 1907 and in 1911 Aschoff recognised a distinctive histological pattern of carcinoid tumours.

Intestinal tuberculosis is indeed the commonest form of tubercular lesion of abdominal organs.

W.J. Mayo emphasized that in some instances the hyperplastic lesions could only be differentiated from carcinoma with the help of a microscope.

Gershon Gohen used double contrast enema to diagnose early intestinal tuberculosis.

In 1932 Carbinand and his associates published their theory on regional ileitis and about the revolutionary change in the concept of primary ileocaecal tuberculosis.

In 1941 Trevedi and Gupta came to the conclusion, after study of autopsy findings and reports of 4,000 hospital cases, that 41 percent of pulmonary tuberculosis cases had secondary intestinal involvement and 5.1 percent of cases were primary in origin.

In 1950 the classical paper of Hoon et al. showed mainly that ileocaecal tuberculosis was a definite entity and mentioned some mentionable differences between tuberculosis, sarcoidosis and Crohn's disease.

In India, intestinal tuberculosis is still a relatively more common condition (Prakash et al., 1975).

That in India tuberculosis of the intestine is the commonest granulomatous lesion and Crohn's disease is rare was emphasised by Wig and Bawa in 1953. The disease is now rare in U.K., U.S.A. and Europe (Winter and Goldman 1966).

Hyperplastic type of tuberculosis was first described by Duget in 1889. Granulomatous inflammatory bowel disease (IBD) was established as a distinct entity in 1932 with the presentation of the classic paper by Crohn, Ginzburg and Oppenheimer from the Mount Sinai, Hospital. The constant incidence of mass in the right iliac fossa they observed usually requires surgical intervention

Moor said “The best operative results are obtained by careful dissection of involved bowel followed by its complete removal with suitable anastomosis usually an ileo transverse colostomy.

Crohn and associates said that the best line of procedure was division of ileum, three feet from ileocaecal valve closing both ends and implanting proximal terminus of ileum by side to side anastomosis to transverse colon.

In 1963 Moor said free perforation rarely occurs whereas fistula between loops of bowel is common.

At the Mayo clinic from 1945-1955 there were 257 patients with the condition and 86% had resection and primary anastomosis.

Ramesh C. Bharti et al. (1996) concluded that though basic treatment of abdominal tuberculosis remains medical yet role of surgery is for complications and its management.

Kelly J. et al. (1999) said that ileocaecal tuberculosis should be sought first in patients with appropriate clinical features even if classical risk factors for tuberculosis are absent.

Adalla S.A. et al. (1996) advocated conservative treatment for appendicular mass and said it is not an indication for interval appendicectomy.

Milland F.C. et al. (1991) correctly identified organ of origin of mass in 97% cases by ultrasonography.

Hurme T. (1995) noted that if appendicular abscess is operated on in acute phase, there may be more complications.

ANATOMY

Abdomen is divided into nine regions by two vertical lines passing through midclavicular lines superiorly and these lines extending inferiorly through midinguinal points and two horizontal lines namely transpyloric and transtubercular lines.

Thus right iliac fossa is the region in the right lateral side and lower most quadrant.

Boundaries of this region are from superficial to deep by skin, subcutaneous tissue, external oblique aponeurosis, transverse abdominis muscle and internal oblique muscles anteriorly. Posterior boundary is formed by psoas and quadratus lumborum muscles and thoracolumbar fascia.

Inferiorly bounded by posterior part of ilium and iliacus muscle. Laterally it is bounded by external oblique, internal oblique, transverse abdominis and fascia transversalis.

Structures normally present in the right iliac fossa are appendix, caecum, terminal ilium, part of ascending colon, iliac lymphnodes, iliac vessels, retroperitoneal connective tissue, iliopsoas muscle and sheath.

Structures which can abnormally present in the region are undescended or dropped kidney, undescended testes, masses from uterus and its appendages, bladder, gall bladder, etc. Appendix, caecum and terminal part of ilium form an important surgical anatomic composite.

APPENDIX

It is the starting of large gut. At an early embryonic stage, it has same diameter as caecum. It is formed by excessive growth of the right wall of caecum which thus pushes appendix to the medial side.

Vermiform process of appendix is attached to caecum about 2.5 cm below ileocaecal junction on posteromedial border and can be located through tracing the anterior longitudinal band distally.

It is uniformly cylindrical and usually varies in length from 2.5 cm to 10 cm and is about 3 to 8 mm in diameter. Its layers are similar to those of large gut, but muscular coat may be deficient in parts so that peritoneum and mucous membrane are separated only by connective tissue through which infection may spread from mucous membrane to peritoneum. Its wall contains much lymphoid tissue. Its orifice into the caecum is guarded by a crescentic mucosal fold, absence of which may predispose for presence of faecal matter in its lumen.

Mesoappendix is a triangular fold of peritoneum. It attaches appendix to terminal part of left inferior layer of mesentery of ileum and its free crescentic edge contains appendicular branch of posterior caecal. artery. If mesentery is incomplete, artery lies on the wall of the appendix in its distal part and wall of the vessel may get eroded in suppurative appendicitis or early thrombosis can ensue.

Base of appendix has a constant relation to caecum and is represented on surface by McBurney's point which is located at the junction of lateral 1/3rd and medial 2/3rd of spinoumbilical line. Various positions of appendix have been described. Tip of appendix in relation to caecum is variable and has been said similar to hands of a clock. Appendix can sometimes cross psoas muscle and its apex can hang over the pelvic brim into true pelvis.

Inflamed appendix gets fixed to psoas muscle and stretching of muscle by extension of thigh causes pain. If inflamed appendix hangs over the pelvic brim, it rests on pelvic fascia overlying obturator internus and on flexing and rotating the thigh medially it causes pain.

It can also cause irritation of bladder causing strangury and rectum causing passage of mucous per anum and tenesmus. In women symptoms might be less because of presence of uterus.

Appendix is in pelvic position in 21 % of cases. It is in retrocaecal position in 74% cases. It is the safest position as organ may be partly or completely behind peritoneum.

Ileal position is the most dangerous and is in 1.5%. It is completely intraperitoneal and can be preileal in 1% and postileal in 0.5% cases. If inflamed in this region it may affect distal part of the ileum and can cause vomiting, or even obstruction of small bowel which in turn can cause general peritonitis. Appendix is subcaecal in 1.5% cases and is paracaecal in 2% cases.

Blood supply

The artery to appendix, branch of lower division of ileo-colic artery runs behind the terminal part of ileum and enters the mesoappendix a short distance from base of the appendix. Here it gives off a recurrent branch, which anastomoses at the base of appendix with a branch of the posterior caecal artery.

An aberrant artery, branch of posterior caecal artery is also seen in 50% cases.

Lymphatic system

The appendix drains from its lymphatic follicles through the muscle wall into nodes in the mesoappendix. These drain into paracolic nodes lying along ileo-colic artery and then to the superior mesenteric group.

TERMINAL ILEUM

Terminal part of ileum usually lies in the pelvis except the last 5 cms which is fixed in the right iliac fossa. It ascends over psoas muscle and right iliac vessels to end by opening into medial side of junction of caecum and ascending colon. It is suspended by its mesentery allowing very free movement.

Blood supply

It is by inferior branch of ileo-colic artery which later ends by anastomosing with the termination of superior mesenteric artery. There are 2 to 3 arterial arcades in mesentery.

Lymphatic system

Lymph drains from aggregated lymphatic follicles (Peyer's patches) of mucous membrane through the muscle wall into the mesentry (ileo-colic group of nodes) from where they drain into the superior mesentric group of nodes.

CAECUM

It is the blind pouch of large intestine projecting downwards from the commencement of ascending colon, below ileocaecal junction. It is about 6 cm long and 7.5 cm wide and lies over floor of right iliac fossa i.e., over iliacus and psoas fascia. Its lower end lies at the pelvic brim and when distended, its anterior surface touches the parietal peritoneum of anterior abdominal wall and when collapsed, coils of ileum lie, between it and the parietal peritoneum. In obstruction anywhere in the colon, caecum eventually leads to distension because of presence of ileocaecal valve and it may rupture.

Caecum is partly covered by peritoneum and may have a short mesentry or even two mesentries, with a retrocaecal fossa extending upwards between them. As in rest of the colon, positions of Taenia coli are anterior, posteromedial and posterolateral. All these 3 converge over base of appendix and form outer longitudinal muscle coat.

Blood supply

Ileocolic artery after giving off ileal and colic branch divides to supply the caecum. The anterior caecal artery is smaller of the two terminal branches and ramify over anterior surface of caecum, posterior caecal artery supplies posterior wall of caecum as well as medial and lateral walls of that part of the gut.

Lymphatic system

Caecum drains from its lymphatic follicles into nodes lying along left side of gut. These epicolon nodes which drain into paracolon nodes situated along ileocolic and right colic arteries. From here they drain to superior mesenteric group of pre-aortic lymphnodes.

ILEO-CAECAL VALVE

Ileocaecal valve is situated at the entrance of the ileum into the large intestine opposite the junction of caecum and ascending colon.

Orifice is circular and the circular muscle of the small gut, covered with the mucous membrane points into the large gut.

Valve consists of an upper and lower segment formed by duplication of wall of small and large bowel. The thickened circular muscle of terminal ileum is the ileocolic sphincter which gates the chyme into caecum.

ASCENDING COLON

It varies about 15 cm in length and extends upwards from ileocaecal junction to the right colic flexure. It is invested with peritoneum on its anterior, lateral and medial surfaces; but posteriorly it is devoid of peritoneum.

Posteriorly it lies on iliac fascia and anterior lamella of lumbar fascia being connected and fixed to them by fibrous tissue of extra peritoneal fascial envelope.

Anteriorly it is in relation with coils of ileum, possibly the right edge of greater omentum and the anterior abdominal wall.

Blood supply

Ascending colon and right flexure are supplied by ileo-colic and right colic arteries, branches of superior mesenteric artery. Ileocolic artery divides into ileal and colic branches where colic branch anastomoses with the descending branch of right colic artery. Ascending branch of right colic artery anastomoses with middle colic artery.

Lymphatic system

Lymphatic drainage is into epicolic, paracolic, intermediate colic and terminal colic lymphnodes.

RETROPERITONEUM

It consists of that portion of the body bound anteriorly by peritoneum, posteriorly by spine and psoas with quadratus lumborum muscles. Superiorly it is bounded by the 12th rib and attachments of the diaphragm. Inferiorly it is bounded by brim of pelvis. Lateral margins of this space correspond to lateral borders of quadratus lumborum muscles.

These limits marks potential space containing some very important organs and structures like kidneys, ureters, adrenals, pancreas, abdominal aorta, inferior vena cava, portions of autonomic and peripheral nervous systems, spermatic or ovarian vessels, lymphatics, lymphnodes and certain portions of gastrointestinal tract like duodenum.

Retroperitoneal space in relation to right iliac fossa contains common iliac artery and vein and also external iliac artery and vein. Common iliac and external iliac lymphnodes are situated along these vessels.

a) Relation of duodenum to colon

Second part of duodenum curves downwards over hilum of right kidney covered in front by the peritoneum and crossed by attachment of transverse mesocolon, so that its upper and lower half lie in the right supracolic and infracolic compartments respectively.

b) Relation of Gonadal vessels

They have similar origin and course in both sexes. Both testicular and ovarian arteries arise from anterior part of aorta, below renal arteries but well above the origin of inferior mesentric artery. They run steeply downwards over psoas muscle crossing ureter and supplying its middle portion and being themselves crossed by colic vessels and peritoneum of infracolic compartments. They reach pelvic brim about half way between sacroiliac joint and inguinal ligament after which course is different in both sexes.

In the male testicular artery runs along pelvic brim above external iliac artery and enters deep inguinal ring. In the female ovarian artery crosses pelvic brim and runs down the lateral wall of pelvis to enter the infundibulopelvic fold of peritoneum and passes to the ovary and uterine tube. Gonadal veins accompany the arteries and are usually paired. As they run up on psoas muscle two venae comitantes usually unite and the right vein enters inferior venacava an inch or so below renal vein, Left vein enters left renal vein.

c) Relation of ureter in retroperitoneum

Ureter or duct of kidney is 25 cm long. Its upper half is in abdomen and its lower half is in the pelvis. Its abdominal part extends almost vertically from lower part of hilus of kidney to bifurcation of common iliac artery.

Ureter lies in sub-peritoneal areolar tissue and attaches to peritoneum. When peritoneum is mobilised ureter is in danger as it moves with it.

Ureter descends on psoas fascia and crosses genitofemoral nerve. Inferior vena cava is close to the medial side of right ureter. Its anterior relations are vessels of testis/ovary second part of duodenum, right colic and ileocolic arteries, root of mesentery and terminal part of ileum.

VI. KIDNEY

- Unascended kidney
- Dropped kidney

VII. UNDESCENDED TESTES

VIII. PELVIC ABSCESS

IX. URINARY BLADDER – DIVERTICULUM

X. DISTENDED GALL BLADDER

EXCLUSION CRITERIA

- Ilium bone tumours
- Mass from uterus and its appendages
- Abdominal wall tumours

ETIOPATHOLOGY

APPENDICULAR MASS AND APPENDICULAR ABSCESS

Appendicitis is yet a common surgical emergency which is more common in upper and middle class people, probably because of intake they take which is rich in meat and scanty in cellulose.

Appendicitis is of two types: Non-obstructive and Obstructive.

Appendicitis in majority of cases results from obstruction following infection, approximately 60% of cases are related to hyperplasia of submucosal lymphatic follicles (Non-obstructive) 35% are related to presence of faecal stasis or faecoliths, 4% are due to presence of foreign body or round worm or threadworm (obstructive). Abuse of purgatives and violent peristaltic action which results therein favours and often determines perforation of inflamed appendix causing appendicular mass or generalized peritonitis. So purgation means perforation is a vice adage.

Usually on the 3rd day (rarely sooner) after the start of attack of acute appendicitis, a tender mass can be frequently felt in right iliac fossa beneath some rigidity of overlying musculature. Mass which at this time is not yet an appendicular abscess, and may never become one, it is composed mainly of the greater omentum, oedematous caecal wall and oedematous portions of small intestine. In its middle is a perforated or otherwise inflamed vermiform

appendix. By 4th or 5th day mass becomes more circumscribed. During the following days (i.e. 5th to 10th day) swelling either becomes larger and an appendix abscess results or it becomes smaller and subsides slowly as inflammation resolves.

Bacteriology

Cultures from inflamed appendices usually reports that the infection is mixed and there is hardly a pyogenic organism which has not been isolated from such cultures. Most common organisms are mixture of Escherichia coli (85%), Enterococci (30%), Non-haemolytic streptococci, Anaerobic streptococci, together with Clostridium welchi (30%) and bacteroides.

ILEOCAECAL TUBERCULOSIS:

Tuberculosis is caused by acid-fast bacilli called mycobacterium tuberculosis. Organism was first discovered by Robert Koch in 1882. It may be human, bovine or avian type. Human type of infection is air borne (i.e. tuberculosis of lung). Bovine type spreads by infected cow's milk. Intestinal tuberculosis in India is caused by human type of bacilli which is secondary to pulmonary tuberculosis.

Poverty is the main contributory factor of aetiology, which profoundly depresses the general vitality and favours the infection.

The terminal part of the ileum and adjacent part of caecum become infected by swallowed bacilli derived either from lungs or contaminated food. Haematogenous spread is also likely.

Focus of infection is most commonly in ileocaecal region because of the following factors:

- Increased physiologic stasis
- Most abundant lymphoid tissue
- Increased rate of absorption

There are two types of lesions commonly seen in gastrointestinal tuberculosis.

1. Hyperplastic type
2. Ulcerative type

Ulcerative :

Usually secondary to pulmonary tuberculosis associated with high virulent organisms and low resistant host. In terminal ileum there are multiple ulcers, long axis of which lie transversely along the lymphatic vessels. Ulcers are shallow with undermining edges. Overlying serous coat is infected, thickened with multiple tiny Tubercles. Fibrosis is characteristic and strictures of ileum are frequent.

Hyperplastic type

It is common in ileo-caecal region and occurs in patient who has already developed resistance against mycobacterium tuberculosis. Caecum and terminal two inches of ileum are usually affected. Infection first starts in lymphoid follicles and spreads to the submucous and subserous planes. Chronic inflammation sets in and the intestinal wall becomes thickened. This thickening is partly due to tubercular granular Tissue and oedema, but is mostly due to excess fibrous tissue, causing narrowing of the affected part. Regional lymphnodes are involved early in the disease and may caseate. Ascending colon is shortened and ileum rises to enter it vertically so that ileum and colon lie in straight line instead of at right angles to each other. Sooner or later sub-acute or even acute obstruction may be established above the constriction and is often precipitated by deposition of faecolith or food particles.

Histology

Diffuse fibroblast reaction with giant cell of tuberculoid type. Frank caseation which is pathognomonic of tuberculosis is rare and is reported in only 35-50% cases of operated specimens.

Caseation is more often seen in lymphnodes and is reported in 40- 60% cases. Tuberculous bacilli could be cultured only in 28% cases from lesions.

There are distinct entity of granulomas at ileo-caecal region which do not give direct evidence of tuberculosis. These cases are labelled as indeterminate group of granulomas.

Non-specific regional ileocolitis / non specific enteritis probably represent the end result of a successfully controlled tubercular process.

In tuberculosis glands at first are firm, discrete, but when periadenitis adds they become matted. Cut surface is grey and translucent but later becomes yellow, opaque and caseous.

Further caseous material may breakdown to produce cold abscess. Microscopically endothelial cells and lymphocytes can be seen. Giant cells are seen within many nuclei arranged like a horse shoe. As the healing occurs, fibroblasts proliferate and dense collagen fibres are laid down.

CARCINOMA CAECUM AND ASCENDING COLON

It occurs in 12% of all colo-rectal cancers (Mayoclinic Statistics). Surgery has always been and is most likely to continue as first line of treatment. It develops as a sequelae to ulcerative colitis (10% incidence after 10 years rising to 45% after 25 years) or to polyposis of the colon. There is an indeterminate relation to other types of adenomas but in great majority of cases no aetiological factor can be demonstrated. Rarely there appears to be familial incidence (Love et al., 1976). Of late there have been hypothesis stressing the implication of environmental factors.

Environmental factors

There have been 3 main theories advanced over the past 2 decades to explain the cause of the tumour. The first of these proposed by Denis Burkitt and his colleagues 1976 states that populations with diet low in fibre content have a higher incidence of colo-rectal cancer.

The next one is due to dietary factors. An epidemiological association has been demonstrated between Beef consumption and its contaminated animal fat and frequency of bowel cancer. The third theory and most recent one was developed by Bjel K. and it showed that high levels of selenium - metal found in soil and foliage is related to a low incidence of colon cancer.

Genetic factors

In a minority of cases hereditary factor truly contributes. Familial multiple polyposis, Gardener's syndrome and cancer – a family syndrome are three hereditary disorders having an autosomal dominant mode of transmission. Lynch H.T. et al., 1976; Rider et al., 1964 have shown that colonic carcinoma occurs with 5 times greater frequency in polyp patients than in normal individuals. There is frank evidence that colonic carcinoma is more common in patients with Crohn's disease than in general populations.

Age incidence

Carcinoma of the colon may occur at any age although it is usually seen between the ages of 50 and 80, the peak age incidence being in the 6th and 7th decades. It is not uncommon to find the disease in patients between ages 20 and 30 or even in children and adolescents.

Pathology

Macroscopic type of colonic cancers include:

1. Proliferative
2. Annular
3. Ulcerative
4. Muroid
5. Primary linitis plastica
6. Multiple primary carcinoma of the colon

The proliferative type is most commonly seen in caecum and ascending colon. It forms fleshy bulky polypoid mass that bulges into the lumen of bowel. It is a malignancy having slow growth and shows no tendency to metastasise to regional lymphnodes.

Obstruction is a late phenomenon because

Proximal colon is more spacious

1. Its contents are liquid in nature
2. The papilliferous tumour obstructs only by nature of its bulk.

LYMPHADENITIS

Most of the times lymphadenitis is non-specific and designated as acute or chronic nonspecific lymphadenitis. Chronic inflammation may be specific. The specific nodes involved are iliac lymphnodes. Iliac lymphadenitis is very common In India where most of the population walk without protection.

Acute lymphadenitis and chronic lymphadenitis are caused by virulent bacteria like streptococci and staphylococci. Chronic specific lymphadenitis is either due to tuberculosis or filariasis.

If the causative organism is of relatively low virulence, lymphadenitis may remain confined to nodes immediately proximal to the site of infection. The nodes are enlarged, painful and tender. Rarely when infection is more severe, the proximal barriers are overwhelmed thus in the cases of infected foot, painful enlarged lymphnodes will be external iliac group instead of inguinal group and may provoke acute abdominal symptoms closely resembling acute appendicitis, a differential diagnosis that fears the surgeon. Macroscopically, the nodes become swollen, grey red and engorged. There may be inflammatory

changes in the perinodal tissue. Histologically there is prominence of lymphoid follicles and large germinal centres.

LYMPHOMAS

May arise as a primary neoplasm at any level of gastro intestinal tract. As primary lesions they most often affect stomach and ileum, less commonly colon and rectum. Involvement of bowel may also appear as a part of dissemination of systemic lymphomatosis. In such instances gastro-intestinal lesions are typically multifocal whereas primary lymphomas are usually solitary masses in a particular segment of gut. 11% of lesions are confined to ileo-caecal region. Spread is by direct extension or by lymphatics. Distant metastasis ensues late. Lymphomas are common in ileum coinciding with the abundance of Peyer's patches.

Pathology

The tumour presents as ulcerating or infiltrating type and polypoid tumours being least common. They sometimes become bulky and involve long segment of the bowel which becomes rigid. Regional lymphnodes are usually enlarged but not always by tumour deposits and sometimes show changes of reactive hyperplasia alone. Although usually lot difficult to diagnose, these tumours may be difficult to classify.

The lymphomas as a group vary from well differentiated less malignant forms one extreme to the anaplastic on the other extreme. Giant follicular lymphoma is the most benign histological pattern followed by lymphosarcoma, Hodgkin's para granuloma, Hodgkin's disease reticulum cell sarcoma in the order of increasing malignancy.

APPENDICULAR MASS

Appendicitis is particularly common in highly civilised people like European and Americans, while it is rare in Africans. This is attributed to the diet which is rich in meat and scant in cellulose.

Appendicitis in majority of the cases result from obstruction following infection, approximately 60% of the cases are related to hyperplasia of submucosal lymphatic follicles, 35% to the presence of faecal stasis or faecolith, 4% due-to the presence of foreign body or roundworm or thread worm. Abuse of purgatives and violent peristaltic action which results there in, predisposes and often leads to perforation of inflamed appendix leading to appendicular mass or generalised peritonitis. So "purgation means perforation" is a wise adage.

Usually on 3rd day (rarely sooner) after the commencement of attack of acute appendicitis a tender mass appears in right iliac fossa with overlying rigidity, remaining part of abdomen being free from rigidity. The mass at this time may not be an appendix abscess and may never become one. It is composed

mainly of greater omentum, edematous caecal wall and edematous portion of small intestine. In its middle is a perforated or inflamed appendix.

During the ensuing days (5th to 10th) the swelling either become larger, resulting in appendicular abscess or it becomes smaller and subsides slowly as the inflammation resolves.

Bacteriology

Cultures from the inflamed appendix usually reveal that infection is mixed. The most common organisms present are mixture of *E. coli*. 85%, Enterococci 30%, Non-hemolytic streptococci, Anaerobic streptococci, together with *Clostridium welchii* 30% and bacteroides.

AMOEBOMA

About 20% of population of world suffers from infestation with *E. histolytica*. Most interesting to surgeon is Amoeboma. Though uncommon it may be mistaken for carcinoma or if the symptoms are acute for an appendicular abscess. The caecum and ascending colon are affected most often followed by sigmoid and rectum. Although Amoebiasis is very common in India very few cases of Amoeboma have been accounted. The common lesions are discrete, shallow ulcers with a yellow base, a bright red edge and normal mucosa in between the ulcers.

The early and less severe forms of disease heal without scarring and in more chronic forms granulomatous masses are formed due to the formation of concentric strictures and para-colonic inflammatory masses termed Amoeboma, most commonly found in caecum. Caecal Amoeboma present as hard slightly tender, nodular and relatively fixed masses.

To summarise amoeboma is a thick edematous swelling of the wall of the limited segment of the colon often without mucosal ulceration.

ACTINOMYCOSIS

Ileo-caecal actinomycosis was first reported by Ransom in 1892 and it is the commonest form of abdominal actinomycosis. The organisms enter the sub-mucosa through small breach of surface either in the appendix or through an ulcer in the wall of the caecum. A foreign body seems sometimes responsible for the breach which acts as a route of entry.

Secondary infection rapidly follows the invading organisms and the typical granuloma develops in the bowel wall. An inflammatory honey comb of dense and almost cartilaginous fibrous tissue results with multiple abscesses and cavities.

In this inflammatory mass the caecum, ileum and appendix lie enveloped. The sulphur granules from which fungus may be isolated are observed.

The fungus is *Actinomyces israelii* an anaerobic gram positive branching filamentous organism. It does not spread by lymphatic channels, and hence regional lymph nodes are not involved. The inflammatory process spreads by direct extension to the serous surface, a peritoneal reaction follows and soon the abscess extends to the muscle layers of abdominal wall to burst open as sinuses. In the late cases liver may be involved through portal vein.

CROHN'S DISEASE

Although no causative organism has been found in the lesion or in the stools, abnormal forms of *E. coli* have been discovered in most of the patients. It is considered to be hereditary possibly Crohn's disease develops in patients with relatively complete genotype. Ulcerative colitis is common in relatives of patients with Crohn's disease but the converse is not common. Like ulcerative colitis it is believed that Crohn's disease is a precancerous condition. Pathologically there is cicatrising inflammation with ulceration of the mucosa.

It usually commences at or near the ileo-caecal wall and extends upwards along the ileum for about 30 cm. In acute cases the affected intestine is seen to be swollen, bright pink in colour with fibrinous exudate on its peritoneal surface.

On palpation the intestinal wall feels like hose-pipe. The mesentery of the involved intestine is much thickened, edematous and contains enlarged fleshy nodes. Unlike TB the affected lymph nodes remain same.

Histologically, a characteristic finding is granulomatous infiltration of lymphatics of the submucosa with the presence of non-caseating giant cells. In late stages of the disease fibrosis extends into and obliterates the sub-mucosa.

PSOAS ABSCESS PRESENTING AS RIGHT ILIAC FOSSA MASS

Pathology

Tuberculous osteomyelitis of the spine in most cases results from hematogenous spread into the marrow cavity. One or more vertebral bodies in the dorso lumbar region are affected most often while the intervening fibrocartilage is eroded and absorbed at an early stage. The primary cause is tubercular end arteritis, the marrow is converted into myxomatous tissue which provides an ideal nidus for the growth of the tuberculous bacilli. In the devitalised tissue a tubercle follicle develops until it is visible to the naked eye as a small yellowish nodule. As this nodule grows the lamellae over a wide area are progressively rarified and eventually disappear.

The centre of the body of the vertebra being caseous the superimposed weight of the vertebral column is borne by the fragile shell of compact bone which sooner or later When the body of the vertebra collapses following things are expressed out:

1. Tubercular debris containing granulation tissue
2. Caseous material
3. Disintegrated lamellae and bone marrow
4. There is a cold abscess and is the commonest cause of Pott's disease occurring in 20% of cases.

This cold abscess tends to spread downwards under the influence of gravity influenced by surrounding anatomy. Usually extending within the psoas sheath coming to the surface above the inguinal ligament.

RETRO PERITONEAL TUMOURS PRESENTING AS RIGHT ILIAC FOSSA MASS

These lesions may arise from a multitude of tissue types including muscle, fat, connective tissue, vascular tissue, sympathetic nervous tissue. But in general the finding of a retroperitoneal mass is an ominous one i.e.

malignant lesions outnumber benign lesions in the ratio of 4:1. The commonest of the connective tissue tumours encountered are fibrosarcoma arising from ileo psoas sheath and chondrosarcoma arising from iliac bone itself.

TUMOURS OF THE MESENTERY

Primary tumours of the mesentery may be cystic or solid. Of these cystic growths occur more frequently than solid ones in the ratio of 2:1. A variety of

tissues vascular, nervous and connective tissue are the sources of these tumours.

In addition cystic tumours may arise from embryonic rests (Dermoid) from the developmental defect (Chylous or serous retention cyst) or following trauma (Haemorrhagic cysts). Benign tumours have a great tendency to develop at the periphery near the intestine and 2/3rd of them develop near the ileum. Malignant solid tumours arise near the root of mesentery and spread by local extension or peritoneal implants. The mobility of mesentery permits both benign and malignant tumours to grow to a very large size before causing symptoms.

Origin	Benign	Malignant
1. Cystic Tumours		
a) Developmental defects	Chylous cyst serous cysts	
b) Lymphatic tissue	Lymphangioma	Lymphangiosarcoma
c) Trauma	Traumatic Cyst	
d) Embryonic rests	Enteric cyst dermoid	Malignant teratoma

2) Solid Tumours		
a) Adipose tissue	Lipoma	Liposarcoma
b) Fibrous tissue	Fibroma	Fibrosarcoma
c) Nerve elements	Neurilemmoma	Malignant
	Neurofibroma	Schwannomma Neurofibrosarcoma
d) Smooth muscle	Leiomyoma Fibromyoma	Leimyosarcoma
		Fibromyosarcoma

DISEASES OF ORGANS ABNORMALLY PRESENT IN RIGHT ILIAC FOSSA

Ectopic kidney: This abnormality occurs in some degree in approximately 1% of individuals. It is more common on the right side than in the left. The kidney is normal ascent near pelvic brim. The ectopic kidney may be mistaken for an abdominal tumour.

Diverticulum of bladder: A huge diverticulum of bladder may invade the right iliac fossa as well. A diverticulum can be congenital or acquired and can occur anywhere in the bladder.

Mal descended testis: The testis develops below the kidney in the mesoderm of the Wolffian ridge.

The primitive testis is attached to the posterior abdominal wall by a narrow mesentery (mesorchium) in which its vessels run. In the normal course the testis descends through the retroperitoneum, comes to occupy the scrotal position after traversing through the inguinal canal.

It can present as a mass in the right iliac fossa, when its descent is blocked retroperitoneally just above the internal inguinal ring.

The malpositioned testis is more prone for trauma, torsion, inflammation and malignancy. All types of malignant tumours have been seen in undescended testis. Seminoma is the commonest. Bennett- Jones and Harrison estimated malignancy to be 50 times commoner in undescended testis.

Gall Bladder: Practically every article on biliary tract surgery features the frequent variations found in biliary tract anatomy (Dowdy, the biliary tract). A hugely distended gall bladder-Hydrops and a gall bladder with a mesentery may descend as low as right iliac fossa.

Common conditions are:

- 1) Floating gall bladder and
- 2) Mucocoele of gall bladder

CLINICAL FEATURES, DIAGNOSIS AND MANAGEMENT ILEOCAECAL TUBERCULOSIS

Clinical Presentation

Attacks of abdominal pain with intermittent diarrhoea are the premonitory symptoms.

Age – 20-40 years

Females are affected more often than males. Frequently presentation is that of blind loop syndrome. The ileum above the partial obstruction is distended, leading to stasis and consequent infection leading to steatorrhoea, anaemia and loss of weight.

Sometimes the presenting picture is that of a mass in right iliac fossa in a patient with vague ill health and evening rise of temperature. Sub-acute or chronic intestinal obstruction is the commonest presentation in 35 to 50% of patients. (Bansali and Desai 1968) (Prakash et al., 1970).

Patients have a long history of dull aching pain, constipation, vomiting and borborygmi patients may show distension of abdomen and typical stepladder pattern of visible peristalsis. The patient then presents with acute abdominal pain, vomiting, distension and constipation.

Investigations

In general the results of haematological and biochemical investigations will indicate a chronic inflammatory process.

The blood picture will show normocytic, normochromic type of anaemia, High E.S.R. is present.

Iron deficiency anaemia may also be encountered. Plasma proteins are disturbed with low albumin due to increased loss through inflamed intestinal mucosa, Gamma globulins are raised (Mehrotra and Agarwal, 1968) IgG and IgM are raised.

Tuberculin test

The test is negative in active miliary tuberculosis. This occurs because immunological systems get suppressed due to toxemia. In adults positive tuberculin test is of some value when it is more than 20 mm diameter.

Ascitic fluid examination

This is of confirmatory value when proteins are more than 3 gm% and cells are predominantly lymphocytes.

Radiology

It is a helpful diagnostic procedure. Plain X-ray may show dilated coils of intestine, calcified enterolith, calcification in mesenteric lymph nodes.

Contrast X-ray

Barium meal follow through is relatively contraindicated in presence of subacute obstruction for the fear of causing total obstruction.

Otherwise it is carried out to see accelerated transit time, thickening or irregularity of intestinal mucosa, areas of small bowel obstruction as manifested by dilated loops with delay in emptying, filling defects in small bowel and large bowel. Sterling's sign i.e., failure to retain Barium in diseased segment may be seen.

String's sign i.e., narrowing of the terminal ileum which is visualised as a straight line.

Barium enema examination reveals a long, narrow smooth filling defect tapering at its end ileum and ascending colon lie almost vertically in straight line. Caecum is drawn-up under the liver.

Gallium citrate scanning, Thoracic duct cannulation, Laparoscopy may help in early diagnosis.

Antitubercular chemotherapy is alone needed and surgery is not recommended unless complications adds. A doubtful diagnosis is another indication for laparotomy.

With new techniques available for diagnosis of gastro intestinal tuberculosis more patients are getting chemotherapy, only few surgery.

Medical therapy

General therapy includes improvement in diet, iron and vitamin supplementation.

Antituberculous chemotherapy is the most important measure in the treatment of all forms of tuberculosis.

Chemotherapy

The following five drugs – Rifampicin, isoniazid, streptomycin, ethambutol and pyrazinamide are considered in the initial treatment of tuberculosis. The main regimens followed are:

1. Long Term Therapy

Duration 9 months.

- a) Initial phase (2 months)
 - (i) Rifampicin 450 mg (less than 50 kg) given in a single dose on empty stomach. 600 mg (more than 50 kg)
 - (ii) Isoniazid: 300 mg daily in a single dose
 - (iii) Streptomycin 0.75 gm given parenterally in a single dose or ethambutol 25 mg/kg given daily

- b) Continuation phase (7 months)
 - (i) Isoniazid (plus pyridoxine 10 mg to prevent peripheral neuropathy)
 - (ii) Rifampicin

2. Short term chemotherapy

It is now possible to shorten the chemotherapy regimen by using two or more “bactericidal” drugs. With this it is possible to produce rapid sputum conversion to negativity. The possibility of the emergence of drug resistance and bacteriological relapse is negligible. The duration of the treatment is 6 months.

Initial phase (2 months)

Rifampicin + INH + streptomycin or ethambutol
Continuation phase (4 months) INH + Rifampicin

3. Inexpensive treatment regimen

This treatment is adopted in developing countries for economic reasons. The following form is effective if administered for 12 months.

- 1) Streptomycin 1 gm by intramuscular injection plus INH 300 mg by mouth on 2 days per week. This is 90-95% effective. If daily treatment with standard dose of streptomycin and INH can be afforded for initial 3 months, the effectiveness is nearly 100%.

- 2) INH 300 mg plus thiacetazone 150 mg given in a single daily dose by mouth is extremely cheap and is 80-95% effective.

Treatment of resistant tuberculosis:

Such cases are treated with additional drugs like:

- 1) Sodium aminosalicylate (PAS 5 gm bd)
- 2) Proethionamide (0.75-1 g) once daily
- 3) Capreomycin (0.75 to 1 g once daily 1M)
- 4) Cycloserine (0.75-1g once daily by mouth)

Prevention of tuberculosis

- 1) Following control measures are important
- 2) Improvement in socioeconomic conditions in respect of adequate housing, ventilation and nutrition.
- 3) Case finding by mass radiography, sputum smear examination, contact examination.
- 4) Proper use of modern highly effective chemotherapy.
- 5) BCG vaccination by administration of freeze dried vaccine (0.1 ml) injected at the junction of the upper and middle third of upper arm. It should not be given in presence of immunodeficiency. The duration of protection is upto 7 years.

- 6) Chemoprophylaxis: Using INH 5 mg/kg by mouth daily for 1 year in (1) non BCG vaccinated tuberculin positive children under 3 years of age.
(2) unvaccinated individual who have recently become tuberculin positive
(3) patients on immunosuppressive drugs.

Surgical Treatment

Principle indication for surgery are:

- 1) Management of complications
- 2) Diagnostic procedures

There are instances when gastro intestinal tuberculosis presents as an emergency.

Indications for surgical treatment:

- 1) Perforation of tuberculous ulcer
- 2) Perforation with localised abscess
- 3) Obstruction by cicatricial stenosis or shortening of mesentery resulting in kinking of bowel.
- 4) Localised hyperplastic tuberculosis with diminishing calibre of lumen.

Medical treatment should always precede and follow surgery.

The classical surgical treatment of ileocaecal tuberculosis when patient presents with or without obstruction is resection of growth and end to end

anastomosis of ileum and ascending colon or transverse colon as the case may be. If the general condition of patient does not allow such a procedure a simple bypass i.e., ileo transverse colostomy followed by formal resection at a later date is indicated.

Ileo-transverse colostomy leaves behind a long segment of blind loop and is to be avoided as far as possible in the treatment of tuberculosis. Right hemicolectomy was felt as a standard procedure previously. It involves removal of the small intestine 8 inches proximal to the ileo caecal junction upto the point where proximal 3rd of transverse colon meets the middle third. If the disease is extensive and suspicion of malignancy cannot be ruled out right hemicolectomy is indicated. Nowadays conservative resection limited to 2 inches on either side of the growth is felt needed.

Kataria R.B., Sood S., Rao P.G. et al. have described plastic correction of tuberculous strictures. Stricturoplasty has the advantage of:

- 1) Relieving obstruction
- 2) Preventing blindloop formation
- 3) Avoiding another surgery in future
- 4) It is quick and less shock producing to a already weak patient.

Ileo caecoplasty is indicated in ileocaecal strictures. The technique involves opening the bowel longitudinally by 5 to 6 cm incision with stricture at mid point.

Closure is done by 2 layered technique horizontally, inner layer by catgut, outer layer by silk.

CARCINOMA CAECUM

Clinical presentation

The clinical features of a carcinoma colon vary according to the type and grade of growth. Proliferative, ulcerative or annular and its situation in the proximal or distal part of colon. The chief complaints of the patients are:

- 1) Abdominal pain
- 2) Alteration of bowel habits
- 3) Bleeding per rectum
- 4) Anorexia and weight loss
- 5) Palpable mass
- 6) Vomiting
- 7) Anaemia
- 8) Partial or complete obstruction
- 9) Melaena
- 10) Perforation with abscess formation or spreading peritonitis.

- 1) The most presentable feature however is often a change in bowel habit. Later there is slight but persistent dyspepsia with some pain and tenderness felt over the caecum.
- 2) Anaemic group: The patients are markedly anaemic, asthenic, lethargic and toxic. In about 10% of cases of carcinoma caecum, macroscopic blood is observed in stools on examination.
- 3) Mass Group: During routine physical examination a palpable mass is felt in the right iliac fossa. A mass in the right iliac fossa may be the first sign of disease. In approximately 70% of the patient with carcinoma caecum and ascending colon a mass can be found on examination.

Diagnostic aids

Occult blood in the stool is a diagnostic tool in special investigation.

Radiological examination - Barium enema examination shows a constant short irregular filling defect. Negative radiography comparatively in early cases is not by any means conclusive of absence of growth. In 75 cases of carcinoma colon examined radiologically no pathology was found in 8% of cases. Tumours of the caecum are more commonly to be discovered by barium meal rather than enema. Soft tissue shadow as the tumour may be seen in case of big mass.

a. Barium enema

The malmo technique – the malmo double contrast enema demonstrates lesions as positive visual images rather than negative filling defects.

The technique is based upon following principles:

Thorough bowel cleaning, the use of barium and air contrast and standardised radiography.

b. Colonoscopy

The fibre optic colonoscopy as an extremely valuable diagnostic and therapeutic method is intermediate between barium enema and laparotomy. Most colonic diseases start from the mucosal aspect of the bowel and can be better assessed by looking and taking biopsies through endoscope than by surgeons hand at operation. Recent myocardial infarction and early pregnancy are strong contraindications. Colonoscopy is particularly helpful in patients with persistent bleeding and negative findings on radiology.

c. Exfoliative cytology

When the diagnosis of the carcinoma is suspected on Barium enema, on clinical grounds and proctoscopy is negative, irrigation through a colonoscope will provide cells for cytological study. Returning fluid is collected and centrifuged. Films are prepared and stained from sediment.

Raskin and Platicka report an accuracy of 80-85%.

Hepatic scanning and chest X-ray are helpful in assessing distant metastasis

Prognostic factors

The prognosis of the patient with cancer of the colon is dependent on:

- 1) The extent of bowel involvement with modified Dukes classification. Dukes A carries – a 5-year survival rate of 100% and B1 - 66%. B2 and C1 - 53% and 42 % respectively whereas C2 carries very poor prognosis. Dukes D has very bad prognosis.
- 2) Presence or absence of spread to lymph nodes and number of positive lymphnodes.
- 3) Tumour size – invasive, infiltrating variety carry poor prognosis because of their tendency to metastasise. Large bulky tumours i.e. proliferative type carry good prognosis.
- 4) The histological differentiation of lesion: Undifferentiated infiltrating, perineural invasions carry poor prognosis. Well differentiated lesions carry good prognosis.

Carcinoembryonic antigen (CEA)

The levels are of more value in detecting tumour recurrence or to know the responsiveness of tumour to chemotherapy.

Treatment

After the bowel is prepared, abdomen is opened through right para median incision. Liver is palpated for secondary deposits, the presence of which is not a contra indication to resection as the best palliative treatment for carcinoma of colon is removal of tumour. Peritoneum is palpated for neoplastic implantations.

Various groups of lymphnodes that drain the involved segment are palpated. Their enlargement does not mean metastasis, for it may be inflammatory. Then the neoplasm is examined to ascertain if it is fixed or free and if it is operable. Lesser resections are indicated, should hepatic metastasis makes the condition incurable. With no evidence of secondaries and if the tumour is free, radical right hemicolectomy is the preferred choice.

Following structures are removed, 5-8 cms of terminal ileum, caecum, ascending colon, appendix, junction of the right 1/3rd with left 2/3rd of transverse colon and leaf of peritoneum containing vessels and lymphnodes. Care must be taken to avoid injury to the duodenum, right ureter, right spermatic or right ovarian vessels.

Cancer chemotherapy

In 1990, the National Institute of Health (NIH) consensus conference on adjuvant therapy for patients with colon cancer made the following recommendations.

- The most favourable additional therapy for patients with stage-III and high risk stage-II carcinoma of colon is unknown. Such patients should be entered into clinical trials.
- If this is not possible, patients with stage-III can be treated with 5 flouro-uracil and levamisole if there are no medical or psychosocial contra indications.
- Patients with stage-I and low risk stage-II cancers do not need additional therapy.
- Radiation therapy should not be used as adjuvant therapy for patients with colon cancer.

Dosage

Each cycle containing

5 flouro-uracil 600 mg/m² IV bolus over 1 hour

Leucovorin 500 mg/m² in 2 hours IV infusion in saline Each cycle is repeated every week for 6 weeks.

LYMPHADENITIS

Clinical Presentation

In severe infection picture is of acute abdomen. Patient complains of acute abdominal pain, vomiting, fever with chills. Pain is localised to right iliac fossa. In

many cases tender, nodular masses are palpable. If suppuration supervenes it resembles appendicular abscess with evidence of psoas spasm.

The blood picture shows polymorphonuclear leucocytosis, and raised E.S.R. In chronic lymphadenitis, lymphocytosis is a feature. In filariasis, eosinophilia dominates the picture. An E.S.R. of more than 30 mm/1st hour is suggestive of tubercular Lymphadenitis.

Treatment

In nonspecific cases a course of suitable antibiotics for a period of 3 weeks will be sufficient. In specific infections like tubercular lymphadenitis following measures are adopted.

1. Attention to nutrition and general health.
2. Tubercular material is aspirated for culture and drug sensitivity tests. A specimen must be obtained before anti tubercular drugs are started.
3. Antitubercular drugs are given immediately after aspiration and confirmation.

When the patient's condition begins to improve, breaking down tubercular lymphnodes must be removed because ,the drugs will not reach the organisms in the avascular caseous material. In filarial lymphadenitis diethyl carbamazine in the dose of 12 mg per kg body weight in divided doses for a period of 21 days is advised and may be repeated if necessary at intervals.

LYMPHOMA

Clinical presentation

The most common presentation is painless, progressive lymphnode enlargement in the cervical or supra clavicular regions which may or may not be associated with malaise, fever, weight loss and pruritis.

Bony pain indicates metastasis into the bone. Abdominal symptoms like pain, vomiting and mass in the right iliac fossa with palpable lymph nodes in abdomen with splenomegaly may be present.

Important investigations

Node excision biopsy for accurate histological grading is necessary. Chest X-ray to demonstrate enlarged mediastinal growth. Intravenous pyelography to demonstrate compression displacement of renal calyces by retroperitoneal lymph nodes growth are helpful.

Bipedal lymphangiography

Ultrasonography

CT Scan

Barium meal follow through

A trephine, biopsy of bone marrow usually of the iliac crest Liver biopsy

Treatment

If the tumour is within 20 cm of ileocaecal wall a right hemicolectomy should be performed with atleast 90 cm of ileum being removed in all. Continuity of bowel being maintained by end to end ileocolic anastomosis. Chemotherapy can often produce long remissions in non resectable cases. Treatment depends on stage of the disease and is best carried out by combined radiotherapy and chemotherapy if the disease is of stages I, II and IIIa.

Radiotherapy

Tumoricidal dose of 3500 rads in 3½ weeks to 4400 rads in 4 weeks with a boost upto 5000 rads in 5 to 6 weeks to exceptionally large or slowly regressing lymphnode masses.

Chemotherapy along with radiotherapy may be used for rapid relief of pressure on vital structures. This is given before definitive treatment with radiotherapy. Various combination chemotherapy regimes are

1. MOPP regimen

- a) Nitrogen mustard 6 mg/m² IV on days 1 and 8
- b) Vincristine (Oncovin) 1.4 mg/m² IV on days 1 and 8.
- c) Procarbazine 100 mg/m² orally on days 1 to 14 (inclusive)
- d) Prednisolone 40 mg/m² orally on days 1 to 14 (inclusive)

Six courses are given with 2 weeks rest at the end of each course.

2. MVPP regimen

- a) Nitrogen mustard 6 mg/m² IV on days 1 and 8
- b) Vinblastin 6 mg/m² IV on days 1 and 8
- c) Procarbazine 100 mg/m² orally on days 1 to 14
- d) Prednisolone 40 mg orally on days 1 to 14.

A four week gap is left between courses (6 courses)

3. ABVD regimen

- a) Adriamycin 25 mg/m² IV on days 1 and 14
- b) Bleomycin 10 mg/m² body surface IV on day 1 and 14
- c) Vinblastin 6 mg/m² IV on days 1 and 14
- d) DTIC - imidazole carboxymide 150 mg/m² IV daily 1 to 5 days. Six courses with 2 weeks gap daily after each course.

4. CAV regimen

- a) CCNU 100 mg/m² orally on day one
- b) Adriamycin 60 mg/m² IV on day one
- c) Vinblastin 5 mg/m² IV on day one Nine courses are given every six weeks.

A full blood count before each injection of the combination of all regimens is necessary.

5. COPP regimen

- a) Cyclophosphamide 400 mg/m² daily 1-5 days orally
- b) Oncovin 1.4 mg/m² on days 1 and 8
- c) Procarbazine 100 mg/m² orally/m² on days 1 to 14
- d) Prednisolone 40 mg/m² orally on days 1 to 14 Six courses with 2 weeks rest are given.

6. CVP regimen

- a) Cyclophosphamide 400 mg/m² orally on days 1 to 5
- b) Vincristine 1.4 mg/m² IV day one
- c) Prednisolone 100 mg/m² orally daily day 1 to 5

Regimen 5 and 6 are commonly used in non-Hodgkin's lymphomas.

Newer therapeutic approaches are

- 1) Whole body irradiation
- 2) Immunotherapy either with BCG or corynebacterium parvum.

APPENDICULAR MASS

Clinical features

- 1) Abdominal pain which shifts- Usually the first symptom is the pain in and around the umbilicus, epigastrium or it may be generalised. This is visceral

pain and is due to distension of appendix. It is constant in non obstructive cases and colicky in obstructive cases. After a few hours the pain shifts to the point where inflamed appendix irritates the parietal peritoneum which is very sensitive. This pain is somatic or peritoneal, accurately localised and constant.

- 2) Upset of gastric functions- Protective pylorospasm occurs and this may be manifested by anorexia, nausea and vomiting. A brown, furred tongue and foul breath. Typically the vomiting is of short duration and stops as the stomach is empty.
- 3) Localised tenderness at the site of appendix- As soon as the pain has shifted there is localised tenderness either at the McBurney's point or elsewhere determined by site of appendix.
- 4) During the first 6 hours there is no rise in temperature. After that pyrexia with corresponding increase in pulse rate is usual.
- 5) If the temperature is more than 102°F it indicates perforation and abscess formation.
- 6) Mass forms on 3rd to 5th day after the acute attack. Felt as tender mass in the right iliac fossa beneath the rigidity of the overlying muscles.

Diagnosis

Diagnosis of appendicular mass is purely clinical. In most of the cases laboratory investigations reveal increased WBC count. Tuberculosis of ileocaecal region and carcinoma can both present as appendicular mass. Unresolving appendicular mass even after adequate therapy gives the clue to error in diagnosis.

Treatment of appendicular mass and abscess

If an appendicular mass is present and general condition of patient is good standard treatment is conservative namely Oschner- Sherren regimen. This decision is based on the fact that nature has already localised the lesion and it is not advisable to disturb these barriers. Inadvertent surgery at this time is dangerous, difficult and bloody.

It may be impossible to find the appendix and occasionally faecal fistula may form. For these reasons it is advised to observe a rigid non-operative programme but to be prepared to intervene at any time should the nature fail to control. The treatment is not merely postponement of operation nor is it substitute for operation but it is a preparation for operation.

A relevant history, proper physical examination and charts – the pulse is recorded every hour, temperature respiration and BP every 4 hours and nasogastric aspiration is continued.

Diet

Nil orally. Desire for food usually about 4th or 5th day is an indication that satisfactory progress is being made and that oral fluid may be started. Intravenous fluids with fluid balance chart and daily assay of electrolytes should be maintained.

Drugs

Antibiotic therapy is employed with a combination of ampicillin, gentamycin and metronidazole.

Bowels

If the bowels are not opened naturally by fourth or fifth day and if the bowel sounds are heard, a glycerine suppository will encourage normal evacuation. No purgatives of any kind are given.

Criteria for stopping delayed treatment

- 1) Rising pulse rate.
- 2) Vomiting or copious gastric aspiration.
- 3) Increasing or spreading abdominal pain and increasing size of abscess.

Contraindications to the Delayed treatment

- 1) The diagnosis cannot be made between acute appendicitis and some other intra-abdominal catastrophe normally requiring immediate operation.

- 2) The signs indicate that inflammation is still confined to the appendix.
- 3) Patients of extreme age groups i.e., under ten years of age (poor development of the greater omentum and early perforation of the appendix) and over sixty five years, because of atherosclerosis leading to frequency of peritonitis with minimum clinical signs.

Conservative therapy versus early appendicectomy

Only a few percent of cases are treated conservatively (4.5 per cent).

Reasons for favouring early operation are

It solves uncertainty and corrects mistakes in diagnosis.

- 1) It avoids high mortality and morbidity of surgery after the expectant treatment has failed.
- 2) It safeguards the patients from the greater danger of an abscess formation and bursting into the peritoneal cavity or an adjacent viscous.
- 3) It protects children/old obese persons and women in late pregnancy from special risks that threaten them.
- 4) It helps the unwise sufferer who has taken a strong purgative to escape the consequences.

Treatment of appendicular abscess

Failure of resolution of an appendix mass usually indicates that there is pus within the mass. Indications for opening an appendicular abscess.

- 1) When the swelling is not diminishing in size after the fifth day of treatment.
- 2) When the temperature is swinging above 37.8°C on several successive days.
- 3) A pelvic abscess seldom resolves- repeated rectal examinations are required to determine when it is ready for opening into the rectum.

Opening of an appendicular abscess

The swelling is palpated under anaesthesia. A retrocaecal appendix abscess should be opened extra-peritoneally. An incision from 2.5 to 5 cms long depending on the thickness of the abdominal wall is made over the centre of the swelling, rather nearer the lateral than the medial aspect.

The external oblique is incised and the fibres of the deeper muscles are divided, instead of being separated, so as to give free exit to the contents of abscess. When the peritoneum has been reached the extraperitoneal tissues are separated in an outward and backward direction, until the abscess cavity is entered. In cases where the abscess cavity lies at some distance from the incision, more direct drainage is afforded by a counter incision in the flank, in which cases the original incision is closed.

A subcaecal abscess is opened in the same manner.

A pre or post ileal abscess can be reached only through the peritoneal cavity.

When the peritoneum has been opened, gauze packing is inserted so as to isolate the region from the general peritoneal cavity before opening the abscess.

A pelvic abscess is opened into the rectum.

Unless the appendix is lying free in the abscess cavity, no prolonged attempt should be made to perform appendicectomy.

Interval appendicectomy

Following successful drainage or Oschner Sherrin's regimen, arrangements should be made for the patient to return for appendicectomy three months after the wound has healed. It is highly important to explain to the patient that drainage of an appendix abscess does not protect against further attacks of appendicitis. Sometimes carcinoma of the caecum may co-exist. In the carcinoma age group, all patients should have barium studies or colonoscopy to exclude this.

AMOEBOA

Clinical presentation

Patient gives history of blood and mucous diarrhoea, tenesmus and low grade fever. Stool examination and endoscopy suggest the correct diagnosis which can be confirmed by mucosal scrapings for amoebae.

Barium enema appearance can usually be distinguished from those of carcinomas. The filling defect of Amoeboma though relatively limited produces longer than that produced by carcinoma. It is often multiple, the narrowing of the lumen which on many occasions is incomplete and obstruction is rare. The stricture is less rigid than in cancerous one.

Treatment

Amoeboma should be treated conservatively with tissue amoebicidal drugs. The drug of choice is metronidazole. Surgery is however indicated when the therapeutic test fails and diagnosis is not clear or complications like paracolic abscess, intussusception etc., develop. Surgical intervention has high mortality and may lead to complications like cutaneous amoebiasis, exacerbation of associated amoebic colitis, massive colonic haemorrhage, peritonitis and development of faecal fistula.

ACTINOMYCOSIS:

Clinical features

The patient complains of vague abdominal pain, abdominal discomfort, pain in right iliac fossa which is exaggerated by movement of right hip. Obstructive symptoms are rare. The abdomen moves freely with respiration but a hard woody tender immobile mass is felt in right iliac fossa. Perhaps the commonest form of disease to presume is a sinus persisting in an appendicectomy wound.

Treatment

Prolonged and intensive course of penicillin 10 mega units reducing to 4 mega units daily is usually the best treatment until all signs of disease have disappeared.

In the presence of obstructive symptoms a laparotomy is performed with one of the following findings.

- 1) An abscess is encountered and drained.
- 2) If the mass is adherent to the posterior abdominal wall and is irremovable a bypass ileo transverse colostomy is done.

Mayo clinic workers report a cure rate of 95.8 percent after penicillin therapy but relapse after penicillin cure is not uncommon.

CROHN'S DISEASE

Clinical presentation

The disease which is independent of age, sex, social and economic conditions is increasing in frequency, to some extent is familial. Acute Crohn's disease occurs in only 5 per cent of cases.

The symptoms and signs resemble those of acute appendicitis, with one exception i.e. diarrhoea almost invariably precedes the acute attack. Exceptionally perforation of intestine resulting in local or diffuse peritonitis occurs.

Chronic Crohn's is the usual form of the disease. It is often categorised on the basis of anatomic segment of bowel involved. Ileo-colitis occurs in 45-60 percent of cases.

Radiological diagnosis

X-ray examination after a barium meal often showed lack of segmentation, feeble or absent peristalsis in affected portion and stenosing or non stenosing lumen. In the non-stenosing form straightening of valvulae conniventes is characteristic. When ulceration has occurred multiple defects (Cobblestone Reticulation) can be seen after the Barium is evacuated. When cicaterisation has occurred the string sign of Kantor is seen in the terminal ileum.

Treatment

Medical therapy consists of sulfasalazine and steroids which help to alleviate the acute exacerbations. Also used are metronidazole, mercaptopurine and parenteral hyperalimentation. Azothioprine has also proved effective in active phases.

Indications for surgery

- 1) Failure to arrest the course of disease by medical line of treatment
- 2) Intestinal obstruction
- 3) Presence of fistula

Surgery

Surgeons differ as to whether the affected bowel should be resected or by passed. Many surgeons still follow the advise of Crohn and his colleagues who for many years have recommended conservative bypass type of operation. In experienced hands one stage is as safe as bypass operation and has become the operation of choice.

PSOAS ABSCESS

Clinical presentation

Thoracic spine involvement is common in children while the dorso lumbar in adults. In this spine the only physical signs of the disease in its early stages are tenderness on percussion of the spinous processes of involved vertebrae and restricted movements.

Later Kyphosis may be seen and abscess may be visible in the groin. Kyphosis in the lumbar spine may be masked by normal lumbar lordosis. A general examination may reveal tuberculosis elsewhere in the body.

Investigations

Haematology and immunology

The E.S.R. and white cell count are raised, the later with lymphocytosis. The Mantoux test is positive. The haemoglobin concentration should be measured since anaemia is common and requires corrections.

Radiology

The early radiological signs are not very specific. The bone adjacent to the joint is little less dense than normal and it is possible to mark out a soft tissue swelling. As the disease advances, joint space or disc space narrows and bone destruction becomes visible as an area of osteolysis, further bony destruction is accompanied by abscess formation so that diseased bone is seen to lie around a soft tissue. A chest x-ray should always be taken and may reveal active tuberculosis. Microscopic examination of the pus should be done.

Though tubercular bacilli are very scanty in the pus itself, the walls of the abscess contain active tubercular bacilli.

Treatment

Chemotherapy with standard antitubercular drugs is mandatory. A cold abscess arising from the tubercular joint may be either superficial or deep.

Because it becomes secondarily infected, abscess should be aspirated with large bore needle or if pus is too thick, operation is incision and drainage.

MANAGEMENT OF RETROPERITONEAL TUMOURS

The approach to these lesions continues to be primarily surgical. Although less than 25 percent of the tumours can be totally excised patients who undergo curative or complete resection of tumour at the time of surgery have the most prolonged survival.

Aggressive operative approach carries 10 to 20 percent mortality. The debulking of the large masses remains controversial but may have more roles with advent of tumour specific chemotherapeutic agents.

Chemotherapy is being used increasingly primarily or as an adjuvant. Radiotherapy to arrest spread by local extension is used after diagnosis or resection. Even with the combined efforts of multidisciplinary team the outlook is grim as less than 10 per cent survive after 5 years.

METHODOLOGY

METHODOLOGY

This is a study of 50 cases of mass in the right iliac fossa admitted to Govt. Royapettah Hospital, Chennai during the period from November 2014 to August 2015 over a span of 10 months.

This study includes selection of patients with mass in the right iliac fossa on a randomized and prospective basis.

The patients are selected after they are diagnosed as having intraabdominal mass in the right iliac fossa of various pathologies after careful history taking, thorough general and local examination and appropriate investigations.

Female patients with pathologies related to uterus and its appendages were not included in this study. Similarly masses arising from anterior abdominal wall and bone were not included in this study.

All clinical findings were recorded in the proforma case sheets.

With each patient admitted with mass in the right iliac fossa, cordial interrogation session was held to obtain particulars of the disease. Detailed history was carefully -elicited to chart out symptomatology.

Patient was subjected to methodical physical examination to assess his general condition and to know the basic vital data on admission. Local examination of abdomen was done in a methodical way and relevant findings were recorded.

Rectal examination was done in all cases, while per vaginal examination was also done in female patients. Systemic examination like respiratory system and cardiovascular system were done routinely.

All relevant and routine investigations were done in these cases to establish the diagnosis. Ethical clearance has been obtained for the same. Patients were asked to present themselves for follow-up after a specific interval or at recurrence of symptoms.

Meanwhile all patients received supportive treatment aimed at correction dehydration, anaemia, vitamin and other nutritional deficiencies. (Antihelmenthics were given whenever indicated.)

Respiratory and other injections were treated with appropriate antibiotics. Bowel preparation was done in all cases requiring exploratory laparotomy.

During laparotomy, intra-abdominal examination of all organs was made in addition to specific pathology and specific surgery was done in each case.

Postoperative follow-up was meticulously done, intake output charts and vital charts were maintained. They were given antibiotics, analgesics and sedatives if needed.

Most of the operated patients had uneventful recovery. Drains were removed after 48 hours and sutures were removed on the 7th post-operative day.

OBSERVATON AND RESULTS

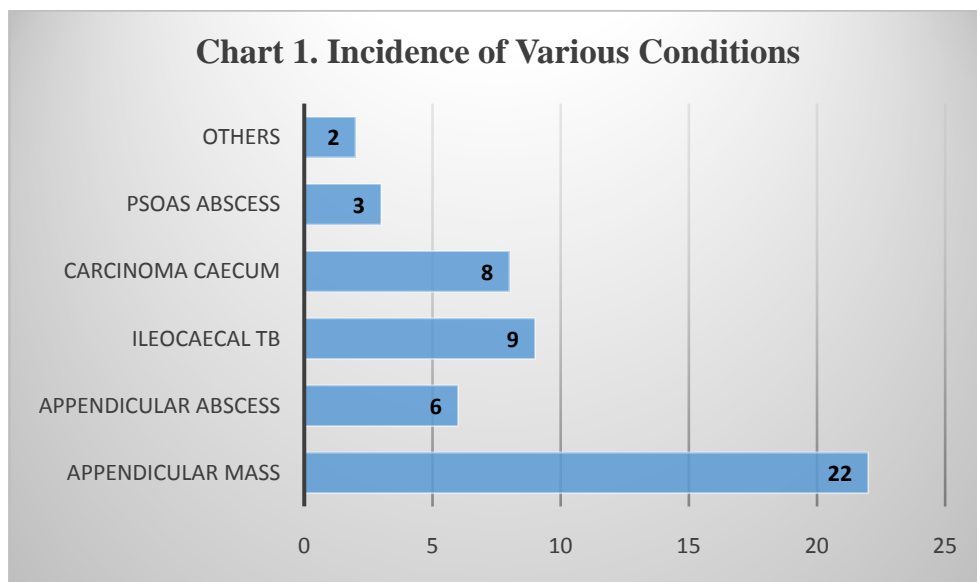
RESULTS

This study of 50 cases of mass in the right iliac fossa was done over a period of 10 months November 2014 to August 2015.

Table 1: Incidence of Various Condition

Sl.No.	Diagnosis	No. of	Percentage
1	Appendicular mass	22	44
2	Appendicular abscess	6	12
3	Ileocaecal tuberculosis	9	18
4	Carcinoma of caecum	8	16
5	Psoas abscess	3	6
6	Others*	2	4

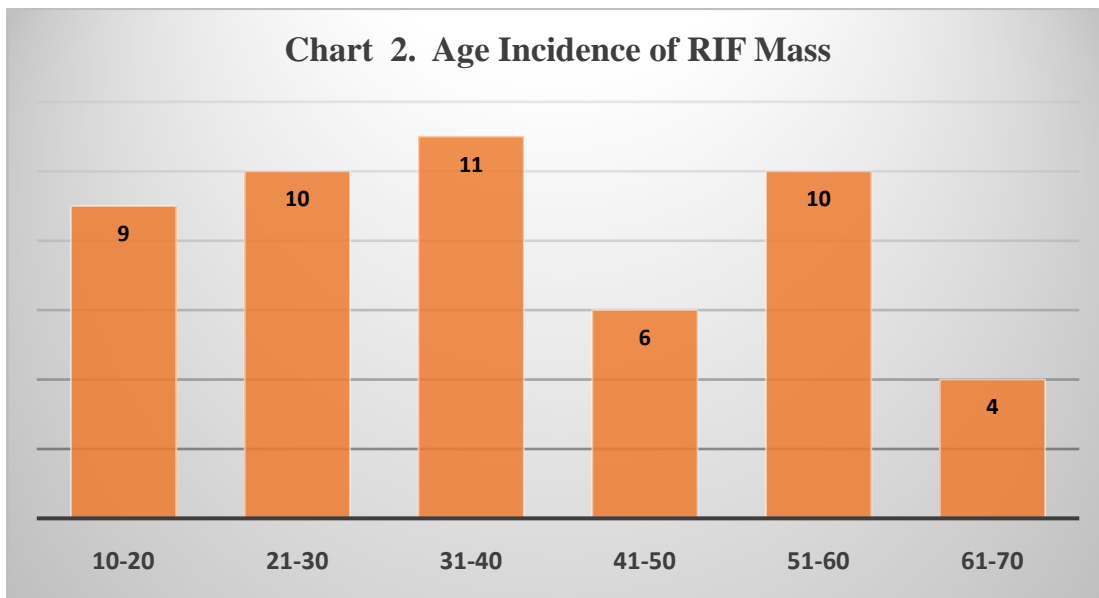
* Actinomycosis; Unascended kidney



In this study of 50 cases more than 50% of cases were related to appendicular pathology either in the form of appendicular mass or appendicular abscess. There were 9 cases of ileocaecal tuberculosis.

Table 2: Age Incidence

Sl.		No. of Cases	11-20 Years	21-30 Years	31-40 Years	41-50 Years	51-60 Years	61-70 Years
1	Appendicular mass	22	6	8	4	1	2	1
2	Appendicular abscess	6	1	1	3	-	-	1
3	Ileocaecal tuberculosis	9	-	-	4	3	1	1
4	Carcinoma caecum	8	-	1	-	1	5	1
5	Psoas abscess	3	1	-	-	1	1	-
6	Others	2	1	-	-	-	1	-
	Total (50)	50	9	10	11	6	10	4



In this study, youngest patient was of age 12 years, who presented with appendicular mass and the oldest was 68 years of age admitted with carcinoma of caecum.

In this study appendicular mass manifested most commonly in 3rd decade (36%) and followed by 2nd decade (27%).

Ileocaecal tuberculosis was common in the middle age group (i.e., 3rd and 4th decade) covering about 77% of cases.

Carcinoma caecum was common in older age group (75%).

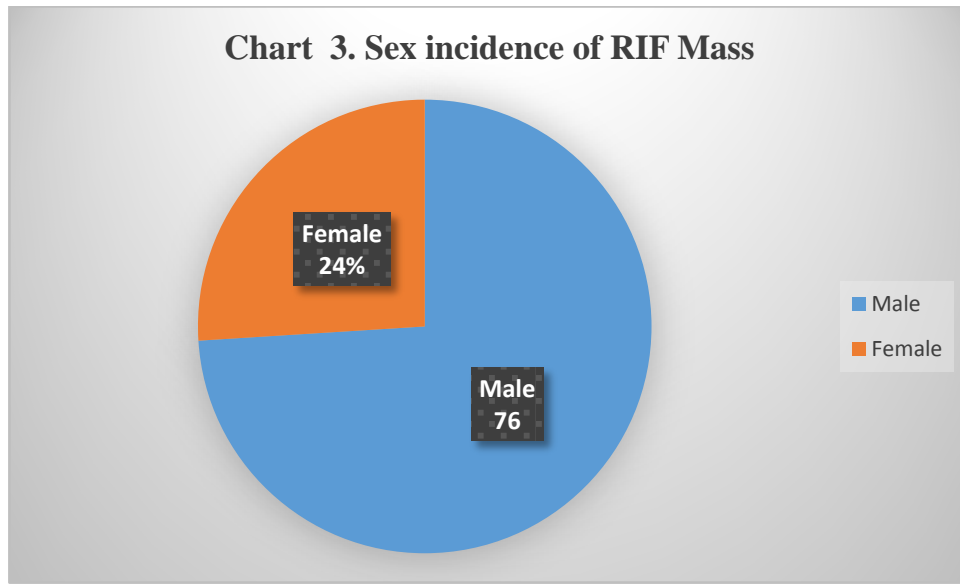


Table 3 : Sex Incidence

Sl. No.	Diagnosis	Male		Female	
		No.	%	No.	%
1	Appendicular mass	16	73	6	27
2	Appendicular abscess	4	67	2	33
3	Ileocaecal tuberculosis	8	89	1	11
4	Carcinoma caecum	7	87	1	13
5	Psoas abscess	2	75	1	25
6	Others	1	50	1	50
	Total (50)	38	76	12	24

Male: Female ratio – 2.8:1

In the present study, appendicular mass (73%), appendicular abscess (67%) were common in males.

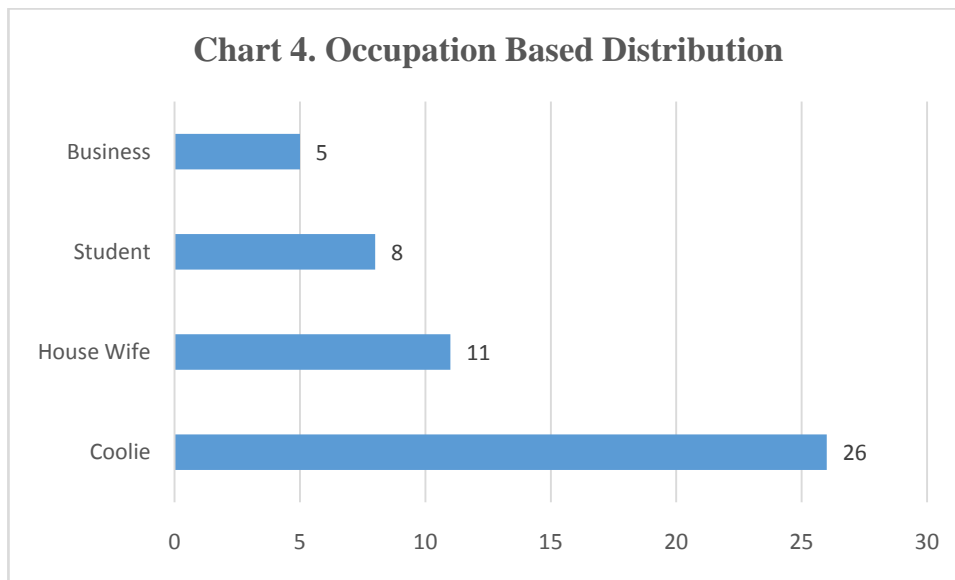
In ileocaecal tuberculosis incidence in males was almost 90%.

In carcinoma of caecum the incidence again was more in males (7:1).

Table 4: Occupation

Sl. No.	Occupation	No. of Cases	Percentage
1	Coolie*	26	52
2	Housewife	11	22
3	Student	8	16
4	Business	5	10
	Total	50	100

* Coolie (Agriculture, Farmer, labourer)



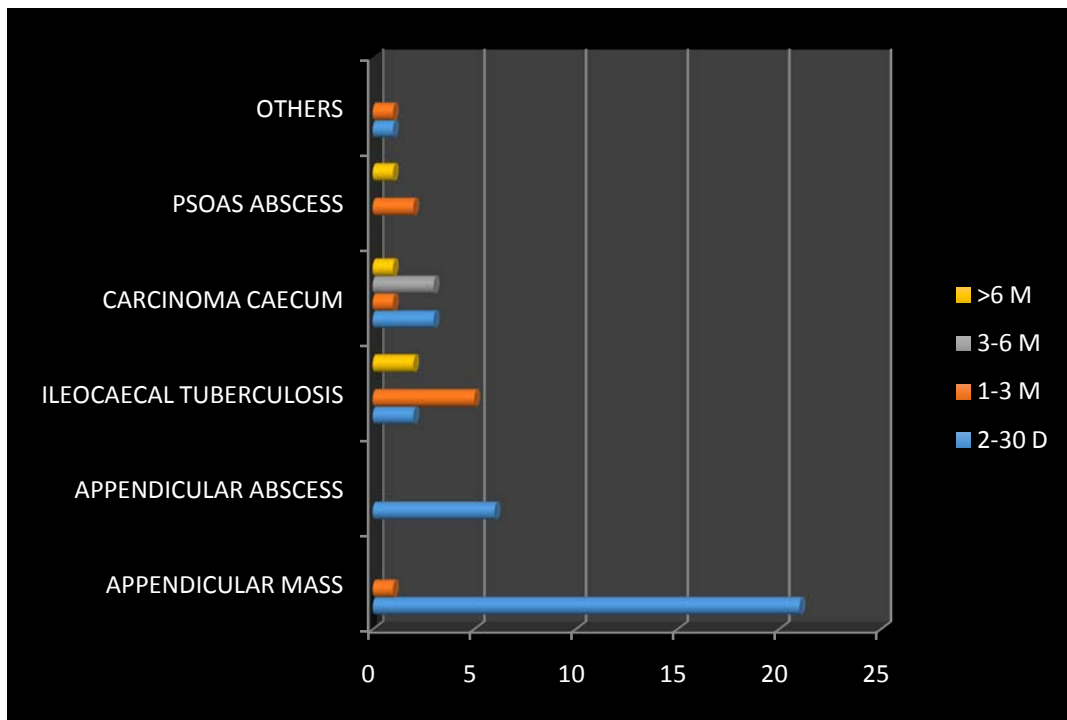
More than 50% cases in this study were from rural areas and of low socioeconomic status, where prevalence of diseases like tuberculosis is more.

Table 5: Duration of Symptoms

Sl. No.	Diagnosis	No. of cases	Duration			
			2-30 D	1-3 M	3-6 M	> 6 M
1	Appendicular mass	22	21	1	-	-
2	Appendicular abscess	6	6	-	-	-
3	Ileocaecal tuberculosis	9	2	5	-	2
4	Carcinoma caecum	8	3	1	3	1
5	Psoas abscess	3	-	2	-	1
6	Others	2	1	1	-	-
Total percentage		50	66%	20%	6%	8%

D = Day, M = Months

Chart 5. Duration of Symptoms



In present study patients with appendicular mass presented with pain initially around umbilicus which later shifted to right iliac fossa. 95% of cases of appendicular mass presented within 30 days. Pain was colicky in nature and associated with vomiting. Some patients of ileocaecal tuberculosis presented with colicky abdominal pain and fullness in right iliac fossa. Some of them complained of constant dull pain in right iliac fossa interspersed with colicky abdominal pain 2-8 hours after taking food. Pain was relieved usually by passing stools. In this series 22% cases presented within 1 month, 55% cases presented between 1-3 months and another 22% presented after 6 months.

In this series out of 8 cases of carcinoma caecum, 3 cases presented within 30 days, 1 case presented between 1-3 months, 3 cases presented between 3-6 months and at 1 case presented after 6 months.

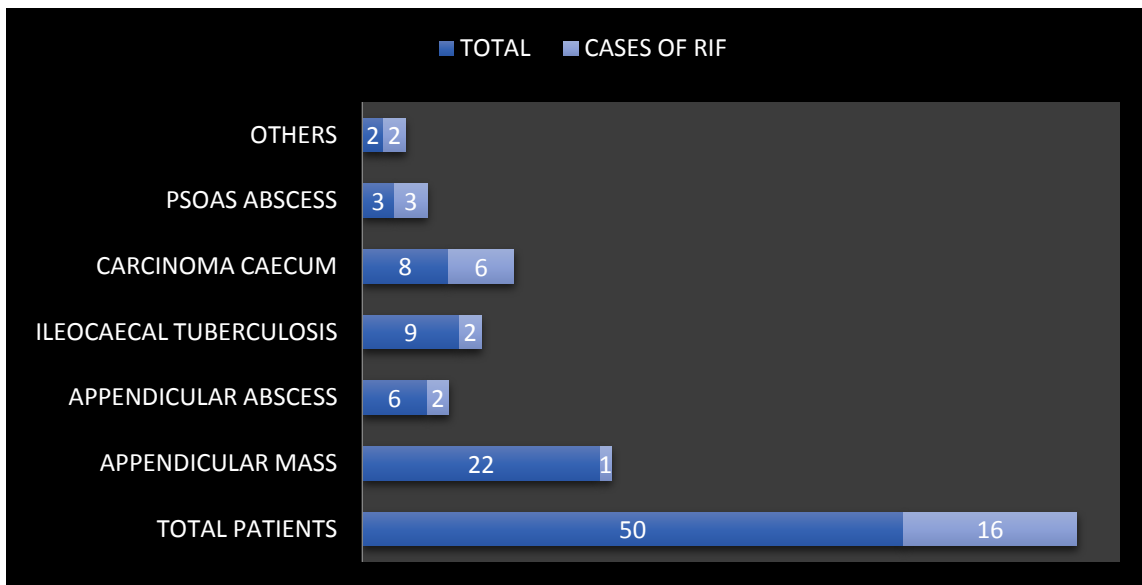
In this study retroperitoneal tumor, unascended kidney and actinomycosis were included in others group.

2 cases of psoas abscess presented between 1-3 months associated with fever and fullness.

Table 6: Mass Abdomen (Symptom)

Sl.No.	Diagnosis	Complaints		Percentage
		Total no. of cases	No. of cases	
1	Appendicular mass	22	1	4.5
2	Appendicular abscess	6	2	33.3
3	Ileocaecal tuberculosis	9	2	22.2
4	Carcinoma caecum	8	6	75.0
5	Psoas abscess	3	3	100.0
6	Others	2	2	100.0
Total percentage		50	16	32.0

Chart 6: Mass Abdomen (Symptom)



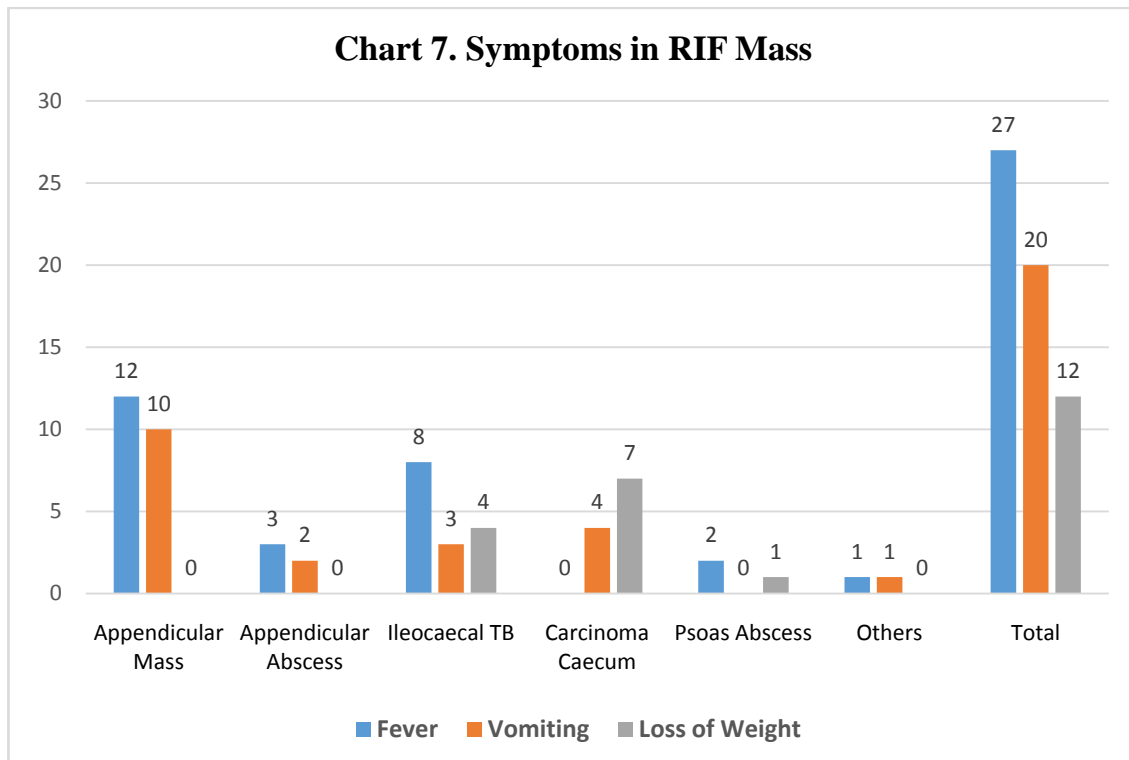
In this series only 3 of appendicular mass and abscess presented with complaints of mass.

22% of ileocaecal tuberculosis patients complained of mass, but 75% of carcinoma caecum presented with mass.

100 % cases of psoas abscess complained of mass of the others group, actinomycosis and retroperitoneal tumour presented with mass in right iliac fossa.

Table 7: Symptoms

Sl. No.	Diagnosis	No. of cases	Fever		Vomiting		Loss of Weight	
			No	%	No	%	No	%
1	Appendicular mass	22	13	59	10	45	-	-
2	Appendicular abscess	6	3	50	2	33	-	-
3	Ileocaecal tuberculosis	9	8	89	3	33	4	44
4	Carcinoma caecum	8	-	-	4	50	7	87
5	Psoas abscess	3	2	100	-	-	1	50
6	Others	2	1	33	1	33	-	-
	Total percentage	50	27	54	20	40	12	24



In this study 54% of appendicular mass presented with fever and 40% presented with vomiting.

In cases of appendicular abscess 50% presented with fever and 33% presented with vomiting.

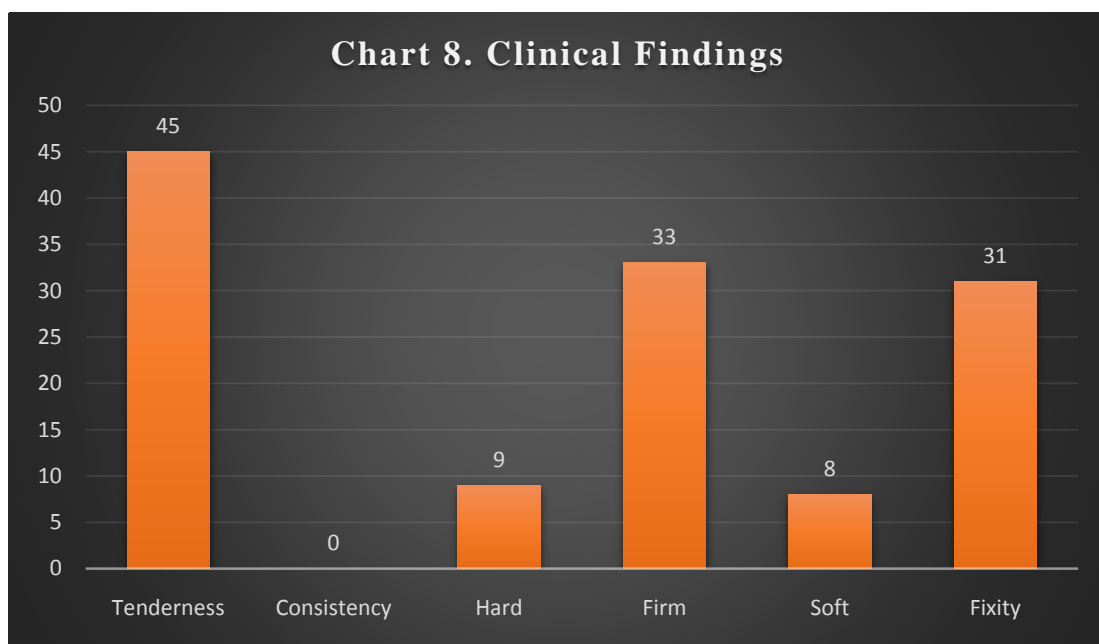
Out of 9 cases of ileocaecal tuberculosis, 4 cases presented with fever, 3 cases with vomiting and 4 cases with loss of weight.

In 8 cases of carcinoma caecum 4 cases gave history of occasional vomiting and almost all cases gave history of loss of weight.

Out of 3 cases of psoas abscess 2 presented with fever.1 presented with vomiting.

Table 8: Clinical Findings

Sl.No.	Clinical findings	No. of cases	Percentage
1.	Tenderness	45	90
2.	Consistency		
	Hard	9	18
	Firm	33	66
	Soft	8	16
3.	Fixity	31	62



In present study of 50 cases, 90% cases had tenderness in right iliac fossa. 9 patients had mass which was hard in consistency which included all the 8 cases of carcinoma caecum and 1 case of actinomycosis.

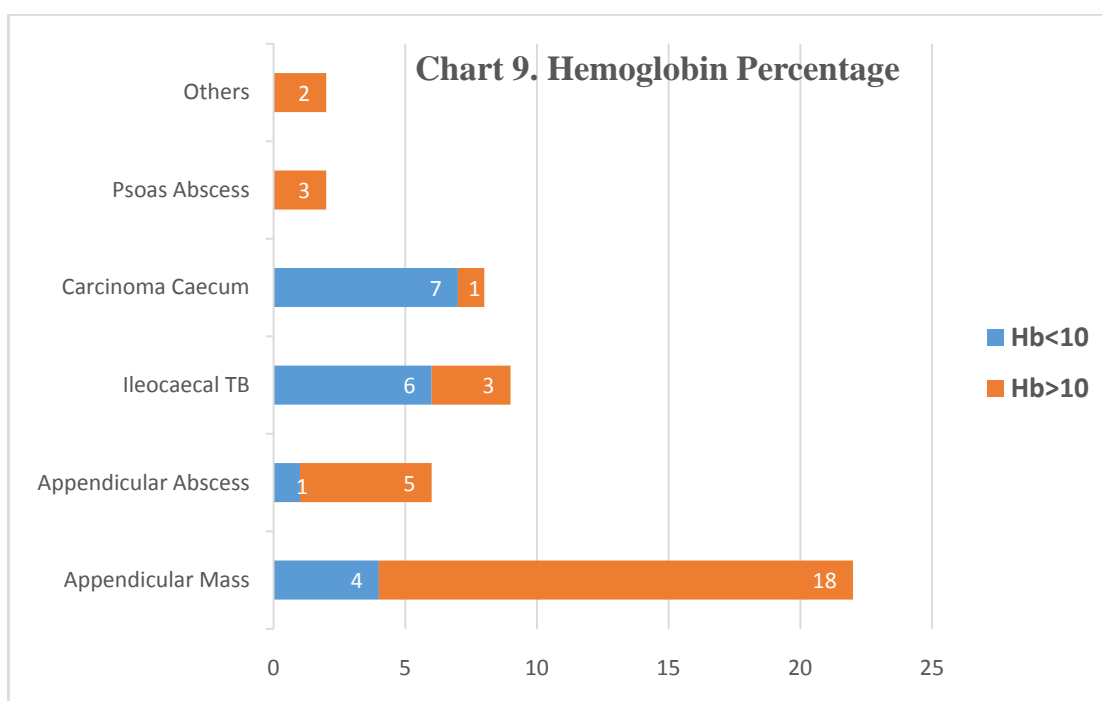
66% of patients had mass which was firm in consistency which includes mostly cases of appendicular mass and ileocaecal tuberculosis.

Remaining 16% cases had masses soft in consistency which included appendicular abscess and psoas abscess.

31 of 50 cases presented with swelling which were fixed. In this group it included patients of carcinoma caecum, appendicular mass and few cases of ileocaecal tuberculosis.

Table 9: Haemoglobin Percentage

Sl. No.	Diagnosis	No of cases	Haemoglobin (gm%)	
			< 10	>10
1	Appendicular mass	22	4	18
2	Appendicular abscess	6	1	5
3	Ileocaecal tuberculosis	9	6	3
4	Carcinoma caecum	8	7	1
5	Psoas abscess	3	-	3
6	Others	2	-	2
Total percentage		50	18	32



In this study 38% cases had Hb < 10 gm. Most of the cases of ileocaecal tuberculosis and carcinoma caecum were in this group.

Table 10: Erythrocyte Sedimentation Rate

Sl. No.	Diagnosis	No. of cases	ESR (mm) 1 hour			
			5-20	21-40	41-60	>60
1	Appendicular mass	22	7	9	6	-
2	Appendicular abscess	6	2	2	2	-
3	Ileocaecal tuberculosis	9	-	-	7	2
4	Carcinoma caecum	8	1	7	-	-
5	Psoas abscess	3	-	-	2	1
6	Others	2	2	-	-	-
	Total	50	12	18	17	3

In present study 12 (24%) cases had ESR reading of 1st hour between 5-20 mm. 18 (36%) cases had reading between 21-40 mm.

In 17 (34%) cases reading was between 41-60 mm. In 3 (6%) cases, ESR was more than 60 mm.

All cases of ileocaecal tuberculosis had high ESR levels.

Table 11: Ultrasonography and Barium Studies

Sl. No.	USG findings and barium findings	USG done		Barium studies	
		No. of cases (n=45)	%	No. of cases(n=18)	%
1	Appendicular mass	8	38	-	-
2	Appendicular abscess	1	14	-	-
3	Ileocaecal tuberculosis	2	20		50
4	Carcinoma caecum	2	20	18	50
5	Psoas abscess	-	-	-	-
				-	-

In present series contrast x-ray barium studies were done in cases of carcinoma caecum and ileocaecal tuberculosis. In ileocaecal tuberculosis main feature was pulled up caecum with narrowed ileum. In carcinoma caecum main feature was irregular filling defect with shouldering sign positive.

Table 12: Mode of Treatment

Sl. No.	Diagnosis	No. of cases	Medical		Surgical	
			No.	%	No.	%
1	Appendicular mass	22	4	18	18	81
2	Appendicular abscess	6	-	-	6	100
3	Ileocaecal tuberculosis	9	1	11	8	89
4	Carcinoma caecum	8	2	25	6	75
5	Psoas abscess	3	-	-	3	100
6	Others	2	1	50	1	50
	Total percentage	50	8	16	42	84

- Immediate appendicectomy : 9 cases
- Late appendicectomy : 9 cases

In our study of 50 cases, 8 cases were managed conservatively and 42 cases were managed surgically. Out of 18 cases of appendicular mass managed surgically 9 cases were taken up for surgery immediately whereas rest of the 9 cases were managed by Oschner Scherren regime and appendicectomy was done at a later date.

All 6 cases of appendicular abscess and 3 cases of psoas abscess were managed by extraperitoneal drainage. These 6 cases of appendicular abscess were subjected to interval appendicectomy 6-8 weeks later. 8 out of 9 cases of ileocaecal tuberculosis were managed surgically 1 case was not operated because

of associated active pulmonary tuberculosis. 6 out of 8 cases of carcinoma caecum were operated upon.

2 case was not operated as there were multiple secondaries in liver and another two case was not operated as he was already operated once and it was diagnosed as recurrent carcinoma caecum. So both these patients were put on palliative chemotherapy. 1 case of unascended kidney did not agree for surgery.

4 cases of appendicular mass put on O-S regimen did not turn up for surgery.

Table 13: Various Types of Surgical Treatment

Sl.No.	Type of Surgery	No of cases	Percentage
1	O-S regimen with appendicectomy	9	21
2	Extraperitoneal drainage with interval appendicectomy	6	14
3	Right hemicolectomy	9	21
4	Limited ileocaecal resection	6	14
5	Laparotomy with biopsy	3	7
6	Immediate laparotomy with appendicectomy	7	18
7	Extraperitoneal drainage with antibiotics ATT	2	5

In 18 cases of appendicular mass, immediate appendicectomy was done in 9 cases out of these 1 cases underwent local resection with end- to-end anastomosis had to be done on the mass was adherent and appendix could not be separated. Rest of 8 cases, appendix was released and appendicectomy done.

In all 6 cases of appendicular abscess, extraperitoneal drainage of pus was done immediately and interval appendicectomy done after 6 weeks.

In 8 cases of ileocaecal tuberculosis managed surgically, for 3 cases, limited ileocaecal resection with end to end anastomosis was done. Whereas in 3 cases they had to go in for hemicolectomy. In rest of 2 cases as there was associated military tuberculosis with unresectable mass only biopsy was done.

In 2 cases of psoas abscess, extraperitoneal drainage was done followed by which two cases was put on ATT and other two on antibiotics.

Table 14: Complications and Follow-Up

		No. of cases	Percentage
	Post –operative complication	14	28
1.	Wound infection	11	44
2.	Mortality	3	12
	At follow-up	35	70
1	Surgery done	15	30
2.	ATT	9	18
3.	Chemotherapy	3	6
4.	Normal	8	16

In postoperative period, complications in the form of wound infection occurred in 11 cases and 3 cases died, out of 42 cases operated. 70% of cases came back for follow-up. 15 cases were operated i.e.,

Interval appendicectomy in case of appendicular mass (9) managed by O-S regimen and all cases of appendicular abscess (6). 16 cases of ileocaecal tuberculosis were regularly taken ATT and responded well.

6 cases of carcinoma caecum were regularly coming for chemotherapy. Others were normal at follow up.

DISCUSSION

DISCUSSION

This study of Mass in the right iliac fossa was made at Govt. KMC Hospital, Chennai from Nov 2014 to Aug 2015. 50 cases of mass in the right iliac fossa were studied.

Appendicular mass

This formed 44% of cases of present study. All the patients came to the hospital for pain of duration of less than one month. They complained of colicky pain, initially around umbilicus which later shifted to right iliac fossa. Some patients had associated vomiting.

According to R.C. Nagar et al²⁹ appendicular mass was more common in 3rd , 4th and 2nd decades of life. Male to female ratio was 19:4 (4.7:1).

In present study maximum age incidence was in 3rd decade (36%) followed by 2nd decade (27%). It was more common in males than females (2.6:1). Only two patient complained of mass in present series. But all examined cases were found to have mass in the right iliac fossa. According to Bailey and Love, on the third day (rarely sooner) after the commencement of an attack of acute appendicitis, a tender mass can frequently be felt in the right iliac fossa beneath some rigidity of the overlying musculature, the other quadrants of the abdomen being free from rigidity or tenderness.

According to R. C. Nagar et al²⁹, 38 out of 46 cases had rigidity and tenderness was present in 43 out of 46 cases. In present series, history of pain and vomiting is given by all patients. All patients had masses which were tender and firm. In present study, 10 of the 44 cases had restricted mobility whereas rest of the cases were fixed.

According to Erik Skoubo - Kristensen et al¹⁰ 55% of his cases experienced febrile episodes with temperature > 39.0. In present study 59% of cases presented with fever and in 81 % of cases, Hb % was above 10 gms%. In present series, 59% of patients were treated conservatively by Oschner Sherrin regimen. Nil by mouth, Ryles tube aspiration, antibiotics and IV fluids. This decision was based on fact that nature has already localised the lesion and it is unwise to disturb these barriers. Inadvertent surgery at this time is dangerous, difficult and bloody.

Rest of the cases (18) were immediately operated. In these 18 cases, appendicectomy was done in 77% cases and in 23% cases ileocaecal resection had to be done. According to Barry Foran et al⁴ in 61.5% cases they could do appendicectomy and in 15 % they had to go in for right hemicolectomy.

Erik Skoubo-Kristensen et al¹⁰ says that in most cases conservative management of appendicular mass is successful and complication rates seem lower than with early operative treatment.

Adalia SA et al¹ says that In his study of 30 patients, 3 needed emergency appendicectomy, 2 had elective appendicectomy and remaining 83% were managed conservatively.

In present series cases which were managed conservatively were called back for appendicectomy 6 weeks later. Specimens of appendix after appendicectomy were sent for histopathological examination and all were reported as chronic appendicitis.

Appendicular abscess

These patients formed 12% of the present group study. 50% of the cases were in 4th decade and in 67% cases males were affected. All the patients presented within 1 month of symptoms. According to Edward L Bradley III et al⁸, mean age at which appendicular abscess occurred was 40.7 ± 2.7 . Symptoms had been present on an average of 9.2 ± 0.8 days prior to admission.

In present study initially pain was colicky and then it progresses to pricking/throbbing type. 33% of cases complained of mass per abdomen and it was tender and soft in consistency. Fever was present in 50% cases. According to Hurme T et al¹⁶, in his study of 147 patients 47% were primarily treated conservatively, of them 9% had to be operated on in acute phase because of worsening of symptom. Rest 53% were operated on primarily of which 28% had complications. In 31 % of conservatively managed patients - interval appendicectomy was done and 12 % were treated conservatively only.

In present study all 12 cases were taken up for immediate extra peritoneal drainage of abscess, which is a preparation for interval appendicectomy done after 6-8 weeks. In all cases Interval appendicectomy was done and histopathology report showed chronic appendicitis. According to Edward L Bradley III et al⁸, 6% of his patients group had wound infection after initial extraperitoneal drainage and after interval appendicectomy wound infection occurred in 9% of his patients.

In present study 16% of patients had wound infection after extra peritoneal drainage and wound infection occurred in 50% cases after interval appendicectomy.

Ileocaecal tuberculosis:

Tuberculosis of the gastrointestinal tract presents a common diagnostic and therapeutic problem to a surgeon in most countries. In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass.

In present study 22% of cases of ileocaecal tuberculosis had associated pulmonary tuberculosis.

80% of cases of ileocaecal tuberculosis were from rural areas.

Sputum positive for tubercle bacilli.

According to ATM Prakash et al³⁶ incidence rate of this disease was high in age group 20-40 years. According to SK Bhansali⁵ in his study 2/3rd of patients were in 3rd and 4th decades with equal sex incidence.

In present study all patients were above 30 years age group with mass incidence between 30-40 years. predominantly affected people were the males.

Tuberculous enteritis is commonest in the ileocaecal region in a series conducted by Atm Prakash³⁴ and also series conducted by Bhansali S.K.⁵ followed by involvement of ileum as the next common site. In present study all cases had involvement of caecum with associated involvement of ileum in few cases. According to Prakash et al,³⁴ in his study, both obstructive and non-obstructive groups has abdominal pain as the commonest symptom. In the latter it may be colicky in nature, but is often vague related to umbilicus and right iliac fossa.

In present series, all patients complained of pain in right iliac fossa. All these patients had associated fever of mild degree and history of evening rise of temperature. Loss of weight and appetite were also present in these patients.

In their study 62.3% of cases presented with bowel symptoms. Tenderness was present in 58% cases and 63% cases presented with mass. Altered bowel habits was present in present study of 22% cases. In 66% of cases tenderness was present and 22% of cases presented with mass in the right iliac fossa.

According to S.K. Bhansali⁵ the common feature of non-acute case is abdominal distension and is due to either ascites or to chronic small bowel obstruction caused by lesion in ileum or ileocaecal region. In present study none of the cases had abdominal distension.

According to S.K. Bhansali et al.⁵ 60% of chronic cases of ileocaecal tuberculosis presented as mass in the right iliac fossa which may simulate either

Crohn's disease, an appendix mass or a malignant lesion of caecum or ascending colon. Hyperplastic ileocaecal tuberculosis or lymphadenitis is the cause for it. In a study of 300 patients by Prakash ATM a mass was present in almost 50% of cases in right iliac fossa. In present study only 22 % of cases of ileocaecal tuberculosis complained of mass but on examination all the patients were found to have mass in the right iliac fossa.

In present study in 77% of cases duration of symptoms was less than 3 months and in others it was more than 6 months. According to Prakash et al³⁶ 27% cases had duration of symptoms < 6 months and 43% cases had duration ranging from 6 months to 3 years. Rest ranged > 3 years. According to Prakash et al³⁶ > 50% cases had Hb% < 10 gms and ESR > 30 mm/1st hour was noted in > 50% cases. In present study in 66% cases Hb% was < 10 gms and all cases had ESR > 40 mm/1st hour i.e., 77% cases had ESR levels between 40-60 mm and rest 23% cases had above 60 mm.

According to Schoefield PF., Anscome A.R. and Keedie N. C.47 in ileocaecal tuberculosis there are characteristic radiological appearances in barium enema examination like caecum is pulled up, ascending colon shortens, ileum retains its normal calibre.

In present study, contrast x-ray barium enema study was done in all cases. Narrowing of terminal ileum, obtuse ileocaecal angle and pulled up caecum were the main radiological features. I.P. Elhence and B.D. Sharma et al said that clinical subjective improvement after surgery occurred after 2-6 months of ATT which may be because of surgical removal of basic tuberculous lesion.

In present study 66% cases underwent definitive surgery and followed by this were put on antituberculous therapy. These patients responded well and had clinical improvement. Standard drug regimen used was:

Category I:

Intensive phase: 2 months	Three days in a week for 2 months
INH – 300 mg (4-5 mg/kg body weight)	
Rifampicin 450 mg (10-12 mg/kg body weight)	
Pyrazinamide 1.5 gm (30 mg/kg body weight)	
Ethambutol 1.2 gm (15 mg/kg body weight)	

Continuation phase: 6 months

Rifampicin 450 mg	Three days in a week
INH – 300 mg	
Pyridoxine – 5 mg	

Category II:

Intensive phase: 2 months	Three days in a week for 2 months
INH – 300 mg	
Rifampicin 450 mg	
Pyrazinamide 1.5 gm	

Ethambutol 1.2 gm (15 mg/kg body weight)

Inj.streptomycin 750mg

Continuation phase → 6-9 months

Rifampicine 450 mg	Three days in a week
INH 300 mg	
Pyridoxine 5 mg	

Now treatment schedules has been reduced to only 2 categories, new and previously treated. New category includes categories 1 and 3 . Previously treated includes former category 2.

According to Ramesh C. Bharati et al³⁹ who did a study of pattern of surgical emergencies of tuberculous abdomen, they did right hemicolectomy in 4.5% of cases limited resections in 6% cases and stricturoplasties in 36% cases. In present study of 18 cases of ileocaecal tuberculosis limited ileocaecal resection was done in 33% cases and because of extensive associated involvement of ascending colon right hemicolectomies is done in another 33% cases. In two case there was an associated stricture for which stricturoplasty was done.

In 4 of these 18 cases because of extensive adhesions only biopsy could be done.

According to A.R. Undre et al⁴⁸ procedure of ileocaecal resection is ideal as it takes less time and can be done even in cases of peritonitis. It does not require extensive mobilization of colon and hence risk of damage to other structures is minimal or absent. It involves limited resection and hence a considerable length of functioning colon is preserved.

Thus ileocaecal resection is safe, quick and effective surgery for benign granulomatous lesions of intestine and has obvious advantages over conventional surgical technique of righthemicolectomy.

Carcinoma caecum

Carcinoma, caecum formed 16% of cases of present study. 75% cases were seen in the age group above 50 years and oldest patient of this study was aged 68 years.

14 cases were males and 2 cases were females. According to Crerand S et al⁶ in the series of 1553 patients who presented with primary colorectal cancer, over a period of 30 years at Mater Misericordiae Hospital, Dublin 39% patients were aged over 70 years and 51% were between 50-69 years. 70% carcinomas were left sided, 22% carcinomas were right sided and carcinoma caecum accounted for 18%.

According to their study carcinoma caecum was more common in patients over 69 years and in elderly females and 30% of colorectal carcinomas occurred in caecum.

In present study 12 out of 16 cases presented with mass and dull aching pain. Average duration of symptoms was from 1-6 months, 50% of cases had vomiting and 87% cases had loss of weight. In Goligher series¹², growths of the caecum, ascending colon and hepatic flexure, bowel symptoms were usually completely absent. In many instances the only manifestation will be of deterioration of general health with loss of weight and anaemia.

In present series, 87% cases had a hemoglobin level of lower than 10 gm percent and the ESR reading was from 21-40 mm in 1st hour.

According to Goligher J.CI2 in majority of cases of carcinoma caecum constant but not very severe abdominal pain was experienced in the right iliac fossa or subcostal or epigastrium often associated with local tenderness. Abdominal mass was felt in few cases usually in the right iliac fossa.

In present series, all the patients presented with mass in the right iliac fossa and dull aching pain. Mass was hard in consistency, tender and fixed. They had a dull note on percussion.

In Goligher² study, barium enema examination revealed a bulky tumor that projects into the lumen of caecum or ascending colon, producing a filling defect with an irregular edge.

In present series, contrast barium enema examination was done in these cases. Barium. enema revealed persistent short irregular filling defect in caecum.

N.G.B. Richardson et al⁴¹ said that sensitivity, specificity and accuracy of abdominal USG in colonic tumors considered to be consistent with colonic carcinoma bwas 96, 67 and 97% respectively.

In present study, 87.5% of cases were diangosed accurately on USG. According to Golighers¹² experience with regards to growths of caecum and ascending colon, he prefers to practice the more extensive right hemicolectomy

except when the patients general condition is such as to compel restriction of the resection to the minimum that offers a reasonable chance of cure.

In present study the general condition of the patient was improved by giving high protein diet, hematinics and bowel was prepared. Laparotomy was performed and right hemicolectomy was done.

The structures removed in right hemicolectomy are last 30 cms of ileum, caecum, ascending colon, appendix, junction of the right 1/3rd and left 2/3rd of transverse colon, leaf peritoneum containing vessels and lymphnodes. With care taken to avoid injury to the duodenum, right ureter, right spermatic and ovarian vessels.

Post operative period was uneventful and followed up by chemotherapy 5 - Fluorouracil 600 mg/m² IV bolus over 1 hour Leucovorin – 500 mg/m² in 2 hours IV infusion in saline Repeat cycle every 4 week x 6 cycles

Psoas abscess

These cases formed 4% of present study group and M:F ratio was 1:1. Both cases complained of mass abdomen and both cases presented with fever. According to Santaella RO et al⁴³, typical patient presentation included fever with complaints of pain in the flank, hip or abdomen. According to Walsh TR et al,⁴⁹ in his study of 11 cases, 8 cases had fever as the presenting symptom. In present study ESR was > 40 mm/1st hour.

Others:

In this group in present study three different cases were included. A 60 years old female patient came with complaints of pain abdomen, mass abdomen and fever. On examination there was a mass in the right iliac fossa, which was smooth, regular, hard and fixed. A diagnosis of carcinoma caecum was made clinically and a right hemicolectomy was done. Histopathology report showed it as actinomycosis. Patient developed faecal fistula, peritonitis and died 12 days postoperatively.

A 14 year old female patient got admitted with colicky pain which was severe associated with vomiting. On examination, mass felt was mobile and firm. X-ray showed Reiniform mass, which was diagnosed to be unascended kidney on USG and IVU studies. Patient did not agree for surgery so she was managed conservatively.

In last case, 15 year old male patient and complaints of mass and pain. Mass was nodular, irregular, firm and fixed. Laparotomy was done and mass was found to be arising from retroperitoneum infiltrating the caecum. Ileocaecal resection with end to end anastomosis was done. Patient came for follow up after 2 months and x-ray spine showed multiple secondaries and histopathological report showed it as neuroblastoma.

According to Milland FC et al,²⁸ who did a study over ultrasound in the investigation of right iliac fossa mass, he noted that there were positive findings in 34 patients (68%) USG correctly identified organ of origin in 33 cases (97%). In present study USG was done in 45 cases and its sensitivity rate was > 90%.

Thus USG is the imaging modality of first choice in patients presenting with 9 right iliac fossa mass.

CONCLUSION

CONCLUSION

- The highest incidence of mass in the right iliac fossa was seen in 3rd and 4th decade. Most of our patients were of low socio-economic status
- Commonest presenting symptoms were pain in right iliac fossa, fever, vomiting, loss of weight
- Tenderness was the prominent clinical sign which was elicited in most of these cases.
- Appendicular mass was most common cause of RIF mass at our hospital constituting to 44 % of the cases. It is common in 3rd , 4th and 2nd decades of life. Male to female ratio was 19:4 (4.7:1).
- In this series ileocaecal tuberculosis formed 18% of cases taken up for study of mass in the right iliac fossa most common only to appendicular mass.
- Carcinoma, caecum formed 16% of cases of present study. 75% cases were seen in the age group above 50 years and oldest patient of this study was aged 68 years.
- In present study 22% of cases of ileocaecal tuberculosis had associated pulmonary tuberculosis so patients with ileocaecal tuberculosis should be evaluated for chest symptoms and subjected for sputum AFB
- USG is the most easily available bed side investigation for RIF mass presenting at our hospital CECT abdomen remains the Gold standard investigation for etiological diagnosis for RIF mass.

SUMMARY

SUMMARY

- 1) A study of 100 cases of mass in right iliac fossa, who were admitted to Govt. KMC Hospital, Chennai during the period from June – 2010 to June 2012 was made. A study of 100 cases numerically may not be impressive but the methodology adopted deserves kind attention.
- 2) Males were affected more and M:F ratio was 2.8:1.
- 3) All the cases in this study were subjected to radiological investigations like USG and barium studies and C.T. abdomen. Most of the clinical diagnosis could be confirmed by USG studies and in few cases patients were subjected to barium studies and C.T. abdomen diagnosis. This shows that USG can diagnose most of the conditions presenting as right iliac fossa mass.
- 4) Most of the cases presenting with mass in the right iliac fossa were managed surgically which turned out to be the most effective management while very few cases were managed conservatively.
- 5) All cases were followed up till their stay at hospital. Most of the cases came for follow up regularly and good recovery without complications were noted.
- 6) Appendicular pathology either in the form of appendicular mass or appendicular abscess was the most common condition presenting as mass

in the right iliac fossa closely followed by ileocaecal tuberculosis and carcinoma caecum. Other rare conditions were unascended kidney, actinomycosis and retroperitoneal tumour.

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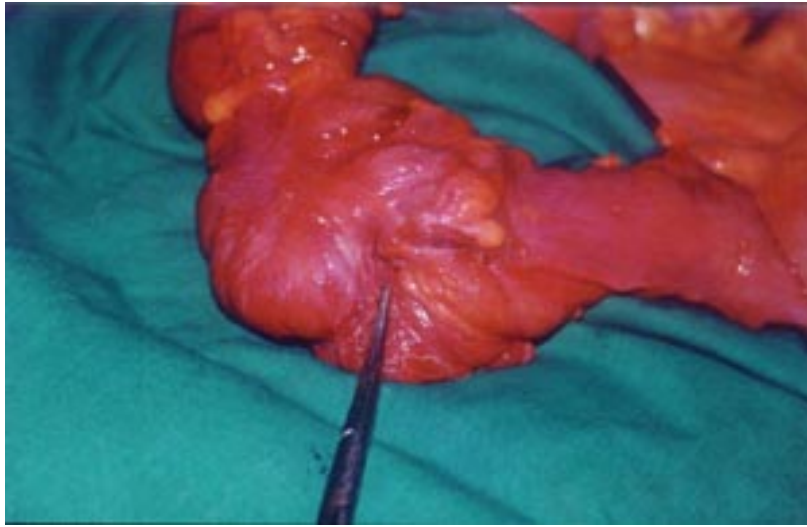
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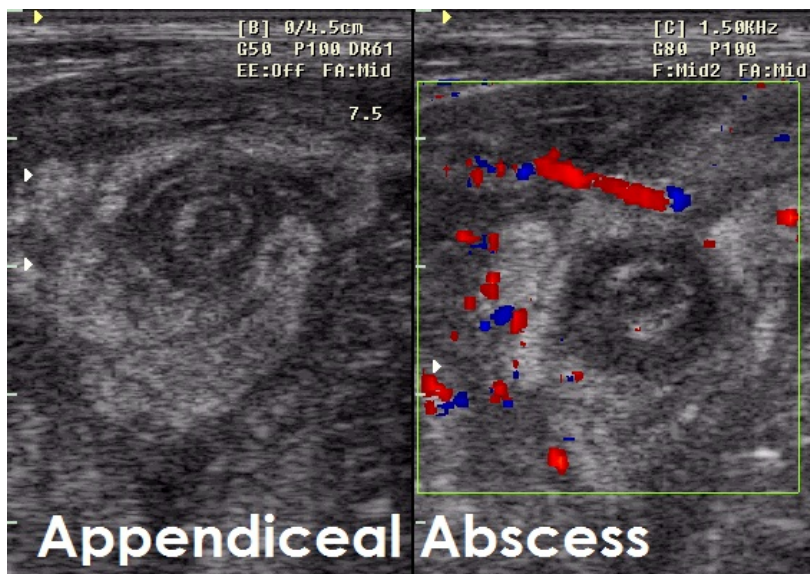
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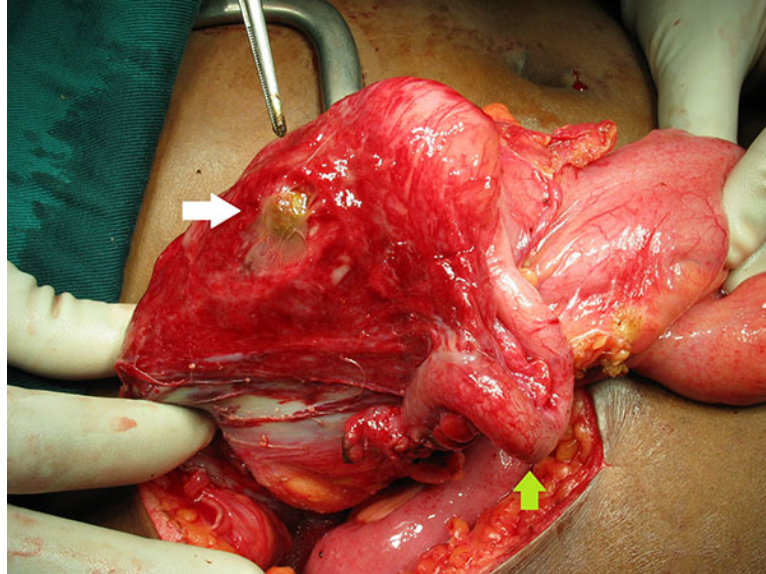
ANNEXURE

PHOTOGRAPHS

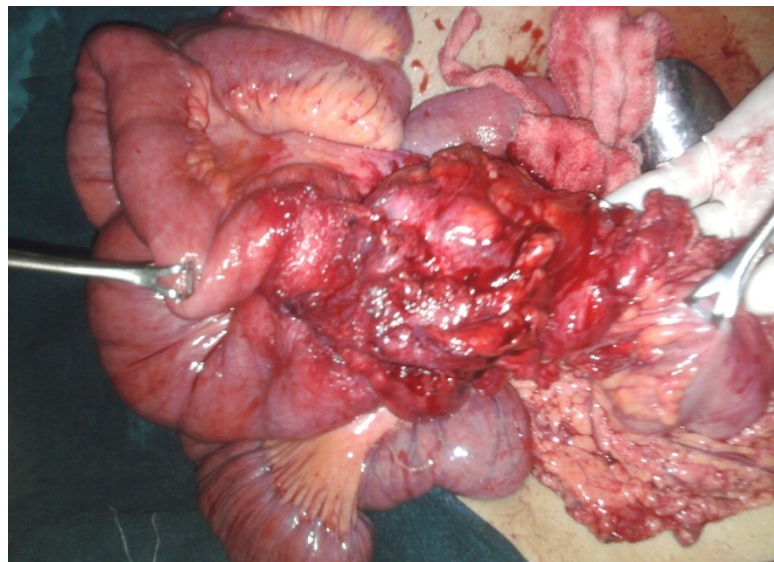


Appendicular Mass

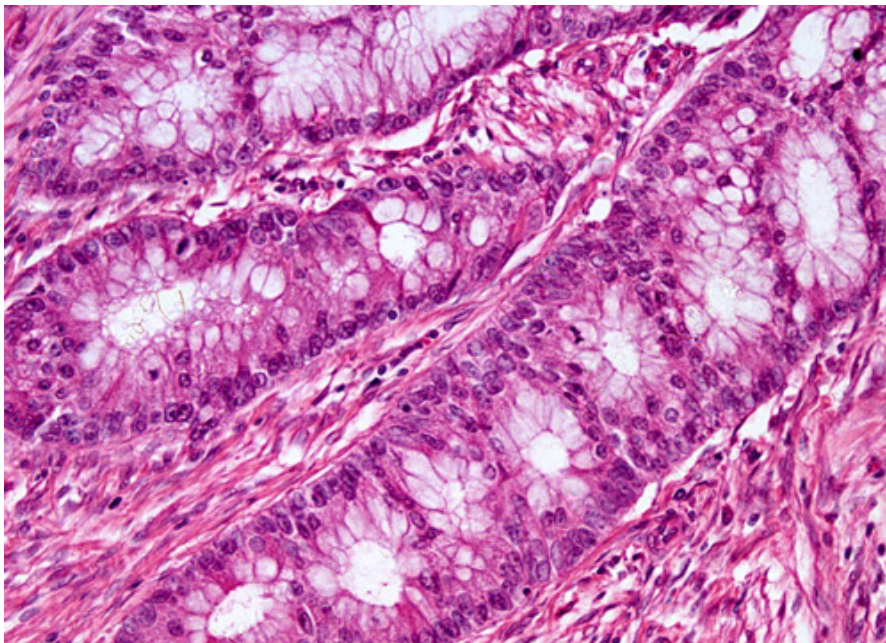




Appendicular Mass



Ileocaecal TB



Carcinoma Caecum

PROFORMA

Name age : Sex :
Marital status : Occupation : Address :
IPNO :
DOA. :
DOO :
DOD :
Unit hospital :

(A) Chief complaint :

Pain abdomen :
Mass per abdomen
fever :
Vomiting :
Indigestion :

Loss of appetite

abdominal distension, bowel disturbances, urinary disturbances, jaundice,
loss of weight

(B) History of present illness:

1) pain abdomen site :
Duration :
Mode of onset severity : Insidious/sudden
Nature : Aching/burning/stabbing/
Constricting/throbbing/colicky/distending

Progress : Steady/gradually declining/gradually worsening/
 fluctuating/Ass. with appearance of swelling

Relieving factors :

Exacerbating factors :

radiation :

Mass per abdomen site

Duration :

Progression : Steady/rapid/reduction in size

Persistence : Multiplicity/single : associated symptoms :

Fever :

Duration :

Type : continuous/intermittent / ass. Features :

Grade : high/low/moderate

Vomiting

Duration :

Frequency :

Spontaneous/induced :

Nature : Food particles/digested food/clear acidic
 fluid/bilious/ coffee ground/faeculent

- 1) Indigestion - discomfort after food/fullness
- 2) Loss of appetite - yes/no
- 3) Abdominal distension- onset progress associated factors
 pain relieving factors
- 4) Bowel disturbances : frequency, constipation/diarrhoea, Tenesmus
 H/O passing worms
- 5) Urinary disturbances : frequency
 Quantity pain haematuria colour

- 6) Jaundice : durationprogress
7) loss of weight : yes/no percentage duration
8) any others

C) PAST HISTORY:

- Similar illness
- Any other illness
- Any history of surgeries
- Tuberculosis
- Diabetes
- Hypertension

FAMILY HISTORY:

- Tuberculosis
- Diabetes
- Hypertension
- Malignancies
- Similar illness:

PERSONAL HISTORY

- Smoking
- Alcohol
- Type of diet
- Any Other Habits
- Bowel Habits
- Bladder Habits

DRUG HISTORY:

- AIT
- Steroids
- Insulin

MENSTRUAL HISTORY:

- Menarche
- Menstrual Cycles
- Menopause
- Any other disturbances

SOCIAL HISTORY:

- Marital Status
- Socio-Economic Status

GENERAL PHYSICAL EXAMINATION:

- Built : well/moderate/poor
- Nourishment : well/moderate/poor
- Pallor : mild/moderate/severe
- Icterus: mild/deep
- Pedal edema : pitting/non pitting
- Febrile : yes/no
- Dehydration : yes/no
- Gen.lymphadenopathy : yes/no

Group involved tender / non tender consistency soft / firm / rubbery / hard
matted/discrete mobility :

- Pulse rate : Rhythm/Volume
- Blood pressure
- Others
-

(J) LOCAL EXAMINATION OF ABDOMEN:

1. INSPECTION:

a) SHAPE : Flat/Scaphoid/Distended

b) ANY MASS/FULLNESS

- Site
- Number
- Extent
- Shape
- Surface
- Borders
- Movement with respiration
- Leg Lifting test
- Head raising test

c) **UMBILICUS**

- Shape
- Position

d) DISTENDED VEINS

- Yes/No
- Site

e) VISIBLE PERISTALSIS

- Yes/No
- Type

f) Flanks

g) Hernial orifices

h) all quadrants if moving equally with respiration

i) Scars : No/Site/Surrounding skin/Nature of discharge

j) Sinuses

k) Fistulae : No./Site/Discharge

l) Any others

2. Palpation :

a) Feel of the abdomen

- Soft/Doughy
- Guarding
- Rigidity-Localised/ generalised
- Tenderness-present/absent
- Site

b) MASS

- Site
- Number
- Shape
- Size
- Extent

Vertical: Horizontal:

- Surface

Smooth/nodular/Granular/Bosselated

- Borders

Regular /Irregular/Diffuse

- Consistency
 - Soft/Firm/Hard/ Cystic/Varying
- Movement with respiration
- Mobility
 - Restricted
 - Free
 - Horizontal
 - Vertical
- Leg lifting Test/Head raising test
- Knee Elbow Position
- Bimanually palpable/Ballotability
- Compressibility
- Involvement of Abdominal Wall
- Pulsatility

Yes/No

Yes/No

Yes/No

Yes/No

Transmitted/Expansile

c) ORGANOMEGALY

- Liver:
Tenderness - Yes/No
Extent
Surface - Nodular/Smooth
Border - Sharp/Rounded
Consistency - Soft/Firm/Hard

- Spleen:
Tenderness - Yes/No
Extent
Surface - Nodular/Smooth
Border
Splenic notch Consistency

d) ANY OTHER MASS

e) FREE FLUID: Fluid Thrill / Shifting Dullness

Percussion:

- a) Mass - dull/impaired/resonant
 - b) Dullness continuous with - liver Spleen extent
 - c) Free fluid-puddle's sign shifting dullness
 - d) Bladder- yes/no
 - e) Renal angle- normal/dull auscultation
- Bowel sounds - yes/no
Frequency character

Examination of back and spine:

A) Renal angle :

Fullness - yes/no

Tenderness - yes/no

Percussion - res/dull

B) Spine

Deformity - yes/no

Tenderness - yes/no

paraspinal rigidity - yes/no

P/R wall lumen

Nature of finger stain

P/V

RS

CVS

(j) **Provisional diagnosis:**

(K) Investigations

a) Blood:

Hb %

Tc

ESR

Blood group's

Blood urea

Serum creatinine

- b) Urine- sugar - albumin
- c) Stools-gross / microscopy occult blood
- d) Chest x-ray:
- e) Plain x-ray abdomen:
- J) barium examination:
 - Meal
 - Follow through enema
- g) FNAC:
- h) Ultra sound:
- i) CT scan:
- j) Biopsy
 - lymphnode
 - primary
- k) Analysis of ascitic fluid:
- (L) Clinical diagnosis:
- (M) Treatment:
 - Conservative
 - Operative
 - Simple
 - Radical
 - Post-op period
 - Histopathology
 - Complications
- (N) Follow up:
 - Good/fair/ poor
- (O) Mortality:

CONSENT FORM

சுய ஒப்புதல் படிவம்

ஆய்வு செய்யப்படும் தலைப்பு :

RIGHT ILIAC FOSSA MASS A CLINICAL STUDY

ஆராய்ச்சி நிலையம் : பொது அறுவை சிகிச்சைத் துறை
கீழ்பாக்கம் மருத்துவக் கல்லூரி
சென்னை - 600 010.

பங்கு பெறுபவரின் பெயர் : வயது :

பங்கு பெறுபவரின் எண். :

பங்கு பெறுபவரது இதனை (✓) குறிக்கவும்

மேலே குறிப்பிட்டுள்ள மருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது
என்னுடைய சந்தேகங்களை கேட்கவும், அதற்கான தகுந்த விளக்கங்களைப் பெறவும்
வாய்ப்பளிக்கப்பட்டது.

நான் இவ்வாய்வின் தன்னிச்சையாகத்தான் பங்கேற்கிறேன். எந்தக் காரணத்தினாலோ
எந்தக் கட்டத்திலும் எந்த சட்ட சிக்கலுக்கும் உட்படாமல் நான் இவ்வாய்வில் இருந்து
விலகிக் கொள்ளலாம் என்று அறிந்து கொண்டேன்.

இந்த ஆய்வு சம்மந்தமாகவோ, இதைச் சார்ந்த மேலும் ஆய்வு மேற்கொள்ளும்போது இந்த
ஆய்வில் பங்குபெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளைப் பார்ப்பதற்கு
என் அனுமதி தேவையில்லை என அறிந்து கொள்கிறேன். நான் ஆய்வில் இருந்து விலகிக்
கொண்டாலும் இது பொருந்தும் என அறிகிறேன்.

இந்த ஆய்வின் மூலம் கிடைக்கும் தகவல்களையும், பரிசோதனை முடிவுகளையும்
மற்றும் சிகிச்சை தொடர்பான முடிவுகளையும் மருத்துவர் மேற்கொள்ளும் ஆய்வில்
பயன்படுத்திக் கொள்ளவும் அதைப் பிரசுரிக்கவும் என் முழு மனதுடன்
சம்மதிக்கிறேன்.

இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக்கொள்கிறேன். எனக்குக் கூறப்பட்ட
அறிவுரைகளின்படி நடந்து கொள்வதுடன், இந்த ஆய்வை மேற்கொள்ளும் மருத்துவ
அணிக்கு உண்மையுடன் இருப்பேன் என்றும் உறுதியளிக்கிறேன். என் உடல் நலம்
பாதிக்கப்பட்டாலோ அல்லது எதிர்பாராத நோய்க்குறி தென்பட்டாலோ உடனே
அதை மருத்துவ அணியிடம் தெரிவிப்பேன் என உறுதி அளிக்கிறேன்.

பங்கேற்பவரின் கையொப்பம்இடம் தேதி
கட்டைவிரல் ரேகை

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்

ஆய்வாளரின் கையொப்பம் இடம் தேதி

ஆய்வாளரின் பெயர்

MASTER CHART

SI No	IP No	Age(Years)	Sex	Occupation	Pain abd	Mass abd	Insp mass seen	Tenderness	Consist	Mobility	USG	CT abd	Clinical diagnosis	Treatment	Operative findings	HP report	postoperative follow-up
1	2	3	#	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	14180	25	F	Hw	7d	-	-	+	Firm	Rest	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
2	14844	35	F	Hw	3d	-	-	-	Soft	Fixed	A.Ab	-	A.Ab	EP drainage	Pus	CHR APPEN	IA WIN
3	7504	50	F	Hw	4m	-	-	-	Hard	Fixed	Ca cae	-	Ca cae	Urnese of mass	Ade carcano ma	CT	WIN
4	9786	19	M	student	6d	-	+	+	Firm	Fixed	AM	AM	A mass	OS REGIME	-	-	-
5	7672	14	M	student	5d	-	-	+	Firm	Fixed	AM	AM	AM	App	Int App	Acc App	Unrevert ul
6	580	68	M	coolie	7d	-	-	+	Soft	Fixed	A.Ab	-	A.Ab	EP drainage	Pus	Chr App	IA WIN
7	16285	14	M	student	6d	-	+	+	-	Fixed	AM	-	AM	App	Int App	Acc App	N
8	8610	48	M	coolie	3m	-	+	+	Firm	Fixed	Ca TB	-	lle Ca TB	Rt hemol	lle cae mass	Cas gra	ON ATT
9	13567	22	M	coolie	3m	-	+	+	Firm	Fixed	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
10	13494	12	F	student	15d	-	-	+	Firm	Fixed	AM	AM	AM	Res of	Cae	CHR	WIN
11	9981	50	F	Hw	12d	-	-	+	Firm	+	AM	-	AM	App	Int App	Chr APP	N
12	12892	40	M	coolie	2d	-	-	+	Firm	Fixed	Ca TB	-	lle Ca TB	Boovsy	Cas gra	Cas gra	ATTN
13	9846	32	F	Hw	3d	-	-	+	Firm	Fixed	AM	-	AM	OS REGIME	-	-	-
14	14183	62	M	coolie	7d	7d	-	-	Hard	Fixed	Ca Cae	Cae mass	Ca cae	Rt hemol	lle cae mass	Int mod dif ca	N 4 cycle CT
15	14772	22	F	Hw	6d	-	-	+	Firm	Fixed	A.Ab	-	A.Ab	EP drainage	Pus	Chr APP	WHIAN
16	15733	50	F	Hw	4v	-	-	+	Firm	Fixed	lle Ca TB	-	lle Ca TB	Boovsy	Urnese of mass	Cae gra	ATT
17	7681	24	M	coolie	2d	-	-	+	Firm	Fixed	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
18	14028	35	M	coolie	8d	-	-	+	Firm	Rest	AM	-	AM	OS REGIME	-	-	-
19	7793	20	M	student	1m	15d	+	+	Soft	Rest	A.Ab	-	A.Ab	EP drainage	Pus	Chr APP	IAN
20	10185	25	M	coolie	7d	-	+	+	Firm	Rest	AM	AM	AM	OS REGIME	-	-	-
21	18713	58	M	business	2v	-	-	+	Hard	Rest	Ca cae	Ca cae	Ca cae	Rt hemol	lle cae mass	Ade carcano ma	N CT Biocoles
22	14849	22	M	student	3m	1m	+	+	Firm	Rest	AM	-	PA	EP drainage	Pus	-	ATT + WIN
23	19812	40	F	Hw	5d	-	-	+	Firm	Fixed	AM	-	AM	OS REGIME	-	Chr APP	APP N
24	25270	60	F	Hw	1m	15d	+	+	Hard	Fixed	Ca Cae	-	Ca cae	Rt hemol	lle cae mass	Acti	Exaired
25	18686	36	M	business	3d	-	-	+	Firm	Rest	-	-	AM	App	Adh+pu s	Ac appen	WIN
26	24707	40	M	business	2m	10d	+	+	Firm	Rest	lle cae TB	lle cae TB	lle cae TB	Rt hemol	lle cae mass	Cas gra	ON ATT
27	18986	35	M	business	20d	7d	+	+	Soft	Fixed	A.Ab	-	A.Ab	EP	Pus	CHR APPEN	IAN
28	21940	60	M	coolie	1m	2m	-	-	Hard	+	Ca Cae	Ca cae	Ca cae	Rt hemol	lle cae mass	Mus sac cae	Exaired
28	11807	55	M	coolie	20d	-	+	+	Firm	+	lle Ca TB	lle Ca TB	lle cae TB	Res of M+A	lle cae mass	cab gra	ON ATT N
28	7526	45	F	Hw	2m	2m	+	+	Soft	Fixed	AM	PA	PA	EP drainage	Pus	-	Antib N
28	23793	20	M	coolie	7d	-	-	+	Firm	Fixed	AM	-	AM	Res of mass+A	Cae mass	Ac appen	WIN
28	24463	40	M	coolie	3m	1m	-	-	Firm	Fixed	lle cae TB	lle cae TB	lle cae TB	Res of mass+A	lle cae TB	cab gra	ATT N
28	11382	30	M	coolie	4d	-	+	+	Firm	Fixed	AM	-	AM	OS REGIME	-	Chr APP	APP N
28	19412	31	M	student	2y	-	-	+	Firm	Fixed	lle cae TB	lle cae TB	lle cae TB	rt hemicolectomy+ Stp	lle cae mass	Cas gra	ATT N
28	22863	22	M	coolie	3m	-	+	+	Firm	Fixed	AM	-	AM	OS REGIME	-	Chr APP	APP N
28	23976	62	M	coolie	7d	7d	-	-	Hard	Fixed	Ca Cae	Ca Cae	Ca cae	Rt hemol	Cae mass	Int mod dif ca	4 cycle CT
28	18645	24	M	business	4d	-	+	+	Firm	Fixed	AM	-	AM	App	Adh+pu s	Chr APP	WIN
28	24765	50	F	hw	4v	-	-	+	Firm	Fixed	lle cae TB	lle cae TB	lle cae TB	Boovsy	urnese of mass	cab gra	ATT N
28	18875	24	M	coolie	20d	-	-	+	Firm	Fixed	AM	AM	AM	OS REGIME	-	Chr APP	APP N
28	12503	35	M	coolie	8d	-	+	+	Firm	Rest	am	-	am	OS REGIME	-	-	-
28	19407	25	M	coolie	7d	-	+	+	Firm	Rest	AM	AM	AM	OS REGIME	-	-	-
28	13329	48	M	coolie	3m	1m	+	+	Firm	Rest	AM	RM	PA	EP drainage	Pus	-	ATT WIN
28	6868	60	M	coolie	3m	3m	-	+	Hard	+	Ca Cae	Ca cae	Int obst	Rt hemol	lle cae mass	Adeno ca	Exaired
28	7526	60	F	business	1m	15d	+	+	Hard	Fixed	Ca Cae	Ca cae	Ca cae	Rt hemol	lle cae mass	Actin	Exaired
28	18077	14	F	student	1v	-	-	+	Firm	+	RM	RM	UAK	Conservati ve	-	-	-
28	15774	60	M	coolie	1m	2m	-	+	Hard	+	Ca cae	Ca cae	Ca cae	Rt hemol	lle cae mass	Mus sac ad	Exaired
28	7894	50	M	coolie	3d	-	-	+	Firm	+	-	-	AM	OS REGIME	-	CHR APPEN	APP N
28	10731	20	M	coolie	7d	-	-	+	Firm	Fixed	AM	-	AM	OS REGIME	-	Ac appen	WIN
28	24602	40	M	coolie	2m	1m	-	-	Firm	Fixed	lle cae TB	lle cae TB	lle cae TB	Res M+A	Cae mass	cab gra	ATT N
28	24601	30	M	coolie	4d	-	+	+	Firm	Fixed	AM	-	AM	OS REGIME	-	CHR APPEN	APP N

KEY TO MASTER CHART

A.Ab	→	Appendicular abscess
A.M.	→	Appendicular mass
Abd.Tub	→	Abdominal tuberculosis
Acc.Appen	→	Acute appendicitis
Actin	→	Actinomycosis
Adeno.Ca	→	Adenocarcinoma
Adh+Pus	→	Adhesions with pus
Agri	→	Agriculture
App	→	Appendicectomy
ATT	→	Anti-tuberculous treatment
B.F.	→	Better felt
Busi	→	Business
Ca.caecum	→	Carcinoma caecum
Cae.mass	→	Caecal mass
Cas.gra	→	Caseating granulomatous lesion
Chr.Appen	→	Chronic appendicitis
Creps	→	Crepitations
CT	→	Chemotherapy
D	→	Days

DAMA	➔	Discharged against medical advise
Diff	➔	Diffuse
E.P. Drainage	➔	Extraperitoneal drainage
ESR	➔	Erythrocyte sedimentation rate
F	➔	Female
Hb%	➔	Haemoglobin percentage
HW	➔	Houswife
I.A.	➔	Interval appendicectomy
IFD	➔	Irregular filling defect
Il.Ca.Mass	➔	Ileocaecal mass
Il.Cae.TB	➔	Ileocaecal tuberculosis
Il.Str.	➔	Ileal stricture
Inf.mod.dif.Ca	➔	Infiltrating moderately differentiating carcinoma
Infl.App	➔	Inflammed appendix
Int.Obstr	➔	Intestinal obstruction
Irreg	➔	Irregular
Lab	➔	Labourer
M	➔	Male
M.A.F.L.	➔	Multiple air fluid levels

Mo	→	Months
Muc.Sec.Ad.	→	Mucin secreting adenocarcinoma
Mult.Sec.Liv	→	Multiple secondaries in liver
N	→	Normal
N.B.	→	Neuroblastoma
Nod	→	Nodular
NRA	→	Nil radiologically
O.S. Regime	→	Oschner - Sherren regime
P.A.	→	Psoas abscess
P.K.	→	Pulmonary koch's
Pall.CT	→	Palliative chemotherapy
PUC	→	Pulled up caecum
R.M.	→	Retroperitoneal mass
Rec.Ca.Caecum	→	Recurrent carcinoma caecum
Reg	→	Regular
Ren.M	→	Reniform mass
Res.M+A	→	Resection of mass with anastomosis
Rest.	→	Restricted
Rt.Hemicol	→	Right hemicolectomy
Sec.	→	Secondaries

Str.Pl	➔	Strictureplasty
Tend	➔	Tender
UAK	➔	Unascended kidney
Unresect.mass	➔	Unresectable mass
USG	➔	Ultrasonogram
W.I.	➔	wound infection
Y	➔	Years
-	➔	Absent
*	➔	Did not come for follow-up Present
+	➔	Present