

# A CLINICAL STUDY OF MASS IN RIGHT ILIAC FOSSA

*Dissertation submitted to*  
**The TamilNadu Dr.M.G.R. Medical University, Chennai.**

*With fulfillment of the regulations for the award of the degree of*

**MASTER OF SURGERY (GENERAL SURGERY)**  
**Branch – I**



**DEPARTMENT OF GENERAL SURGERY**  
**MADURAI MEDICAL COLLEGE**  
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**CERTIFICATE BY THE GUIDE AND THE HEAD OF THE**  
**DEPARTMENT**

This is to certify that the dissertation entitled “A Clinical study of Mass in Right Iliac Fossa” submitted by Dr.C.SURESH BABU to the Tamil Nadu Dr. M.G.R. Medical University, Chennai in partial fulfillment of the requirement for the award of M.S Degree Branch – I (General Surgery) is a bonafide research work was carried out by him under direct supervision & guidance from October 2010 to September 2012 in the Department of General Surgery, Madurai Medical College.

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## **DECLARATION**

I, **Dr.C.SURESH BABU** declare that, I carried out this work on, “**A Clinical study of Mass in right iliac fossa**” at the Department of General Surgery, Madurai Medical College during the period of june 2010 to june 2012. I also declare that this bonafide work or a part of this work was not submitted by me or any others for any award, degree, diploma to any other University, Board either in India or abroad. This is submitted to The Tamilnadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of the rules and regulations for the M.S. degree examination in General Surgery.

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Place : Madurai

Date :

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Place: Madurai.

Date : .

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## INTRODUCTION

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Mass in the abdomen, by reason of their wide spread implications, has since long exercised the minds of many workers. Mass in the right iliac fossa is not an uncommon entity. Pandoras 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, paediatrician obstetrician and gynecologist. A thorough understanding of the anatomy and pathological processes that may occur within the abdomen are essential for an accurate diagnosis and plan of treatment. Some patients will require immediate surgical intervention, whereas others will improve with conservative treatment.

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

The purpose of the present study is to recognise certain well defined clinicopathological entities, in mass in the right iliac fossa, the relative incidence of various pathologies, as seen in Madurai Medical College , Madurai in the overall endeavour to reduce morbidity and in few instances mortality. Relevant literature has been reviewed.

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## OBJECTIVES

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- 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.

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## REVIEW OF LITERATURE

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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 antiquity. The progress of human ability to contribute to the well being of humanity by means of surgery is impressive 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 of antibiotics after World War II and developments in the metabolic care of the post operative patient started in the late 1940's and continue to the present time.

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

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 gridiron incision.

It should be noted that the understanding of this common disease and the operative concept 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 of conservative management with “interval” operation.

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

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

R.T Shackeford 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 picture of carcinoid tumours.

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

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

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

In 1932 Carbinand and his associates published their monogram 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 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 emphatically that ileocaecal tuberculosis was a definite entity and mentioned some historical differences between tuberculosis, sarcoidosis and Crohn' s disease.

In India, intestinal tuberculosis is still a relatively 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 occurrence 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 operative 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 diagnosis.

Kelly J. et al. (1999) said that a high index of suspicion should be maintained for ileocaecal tuberculosis 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 unascended 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 commencement of large gut. At an early embryonic stage, it has same calibre 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 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 account 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 occur.

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 likened 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 interposition 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 gut 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 mesentric 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 mesentery (ileo-colic group of nodes) from where they drain into the superior mesenteric 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 bears the brunt of distension because of presence of ileocaecal valve and it may rupture.

Caecum is partly covered by peritoneum and may have a short mesentery or even two mesenteries, 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 are epicolic nodes which drain into paracolic 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 located 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 regulates 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 peritoneal coverings.

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 mesentric 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 by brim of pelvis. Lateral margins of this space correspond to lateral borders of quadratus lumborum muscles.

These limits define 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, lymph nodes 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 lymph nodes 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 adheres 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 mesentry 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

## **AETIOPATHOLOGY**

### **APPENDICULAR MASS AND APPENDICULAR ABSCESS**

Appendicitis is still a common surgical emergency which is particularly common in upper and middle class people, probably because of diet 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 leading to appendicular mass or generalized peritonitis. So purgation means perforation is a vice adage.

Usually on the 3rd day (rarely sooner) after the commencement 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 midst is a perforated or otherwise inflamed vermiform appendix. By 4th or 5<sup>th</sup> day

mass becomes more circumscribed. During the ensuing 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 reveal that the infection is mixed and there is hardly a pyogenic organism which has not been isolated from such specimens. 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 supreme 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 not infrequent.

### **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 segment. 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 impaction of faecolith or food particles.

### **Histology**

Diffuse fibroblast reaction with giant cell of tuberculoid type. Frank caseation which is pathognomonic of tuberculosis is not seen in all cases 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 group 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 supervenes they become matted. Cut surface is grey and translucent but later becomes yellow, opaque and caseous.

Further caseous material may breakdown to form cold abscess. Microscopically endothelial cells and lymphocytes are in evidence. 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 a primary mode 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 role of environmental factors.

#### **Environmental factors**

There have been 3 principle theories advanced over the past 2 decades to explain the aetiology 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 second one is due to dietary facts. 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 undoubtedly 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 undisputed 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 encountered between the ages of 50 and 80, the peak age incidence being in the 6<sup>th</sup> and 7<sup>th</sup> 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 eagerness to metastasise to regional lymphnodes.

Obstruction is a late phenomenon because

1. Proximal colon is more spacious
2. Its contents are liquid in nature
3. The papilliferous tumour obstructs only by virtue 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 barefoot.

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 localised 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 induce acute abdominal symptoms closely resembling acute appendicitis, a differential diagnosis that plagues 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 arises 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 Gut 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 occurs 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 on one hand to the anaplastic on the other. 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 injection, 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 round

worm or thread worm. Abuse of purgatives and violent peristaltic action which results there in, favours and often determines 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 is not yet 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 midst 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 reported. 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 Amoebomata, 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 variety 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 abrasion 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 israeli* an anaerobic gram positive branching filamentous organism. It does not spread by lymphatic channels, and hence regional lymphnodes 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 by way of 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 exceedingly thickened, edematous and contains enlarged fleshy nodes. Unlike TB the affected lymphnodes neither breakdown nor calcify.

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 error 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 dictated 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 ilio 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.

<b>Origin</b>	<b>Benign</b>	<b>Malignant</b>
<b>1. Cystic Tumours</b>		
a) Developmental defects	Chylous cyst serous cysts	
b) Lymphatic tissue	Lymphangioma	Lymphangiosarcoma
c) Trauma	Traumatic Cyst	

d) Embryonic rests	Enteric cyst dermoid	Malignant teratoma
<b>2) Solid Tumours</b>		
a) A dipose tissue	Limpoma	Liposarcoma
b) Fibrous tissue	Fibroma	Fibrosarcoma
c) Nerve elements	Neurilemmoma Neuro fibroma	Malignant 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 arrested retroperitoneally just above the internal inguinal ring.

The mal positioned testis is more prone for trauma, torsion, inflammation and malignancy. All types of malignant tumours have been described 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 acknowledges 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 common mode of 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.

## **Diagnosis**

### **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 depressed due to toxæmia. 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, Laproscopy may aid in early diagnosis.

Antitubercular chemotherapy is alone satisfactory and surgery is not recommended unless complications supervene. A doubtful diagnosis is another indication for laporotomy.

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**

cPrinciple 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 permit 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 suggested 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 advocated. Nowadays conservative resection limited to 2 inches on either side of the 'growth' is advocated.

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 noticeable 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 indication of disease. In approximately 70% of the patient with carcinoma caecum and ascending colon a mass can be detected on examination.

### **Diagnostic aids**

Occult blood in the stool is a diagnostic point 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 evidence 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 likely 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 useful 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 necessarily 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 render the condition incurable. With no evidence of secondaries and if the tumour is free, radical right hemicolectomy is the operation of 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-fluorouracil 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-fluorouracil 600 mg/m<sup>2</sup> IV bolus over 1 hour

Leucovorin 500 mg/m<sup>2</sup> 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 mandatory. 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 restored by end to end ileocolic anastomosis. Chemotherapy can often induce 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/m<sup>2</sup> IV on days 1 and 8
- b) Vincristine (Oncovin) 1.4 mg/m<sup>2</sup> IV on days 1 and 8.
- c) Procarbazine 100 mg/m<sup>2</sup> orally on days 1 to 14 (inclusive)
- d) Prednisolone 40 mg/m<sup>2</sup> 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/m<sup>2</sup> IV on days 1 and 8
- b) Vinblastin 6 mg/m<sup>2</sup> IV on days 1 and 8
- c) Procarbazine 100 mg/m<sup>2</sup> 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/m<sup>2</sup> IV on days 1 and 14

b) Bleomycin 10 mg/m<sup>2</sup> body surface IV on day 1 and 14

c) Vinblastin 6 mg/m<sup>2</sup> IV on days 1 and 14

d) DTIC - imidazole carboxymide 150 mg/m<sup>2</sup> IV daily 1 to 5 days.

Six courses with 2 weeks gap daily after each course.

### **4. CAV regimen**

a) CCNU 100 mg/m<sup>2</sup> orally on day one

b) Adriamycin 60 mg/m<sup>2</sup> IV on day one

c) Vinblastin 5 mg/m<sup>2</sup> 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/m<sup>2</sup> daily 1-5 days orally

b) Oncovin 1.4 mg/m<sup>2</sup> on days 1 and 8

c) Procarbazine 100 mg/m<sup>2</sup> orally/m<sup>2</sup> on days 1 to 14

d) Prednisolone 40 mg/m<sup>2</sup> orally on days 1 to 14

Six courses with 2 weeks rest are given.



## **6. CVP regimen**

- a) Cyclophosphamide 400 mg/m<sup>2</sup> orally on days 1 to 5
- b) Vincristine 1.4 mg/m<sup>2</sup> IV day one
- c) Prednisolone 100 mg/m<sup>2</sup> 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 modern 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 desirable 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 wise 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 Sherren'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 is no safeguard against future 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.

## **AMOEBOMA**

### **Clinical presentation**

Patient gives history of blood and mucous diarrhoea, tenesmus and low degree 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 that 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 carries a very 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 uncommon. 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 assume today 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 self 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. Ileocolitis 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 multi disciplinary team the outlook is grim as less than 10 per cent survive after 5 years.

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## METHODOLOGY

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This is a study of 100 cases of mass in the right iliac fossa admitted to Govt.Rajaji Hospital, Madurai during the period from June 2010 to June 2012 over a span of 24 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 intra abdominal 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 parietes (anterior abdominal wall) and bone in that region 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 of dehydration, anaemia, vitamin and other nutritional deficiencies. (Antihelmenthics were given whenever indicated.) Respiratory and other infections 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.

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## RESULTS

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This study of 100 cases of mass in the right iliac fossa was done over a period of 24 months June 2010 to June 2012.

***Table 1: Incidence of Various Condition***

<b>Sl.No.</b>	<b>Diagnosis</b>	<b>No. of Cases</b>	<b>Percentage</b>
1	Appendicular mass	44	44
2	Appendicular abscess	12	12
3	Ileocaecal tuberculosis	18	18
4	Carcinoma of caecum	16	16
5	Psoas abscess	6	6
6	Others*	6	6

\* Actinomycosis; Unascended kidney; Neuroblastoma

In this study of 100 cases more than 50% of cases were related to appendicular pathology either in the form of appendicular mass or appendicular abscess. There were about 18 cases of ileocaecal tuberculosis.

*Table 2: Age Incidence*

<b>Sl. No.</b>	<b>Diagnosis</b>	<b>No. of Cases</b>	<b>11- 20 Years</b>	<b>21-30 Years</b>	<b>31 - 40 Years</b>	<b>41-50 Years</b>	<b>51-60 Years</b>	<b>61-70 Years</b>
1	Appendicular mass	44	12	16	8	2	4	2
2	Appendicular	12	2	2	6	-	-	2
3	Ileocaecal tuberculosis	18	-	-	8	6	2	2
4	Carcinoma caecum	16	-	2	-	2	10	2
5	Psoas abscess	2	-	-	-	4	-	-
6	Others	6	4	-	-	-	12	-
	<b>Total (100)</b>	<b>18</b>	<b>20</b>	<b>22</b>	<b>22</b>	<b>14</b>	<b>18</b>	<b>8</b>

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 4<sup>th</sup> 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	32	73	12	27
2	Appendicular	8	67	4	33
3	Ileocaecal tuberculosis	16	89	2	11
4	Carcinoma caecum	14	87	2	13
5	Psoas abscess	2	50	2	50
6	Others	2	33	4	67
	<b>Total (74)</b>	<b>37</b>	<b>74</b>	<b>26</b>	<b>26</b>

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*	52	52
2	Housewife	22	22
3	Student	16	16
4	Business	10	10
	<b>Total</b>	<b>100</b>	<b>100</b>

\* 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	44	42	2	-	-
2	Appendicular abscess	12	12	-	-	-
3	Ileocaecal tuberculosis	18	4	10	-	4
4	Carcinoma caecum	16	6	2	6	2
5	Psoas abscess	4	-	4	-	-
6	Others	6	2	2	-	12
	<b>Total percentage</b>	<b>100%</b>	<b>66%</b>	<b>20%</b>	<b>6%</b>	<b>8%</b>

D = Day, M = Months

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 16 cases of carcinoma caecum, 6 cases presented within 30 days, 1 case presented between 1-3 months, 3 cases presented between 3-6 months and at 2 case presented after 6 months.

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

4 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	44	2	4.5
2	Appendicular abscess	12	12	33.3
3	Ileocaecal tuberculosis	18	4	22.2
4	Carcinoma caecum	16	12	75.0
5	Psoas abscess	4	4	100.0
6	Others	6	4	66.7
	Total percentage	100	40	30.0

In this series only 6 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		Vomitting		Loss of Weight	
			No	%	No	%	No	%
1	Appendicular mass	44	26	59	20	45	-	-
2	Appendicular abscess	12	6	50	4	33	-	-
3	Ileocaecal tuberculosis	18	16	89	6	33	8	44
4	Carcinoma caecum	16	-	-	8	50	14	87
5	Psoas abscess	4	4	100	-	-	2	50
6	Others	6	2	33	2	33	-	-
	Total percentage	100	54	40	40	12	24	24

In this study 59% of appendicular mass presented with fever and 45% presented with vomiting.

In cases of appendicular abscess 50% presented with fever and 30% presented with vomiting.

Out of 18 cases of ileocaecal tuberculosis, 8 cases presented with fever, 3 cases with vomiting and 8 cases with loss of weight.

In 16 cases of carcinoma caecum 8 cases gave history of occasional vomiting and almost all cases gave history of loss of weight.

Both cases of psoas abscess presented with fever.

**Table 8: Clinical Findings**

<b>Sl.No.</b>	<b>Clinical findings</b>	<b>No. of cases</b>	<b>Percentage</b>
1.	Tenderness	90	90
2.	Consistency		
	Hard	18	18
	Firm	66	66
	Soft	16	16
3.	Fixity	62	62

In present study of 100 cases, 90% cases had tenderness in right iliac fossa. 18 patients had mass which was hard in consistency which included all the 16 cases of carcinoma caecum and 2 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.

62 of 100 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	44	8	36
2	Appendicular abscess	12	2	10
3	Ileocaecal tuberculosis	18	12	6
4	Carcinoma caecum	16	14	2
5	Psoas abscess	4	-	4
6	Others	6	2	4
	Total percentage	100	38	62

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	44	14	18	12	-
2	Appendicular abscess	12	4	4	4	-
3	Ileocaecal tuberculosis	18	-	-	14	4
4	Carcinoma caecum	16	2	14	-	-
5	Psoas abscess	4	-	-	2	2
6	Others	6	4	2	-	-
	Total percentage	100	24	38	32	36

In present study 24 (24%) cases had ESR reading of 1st hour between 5-20 mm. 19 (38%) cases had reading between 21-40 mm. In

32 (32%) cases reading was between 41-60 mm. In 6 (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	34	38	-	-
2	Appendicular abscess	12	14	-	-
3	Ileocaecal tuberculosis	18	20	18	50
4	Carcinoma caecum	18	20	18	50
5	Retroperitoneal abscess	4	4	-	-
6	Others	4	4	-	-

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. In this series 90 cases had ultrasound abdomen done and all the cases were correctly diagnosed.

**Table 12: Mode of Treatment**

Sl. No.	Diagnosis	No. of cases	Medical		Surgical	
			No.	%	No.	%
1	Appendicular mass	44	8	18	36	81
2	Appendicular abscess	12	-	-	12	100
3	Ileocaecal tuberculosis	18	2	11	16	89
4	Carcinoma caecum	16	4	25	12	75
5	Psoas abscess	4	-	-	2	100
6	Others	6	2	33	4	67
	Total percentage	100	16	16	84	84

- Immediate appendicectomy : 18 cases
- Late appendicectomy : 18 cases

In our study of 100 cases, 16 cases were managed conservatively and 84 cases were managed surgically. Out of 36 cases of appendicular mass managed surgically 18 cases were taken up for surgery immediately whereas rest of the 18 cases were managed by Oschner Scherren regime and appendicectomy was done at a later date.

All 12 cases of appendicular abscess and 4 cases of psoas abscess were managed by extraperitoneal drainage. These 12 cases of appendicular abscess were subjected to interval appendicectomy 6-8 weeks later. 16 out of 18 cases of ileocaecal tuberculosis were managed surgically 2 case was not operated because of associated active pulmonary tuberculosis. 12 out of 16 cases of carcinoma caecum were operated upon.



Two 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. 2 case of unascended kidney did not agree for surgery.

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

**Table 13: Various Types of Surgical Treatment**

<b>Sl.No.</b>	<b>Type of Surgery</b>	<b>No of cases</b>	<b>Percentage</b>
1	O-S regimen with appendicectomy	18	21
2	Extraperitoneal drainage with interval appendicectomy	12	14
3	Right hemicolectomy	18	21
4	Limited ileocaecal resection	12	14
5	Laparotomy with biopsy	6	7
6	Immediate laparotomy with appendicectomy	14	18
7	Extraperitoneal drainage with antibiotics /ATT	4	5

In 36 cases of appendicular mass, immediate appendicectomy was done in 18 cases out of these 2 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 16 cases, appendix was released and appendicectomy done. In all 12 cases of appendicular abscess,

extraperitoneal drainage of pus was done immediately and interval appendicectomy done after 6 weeks.

In 16 cases of ileocaecal tuberculosis managed surgically, for 6 cases, limited ileocaecal resection with end to end anastomosis was done. Whereas in 6 cases they had to go in for hemicolectomy. In rest of 4 cases as there was associated military tuberculosis with unresectable mass only biopsy was done.

In 4 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**

		<b>No. of cases</b>	<b>Percentage</b>
	Post –operative complication	28	28
1.	Wound infection	22	44
2.	Mortality	6	12
	At follow-up	70	70
1	Surgery done	30	30
2.	ATT	18	18
3.	Chemotherapy	6	6
4.	Normal	16	16

In postoperative period, complications in the form of wound infection occurred in 22 cases and 6 cases died, out of 84 cases operated. 70% of cases came back for follow-up. 30 cases were operated i.e.,

interval appendicectomy in case of appendicular mass (18) managed by O-S regimen and all cases of appendicular abscess (12). 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.

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## DISCUSSION

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This study of Mass in the right iliac fossa was made at Govt. Rajaji Hospital, Madurai from June 2010 to June 2012. 100 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 al<sup>29</sup> 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%). This was more common in males than females (2.6:1). Only two patients complained of mass in present series. But on examination all 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 al<sup>29</sup>, 38 out of 46 cases had rigidity and 43 out of 46 cases had tenderness. In present series all patients gave history of pain and vomiting. 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 al<sup>10</sup> 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 Sherren 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, in 77% cases appendicectomy was done and in 23% cases ileocaecal resection had to be done. According to Barry Foran et al<sup>4</sup> in 61.5% cases they could do appendicectomy and in 15 % they had to go in for right hemicolectomy.

Erik Skoubo-Kristensen et al<sup>10</sup> says that conservative management of appendicular mass is successful in most cases and complication rates seem lower than with early operative treatment.

Adalia SA et al<sup>11</sup> 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 al<sup>8</sup>, mean age at which appendicular abscess occurred was  $40.7 \pm 2.7$ . Symptoms had been present on an average of  $9.2 \pm 0.8$  days prior to admission.

In present study initially pain was colicky which later changed to pricking/throbbing type. 33% of cases complained of mass per abdomen and mass was tender and soft in consistency. 50% of cases had fever. According to Hurme T et al<sup>16</sup>, 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. Interval appendicectomy was done in all cases and histopathology report showed chronic appendicitis. According to Edward L Bradley III et al<sup>8</sup>, 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 after interval appendicectomy wound infection occurred in 50% cases.

### **Ileocaecal tuberculosis**

Tuberculosis of the gastrointestinal tract presents a common diagnostic and therapeutic problem to a surgeon in most of the developing 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 al<sup>36</sup> highest incidence of this disease was found in age group 20-40 years. According to SK Bhansali<sup>5</sup> in his study 2/3rd of patients were in 3rd and 4<sup>th</sup> decades and sex incidence was almost equal. In present study all patients were above 30 years age group with mass incidence between 30-40 years. Male patients were more predominantly affected.

Tuberculous enteritis is commonest in the ileocaecal region in a series conducted by Atm Prakash<sup>34</sup> and also series conducted by Bhansali S.K.<sup>5</sup> 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,<sup>34</sup> in his study, abdominal pain is the commonest symptom in both obstructive and non-obstructive groups. In the latter it may be colicky in nature, but in 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. History of loss of weight and appetite were also there 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. In present study 22 % cases presented with altered bowel habits. Tenderness was present in 66% of cases and 22% of cases presented with mass in the right iliac fossa.

According to S.K. Bhansali<sup>5</sup> abdominal distension is also a common feature of non-acute case and is due to either ascitis 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.<sup>5</sup> 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. It could be due to hyperplastic ileocaecal tuberculosis or lymphadenitis. 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 al<sup>36</sup> 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 al<sup>36</sup> > 50% cases had Hb% < 10 gms.

and ESR > 30 mm/1<sup>st</sup> 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. Main radiological features were narrowing of terminal ileum, obtuse ileocaecal angle and pulled up caecum. 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:** For intestinal tuberculosis

Seriously ill

**Intensive phase:** 2 months

INH – 300 mg (4-5 mg/kg body weight)

Rifampicine 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)

Three days in a week  
for 2 months

**Continuation phase:** 18 weeks

Rifampicine 450 mg

INH – 300 mg

Pyridoxine – 5 mg

Three days in a week

**Category III:** For intestinal tuberculosis not seriously ill.

**Intensive phase:** 2 months

INH – 300 mg

Rifampicine 450 mg

Pyrazinamide 1.5 gm

Three days in a week for 2 months

**Continuation phase → 18 weeks**

Rifampicine 450 mg

INH 300 mg

Pyridoxine 5 mg

Three days in a week

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 al<sup>39</sup> 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 right hemicolectomies in another 33% cases because of extensive associated involvement of ascending colon. In two case there was an associated stricture for which stricturoplasty was done.

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

According to A.R. Undre et al<sup>48</sup> 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 right hemicolectomy.

## **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 al<sup>6</sup> 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 series<sup>12</sup>, 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.C12 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 Goligher<sup>2</sup> 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 al<sup>41</sup> said that sensitivity, specificity and accuracy of abdominal USG in colonic tumors considered to be consistent with colonic carcinoma was 96, 67 and 97% respectively.

In present study, 87.5% of cases were diagnosed accurately on USG. According to Goligher's<sup>12</sup> experience with regards to growths of caecum and ascending colon, he prefers to practice the more extensive right hemicolectomy except when the patient's general condition is such

as to compel restriction of the resection to the minimum {hat 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/m<sup>2</sup> IV bolus over 1 hour

Leucovorin – 500 mg/m<sup>2</sup> 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 al<sup>43</sup>, typical patient presentation included fever with complaints of pain in the flank, hip or abdomen. According to Walsh TR et al,<sup>49</sup> 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,<sup>28</sup> 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.

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## CONCLUSION

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The highest incidence of mass in the right iliac fossa was seen in 3rd and 4<sup>th</sup> 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 and altered bowel habits. Very few cases came with a history of mass in the right iliac fossa. Tenderness was the prominent clinical sign which was elicited in most of these cases.

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## SUMMARY

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- 1) A study of 100 cases of mass in right iliac fossa, who were admitted to Govt. Rajaji Hospital, Madurai 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 any 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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## ANNEXURE

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## 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 ANY OTHER :

(B) HISTORY OF PRESENT ILLNESS:

1) PAIN ABDOMEN SITE :

DURATION :

MODE OF ONSET SEVERITY : INSIDIOUS/SUDDEN

NATURE : ACHING/BURNING/STABBING/  
CONSTRICING/THROBBING/  
COLICKY/DISTENDING

PROGRESS : STEADY/GRADUALLY  
DECLINING/  
GRADUALLY WORSENING/  
FLUCTUATING/ASS. WITH  
APPEARANCE OF SWELLING

RELIEVING FACTORS :

EXACERBATING FACTORS :

RADIATION :

2) MASS PER ABDOMEN

SITE :

DURATION :

PROGRESSION : STEADY/RAPID/REDUCTION IN  
SIZE

PERSISTENCE :

MULTIPLICITY/SINGLE :

ASSOCIATED SYMPTOMS :

3) FEVER :

DURATION :  
TYPE : CONTINUOUS/INTERMITTENT  
ASS. FEATURES :  
GRADE : HIGH/LOW/MODERATE

4) VOMITING

DURATION :  
FREQUENCY :  
SPONTANEOUS/INDUCED :  
NATURE : FOOD PARTICLES/DIGESTED  
FOOD/

CLEAR ACIDIC FLUID/BILIOUS/  
COFFEE GROUND/FAECULENT

5) INDIGESTION - DISCOMFORT AFTER \

FOOD/FULLNESS

6) LOSS OF APPETITE - YES/NO

7) ABDOMINAL DISTENSION - ONSET

PROGRESS ASSOCIATED FACTORS

PAIN

RELIEVING FACTORS

8) BOWEL DISTURBANCES : FREQUENCY

CONSTIPATION/DIARRHOEA

TENESMUS

H/O PASSING WORMS

PHYSICAL CHARACTERS

9) URINARY DISTURBANCES : FREQUENCY

QUANTITY

PAIN

HAEMATURIA

COLOUR

10) JAUNDICE : DURATION

PROGRESS

11) LOSS OF WEIGHT : YES/NO

PERCENTAGE

DURATION

12) 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 :

YES/NO

- 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

Yes/No

- Compressability

- Involvement of Abdominal Wall

Yes/No

- Pulsatility

Transmitted/Expansile

### **c) ORGANOMEGALY**

- Liver:

Tenderness - Yea/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

FBS

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 EXAM/ANT/ON:

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:

## **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 anastamosis
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

## BIBLIOGRAPHY

Sl.No.	IP No	Age(Years)	Sex	Occupation	Pain abd	Mass abd	Fever	Vomiting	Loss of weight	Bowel disturbance	Insp mass seen	Gurd/Rigidity	Tenderness	Size(cms)	Surface	Border	Consist	Mobility	P/R	Hb%	ESR	Chest X-Ray	Abd X-Ray	Ba Studies	USG	CT abd	Clinical diagnosis	Treatment	Operative finding	HP report	Postoperative follow-up
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	14180	25	F	Hw	7d	-	-	-	-	-	-	+	+	4x2	Smooth	Reg	Firm	Rest	N	11	30	-	NRA	-	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
2	14844	35	F	Hw	3d	-	-	3d	-	-	-	+	+	3x2	Smooth	Dift	Soft	Fixed	Tend	10	8	-	NRA	-	A.Ab	-	A.Ab	EP drainage	Pus	CHR APPEN	IA WIN
3	7504	50	F	Hw	4m	-	-	1m	1m	+	-	-	+	5x4	Nod	Irreg	Hard	Fixed	N	9	22	PT	NRA	IFD	Ca Cae	-	Ca.Caecum	Biopsy	Unresect mass	Ade carcinoma	CT
4	9786	19	M	Stu	6d	-	3d	-	-	-	+	-	+	5x4	Smooth	Reg	Firm	Fixed	Tend	10	8	NRA	NRA	-	AM	AM	A mass	OS REGIME	-	-	-
5	7796	31	M	Farmer	2y	-	6m	6m	6m	-	-	-	+	4x3	Smooth	Dift	Firm	Fixed	-	10	60	PT	-	PUC	I1 Cae TB	-	I1 Cae TB	Rt hemicol + Slrp	I1 Cae mass+L str	Cas gra	ON ATT N
6	7872	14	M	Stu	5d	-	3d	2d	-	-	-	-	+	2x2	Smooth	Dift	Firm	Fixed	N	11	26	-	NRA	-	AM	-	AM	App	Inf App	Acc App	Uneventful N
7	590	68	M	Farmer	7d	-	3d	2d	-	-	-	-	+	6x3	Smooth	Dift	Soft	Fixed	Tend	12	35	-	-	-	A.Ab	-	A.Ab	EP drainage	Pus	Chr App	IA WIN
8	7194	53	M	Lab	15d	15d	-	-	-	+	-	-	-	7x4	Smooth	Irreg	Hard	Fixed	N	92	18	-	NRA	IFD	Mul sec Liv	Ca cae+Mu 1 liv sec	Ca cae+sec	Pall CT	-	-	-
9	16285	14	M	Stu	2d	-	-	-	-	-	-	-	+	4x3	Smooth	Reg	Soft	Fixed	N	10	50	-	NRA	-	AM	-	AM	App	Inf App	Acc App	N
10	8610	48	M	Agri	3m	-	3m	-	-	+	+	-	+	7x4	Nod	Irreg	Firm	Fixed	N	95	50	-	-	PUC	I1 Cae TB	-	I1 Cae TB	Rt hemicol	I1 Cae mass	Cas gra	ON ATT N
11	13567	22	M	Coolie	3m	-	-	-	-	-	+	+	+	8x6	Smooth	Dift	Firm	Fixed	N	13	39	-	NRA	-	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
12	13494	12	F	Stu	15d	-	7d	3d	-	-	-	+	+	4x2	Smooth	Dift	Soft	Fixed	N	11	24	-	-	-	AM	AM	AM	Res of	Cae	CHR	WIN



30	19912	40	F	Hw	5d	-	3d	-	-	-	-	-	+	4x3	Smooth	Reg	Firm	Fixed	N	8	60	-	-	-	AM	-	AM	OS REGIME	-	Chr APP	APP N
31	26589	60	M	Agri	3m	3m	-	2d	+	+	-	-	+	6x4	Nod	Irreg	Hard	+	N	92	25	-	MAFL	-	Ca Cae	Ca Cae	Int obst	Rt hemicol	Ile cae mass	Ade carcino ma	Expired
32	25270	60	F	Hw	1m	15d	15d	-	-	-	+	+	+	12x6	Smooth	Reg	Hard	Fixed	N	10	38	NRA	NRA	IFD	Ca Cae	-	Ca cae	Rt hemicol	Ile cae mass	Acti	Expired
33	16886	36	M	Busi	3d	-	-	1d	-	-	+	+	+	7x4	Smooth	Reg	Firm	Rest	N	11	50	-	-	-	-	-	AM	App	Adh+puss	Ac appen	Wt N
34	24707	40	M	Busi	2m	10d	1m	-	-	+	+	-	-	8x4	Smooth	Reg	Firm	Rest	N	98	46	-	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Rt hemicol	Ile cae mass	Cas gra	ON ATT N
35	23093	20	M	Stu	4d	-	-	-	-	-	-	-	+	5x3	Smooth	Reg	Firm	Fixed	N	11	6	-	NRA	-	AM	-	AM	App	Adh+puss	Ac appen	-
36	16986	35	M	Busi	20d	7d	3d	-	-	-	+	+	+	10x6	Smooth	Reg	Soft	Fixed	N	85	12	-	NRA	-	A.Ab	-	A.Ab	EP drainage	Pus	CHR APPEN	IAN
37	7268	14	F	Stu	1y	-	-	2m	-	-	-	-	+	7x5	Smooth	Reg	Firm	+	N	86	14	-	Rem M	-	RM	UAK	UAK	Conservative	-	-	-
38	21940	60	M	Coolie	1m	2m	-	-	1m	+	-	-	+	8x4	Nod	Irreg	Hard	+	N	7	40	-	NRA	IFD	Ca Cae	Ca cae	Ca cae	Rt hemicol	Ile cae mass	Mus sec ade	Expired
39	24492	58	M	Agri	3d	-	-	1d	-	-	-	+	+	5x2	Smooth	Dift	Firm	+	Tend	8	14	NRA	-	-	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
40	11297	55	M	Coolie	20d	-	10d	-	-	-	-	-	+	4x2	Smooth	Dift	Firm	+	N	9	50	NRA	NRA	IFD	Ile Cae TB	Ile cae TB	Ile cae TB	Res of mass+A	Ile cae mass	cab gra	ON ATT N
41	1334	60	M	Agri	3d	-	7d	-	-	-	-	+	+	4x2	Smooth	Reg	Firm	Fixed	N	13	25	-	NRA	-	AM	-	AM	App	Inf App	A1 appen	WIN
42	7526	45	F	Hw	2m	2m	1m	-	-	-	+	-	+	6x3	Smooth	Dift	Soft	Fixed	N	10	60	-	NRA	-	RM	PA	PA	EP drainage	Pus	-	Antib N
43	23793	20	M	Coolie	7d	-	2d	1d	-	-	-	+	+	6x3	Smooth	Reg	Firm	Fixed	Tend	95	24	-	NRA	-	AM	-	AM	Res of mass+A	Cae mass	A1 appen	WIN
44	24463	40	M	Coolie	3m	1m	15d	-	1m	-	-	+	-	7x4	Smooth	Reg	Firm	Fixed	N	11	46	PT	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Res of mass+A	Ile cae TB	cab gra	ATT N
45	11382	30	M	Coolie	4d	-	4d	4d	-	-	+	+	+	6x5	Smooth	Irreg	Firm	Fixed	N	10	20	-	NRA	-	AM	-	AM	OS REGIME	-	Chr APP	APP N
46	6561	60	M	Agri	6m	1m	-	1m	1m	-	+	-	+	6x3	Nod	Irreg	Hard	+	-	9	35	-	NRA	IFD	Ca Cae	ca cae	Ca cae	Rt hemicol	Cae mass	Mus sec ade	N CT

47	17267	15	M	Stu	3m	1m	-	-	-	-	+	-	+	6x5	Nod	Reg	Firm	Fixed	N	11	16	-	NRA	-	RM	RM	RM	Res of mass+A	Ile cae mass	NB	2m sec in bone
48	19952	26	F	Hw	3d	-	3d	3d	-	+	-	-	+	3x3	Smooth h	Dift	Firm	Fixed	N	12	6	-	NRA	-	AM	-	AM	OS REGIME	-	Chr App	APP N
49	8661	50	M	Agri	2m	-	1m	2m	-	-	-	-	+	7x3	Smooth h	Reg	Firm	Rest	N	11	44	-	-	PUC	Ile Cae TB	-	Ile cae TB	Res of mass+A	Cae mass	Cas gra	ATT N
50	10574	24	M	Lab	30d	15d	-	-	-	-	+	+	+	6x4	Smooth h	Irreg	Firm	Fixed	N	11	18	-	NRA	-	AM	-	AM	OS REGIME	-	Chr app	APP N
51	10708	25	F	Hw	7d	-	-	-	-	-	-	+	+	6x2	Smooth h	Reg	Firm	Rest	N	11	30	-	NRA	-	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
52	26773	35	F	Hw	3d	-	-	3d	-	-	-	+	+	7x4	Smooth h	Dift	Soft	Fixed	Tend	11	8	-	NRA	-	A.Ab	-	A.Ab	EP drainage	Pus	CHR APPEN	IA WIN
53	5254	50	F	Hw	4m	-	-	1m	1m	+	-	-	+	5x5	Nod	Irreg	Hard	Fixed	N	9	22	PT	NRA	IFD	Ca Cae	Ca cae	Ca cae	Biopsy	Unrese ct mass	Met adeno ca	CT
54	17243	19	M	Stu	6d	-	3d	-	-	-	+	-	+	5x2	Smooth h	Reg	Firm	Fixed	tend	11	8	NRA	NRA	-	AM	-	AM	OS REGIME	-	-	-
55	19412	31	M	Agri	2y	-	8m	6m	6m	-	-	-	+	6x4	Smooth h	Reg	Firm	Fixed	-	11	56	PT	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Rt hemicol + Strp	Ile cae mass	Cas gra	ATT N
56	13593	14	M	Stu	5d	-	3d	2d	-	-	-	-	+	4x2	Smooth h	Dift	Firm	Fixed	N	11	28	-	NRA	-	AM	-	AM	App	Inf App	Acc apen	Uneventful N
57	5048	65	M	Farme r	7d	-	3d	-	-	-	-	+	+	6x3	Smooth h	Dift	Soft	Fixed	Tend	12	34	-	-	-	A.Ab	-	A.Ab	EP drainage	Pus	Chr pp	IA WIN
58	6561	53	M	Lab	15d	15d	-	-	-	+	-	-	-	7x4	Smooth h	Irreg	Hard	Fixed	n	92	18	-	NRA	IFD	Mul Sec UV	Mul sec UV	Ca cae+Sec	Pall CT	-	-	-
59	24216	14	M	Stu	2d	-	-	-	-	-	-	-	+	5x2	Smooth h	Reg	Soft	Fixed	n	11	50	-	NRA	-	AM	-	AM	App	Inf App	Acc App	WIN
60	11708	48	M	Agri	3m	-	3m	-	-	+	+	-	+	7x4	Nod	Irreg	Firm	Fixed	n	9.5	54	-	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Rt hemicol	Ile cae TB	cab gra	ATT N
61	22363	22	M	Cooli e	3m	-	-	-	-	-	+	+	+	9x7	Smooth h	Dift	Firm	Fixed	n	14	39	-	NRA	-	AM	-	AM	OS REGIME	-	Chr APP	APP N
62	4488	12	F	Stu	15d	-	7d	3d	-	-	-	+	+	4x2	Smooth h	Dift	Soft	Fixed	n	11	24	-	-	-	am	-	am	Res of mass+APP	Cae mass	Chr APP	WIN

63	8131	65	M	Lab	2m	-	15d	-	1m	-	-	-	-	7x2	Smooth h	Reg	Firm	Fixed	n	8.5	64	PT	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	ATT	-	-	DAMA
64	25020	68	M	Busi	6m	6m	-	-	-	+	+	-	-	9x5	Smooth h	Reg	Hard	Rest	n	9.5	38	-	-	IFD	Ca Cae	Ca cae	Rec cae	Pall CT	-	-	-
65	151153	34	M	Lab	15d	-	7d	-	-	-	-	+	+	13x7	Smooth h	Irreg	Soft	Rest	n	11	28	-	NRA	-	A Ab	-	A Ab	EP drainage	Pus	Chr APP	IA WIN
66	19146	50	F	Hw	12d	-	-	-	-	-	-	-	+	3x2	Smooth h	Reg	Firm	+	n	10	40	-	NRA	-	AM	-	AM	App	Inf APP	Chr APP	N
67	27924	40	M	Agri	2d	-	1w	-	-	-	-	-	+	7x3	Smooth h	Reg	Firm	Fixed	n	8.5	50	NRA	NRA	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Biopsy	Abd TB+mass	cab gra	ATT N
68	20395	32	F	hw	3d	-	-	-	-	-	-	-	+	5x4	Smooth h	Reg	Firm	Fixed	n	8.5	55	-	-	-	AM	-	AM	OS REGIME	-	-	-
69	23876	62	M	Agri	7d	7d	-	-	-	-	-	-	+	7x4	Smooth h	Irreg	Hard	Fixed	n	9	36	-	-	IFD	Ca Cae	Ca Cae	Ca cae	Rt hemicol	Cae mass	Inf mod dif ca	4 cycle CT
70	10690	22	F	hw	6d	-	-	6d	-	4d	-	+	+	4x2	Smooth h	Reg	Firm	Fixed	n	11	60	-	NRA	-	A.Ab	-	A.Ab	EP drainage	Pus	Chr APP	WI+IAN
71	16645	24	M	Lab	4d	-	3d	-	-	-	+	+	+	6x5	Smooth h	Dift	Firm	Fixed	n	13	15	-	NRA	-	AM	-	AM	App	Adh+puss	Chr APP	WIN
72	24765	50	F	hw	4y	-	-	5d	-	-	-	-	+	6x4	Smooth h	Irreg	Firm	Fixed	n	14	65	-	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Biopsy	unres mass	cab gra	ATT N
73	18875	24	M	Coolie	20d	-	10d	5d	-	-	-	-	+	3x4	Smooth h	Irreg	Firm	Fixed	n	11	30	-	-	-	AM	-	AM	OS REGIME	-	Chr APP	APP N
74	12503	35	M	Coolie	8d	-	4d	8d	-	1d	-	-	+	5x3	Smooth h	Reg	Firm	Rest	n	12	43	-	NRA	-	am	-	am	OS REGIME	-	-	-
75	5550	20	M	Stud	1m	15d	-	-	-	-	+	+	+	7x3	Smooth h	Reg	Soft	Rest	Tend	11	56	-	NRA	-	A.Ab	-	A.Ab	EP drainage	Pus	Chr APP	IAN
76	17325	58	M	Agri	2y	-	-	2m	6m	+	-	-	+	5x3	Smooth h	Reg	Hard	Rest	n	11	30	-	NRA	-	Ca Cae	Ca cae	Ca cae	Rt hemicol	Ile cae mass	Adeno ca	CT 3 cycles
77	19407	25	M	Coolie	7d	-	4d	3d	-	-	+	-	+	10x6	Smooth h	Dift	Firm	Rest	Tend	12	55	-	NRA	NRA	AM	-	AM	OS REGIME	-	-	-
78	13329	48	M	Busi	3m	1m	3m	-	+	+	+	+	+	8x7	Smooth h	Dift	Firm	Rest	n	11	65	pt	-	-	RM	RM	PA	EP drainage	Pus	-	ATT WIN
79	18301	22	M	Lab	8d	-	8d	-	-	-	-	-	+	3x2	Smooth h	Irreg	Firm	Rest	n	11	40	NRA	NRA	-	AM	-	AM	OS REGIME	-	Chr APP	APP N



80	7562	40	F	Hw	5s	-	3d	-	-	-	-	-	+	4x3	Smooth h	Reg	Firm	Fixed	n	8	60	-	-	-	-	-	AM	OS REGIME	-	Chr APP	APP N
81	6696	60	M	Agri	3m	3m	-	2d	+	+	-	-	+	6x4	Nod	Irreg	Hard	+	N	9	25	-	MAFL	-	Ca Cae	Ca cae	Int obst	Rt hemicol	Ile caecal mass	Adeno ca	Expired
82	7526	60	F	Hw	1m	15d	15d	-	-	-	+	+	+	12x6	Smooth h	Reg	Hard	Fixed	n	11	38	NRA	NRA	IFD	Ca Cae	-	Ca cae	Rt hemicol	Ile caecal mass	Actin	Expired
83	12526	36	M	Vusi	3d	-	-	1d	-	-	+	+	+	7x4	Smooth h	Reg	Firm	Rest	n	11	50	-	-	-	-	-	AM	App	Adh+puls	Ac appen	WIN
84	10275	40	M	Busi	2m	11d	1m	-	-	+	+	-	-	6x5	Smooth h	Reg	Firm	Rest	n	9.5	46	-	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Rt hemicol	Ile cae mass	cab gra	ATT N
85	16702	20	M	stud	4d	-	-	-	-	-	-	-	+	5x3	Smooth h	Reg	Firm	Fixed	n	11	6	-	NRA	-	AM	-	AM	App	Adh+puls	AI Appen	-
86	7235	35	M	Busi	20d	7d	3d	-	-	-	+	+	+	10x6	Smooth h	Reg	Soft	Fixed	Tend	8.5	12	-	NRA	-	A.Ab	-	A.Ab	EP drainage	Pus	Chr App	IAN
87	16077	14	F	Stud	1y	-	-	2m	-	-	-	-	+	7x5	Smooth h	Reg	Firm	+	N	8	14	-	RM	-	RM	RM	UAK	Conservative	-	-	-
88	15774	60	M	Coolie	1m	2m	-	-	1m	+	-	-	+	7x3	Nod	Irreg	Hard	+	n	7	40	-	NRA	IFD	Ca Cae	Ca cae	Ca cae	Rt hemicol	Ile cae mass	Mus sec ad	Expired
89	7894	50	M	Agri	3d	-	-	1d	-	-	-	+	+	5x2	Smooth h	Dift	Firm	+	Tend	8	14	NRA	NRA	-	-	-	AM	OS REGIME	-	CHR APPEN	APP N
90	27330	55	M	Coolie	20d	-	10d	-	-	-	-	-	+	4x2	Smooth h	Dift	Firm	+	N	9	50	NRA	NRA	IFD	Ile Cae TB	-	Ile cae TB	Res M+A	Ile cae mass	Cub gra	ATT N
91	17078	60	M	Agri	3d	-	7d	-	-	-	-	+	+	4x2	Smooth h	Reg	Firm	Fixed	n	13	25	-	NRA	-	AM	-	AM	App	Inf APP	Ac appen	WIN
92	169989	45	F	Hw	2m	2m	1m	-	-	-	+	-	+	12x7	Smooth h	Dift	Soft	Fixed	n	10	60	-	NRA	-	RM	-	PA	EP drainage	Pus	-	Antib
93	10731	20	M	Coolie	7d	-	2d	1d	-	-	-	+	+	6x3	Smooth h	Reg	Firm	Fixed	Tend	9.5	24	-	NRA	-	AM	-	AM	Res M+A	Cae mass	Ac appen	Win
94	24602	40	M	Coolie	2m	1m	15d	-	1m	-	-	+	-	7x3	Smooth h	Reg	Firm	Fixed	n	11	46	PT	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Res M+A	Cae mass	cab gra	ATT N
95	24601	30	M	Coolie	4d	-	4d	4d	-	-	+	+	+	6x4	Smooth h	Irreg	Firm	Fixed	n	10	20	-	NRA	-	AM	-	AM	OS REGIME	-	CHR APPEN	APP N
96	9872	60	M	Agri	6m	1m	-	1m	1m	-	+	-	+	6x3	Nod	Irreg	Hard	+	-	9	35	-	NRA	IFD	Ca Cae	Ca cae	Ca cae	Rt hemicol	Cae mass	Muc sec ad	MCT

97	13188	15	M	Stud	3m	1m	-	-	-	-	+	-	+	6x6	Nod	Reg	Firm	Fixed	n	12	16	-	NRA	-	RM	RM	RM	Res M+A	Ile cae mass	NB	2m sec in bone
98	17389	26	F	Hw	3d	-	3d	3d	-	+	-	-	+	3x3	Smooth h	Dift	Firm	Fixed	n	12	5	-	NRA	-	AM	-	AM	OS REGIME	-	Chr Appen	APP N
99	17796	50	M	Agri	2m	-	1m	2m	-	-	-	-	+	6x4	Smooth h	Reg	Firm	Rest	n	11	44	-	-	PUC	Ile Cae TB	Ile cae TB	Ile cae TB	Res M+A	Cae mass	cab gra	ATT N
100	9732	24	M	Lab	30d	15d	-	-	-	-	+	+	+	6x5	Smooth h	Irreg	Firm	Fixed	n	11	18	-	NRA	-	AM	-	AM	OS REGIME	-	Chr App	Hpp N

**Figure 1: Anatomy of ileocaecal junction**

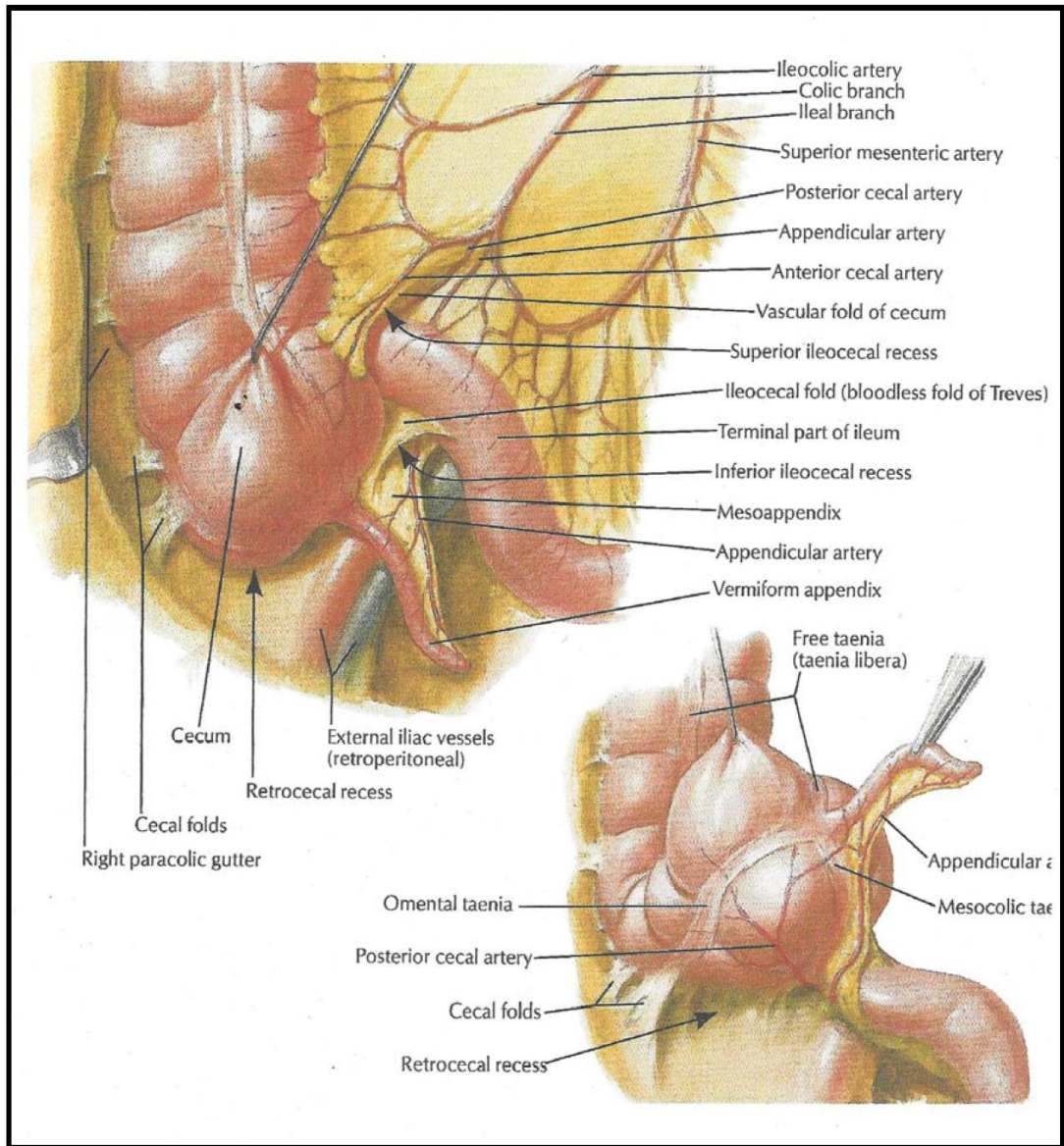


Figure 2: USG abdomen of appendicular mass

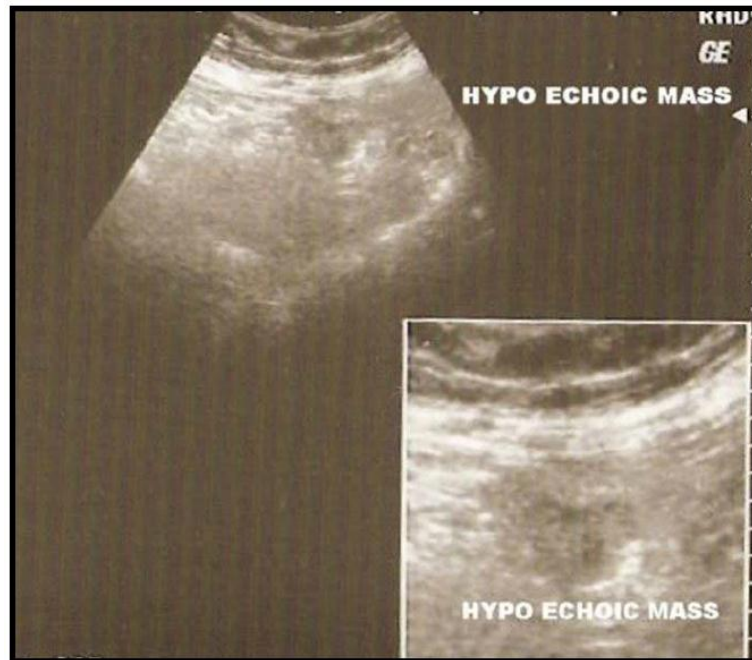
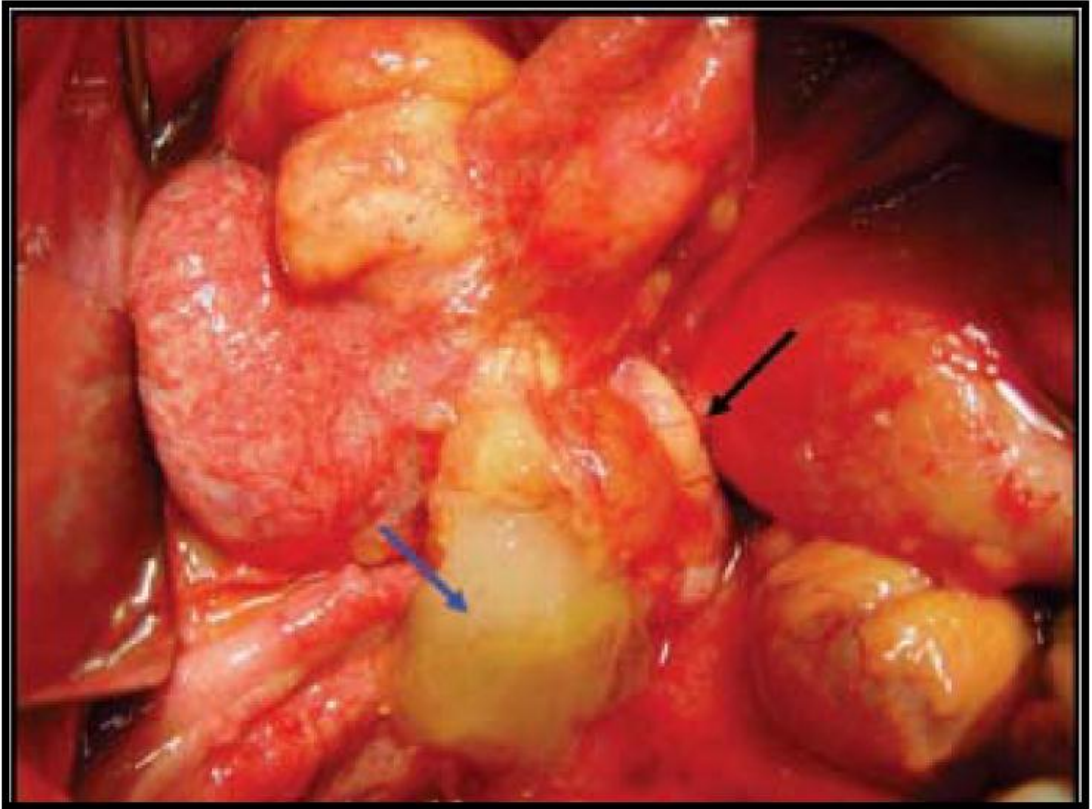


Figure 3: Barium meal – pulled up caecum

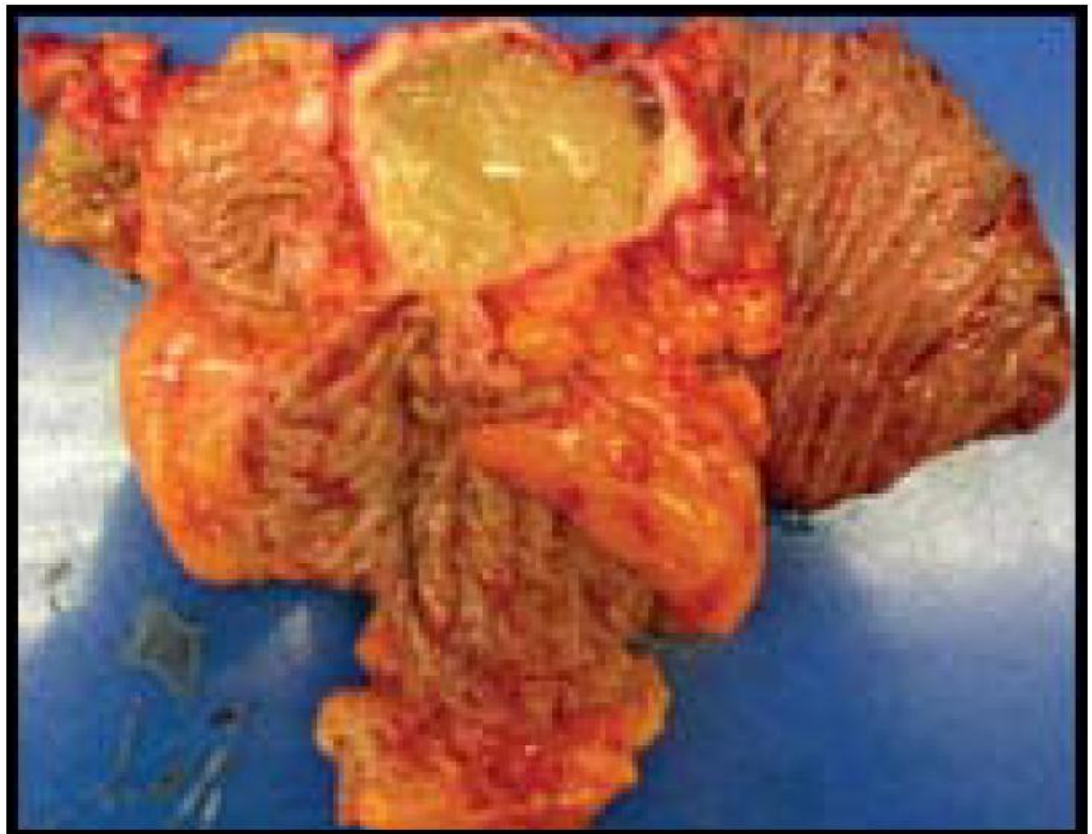




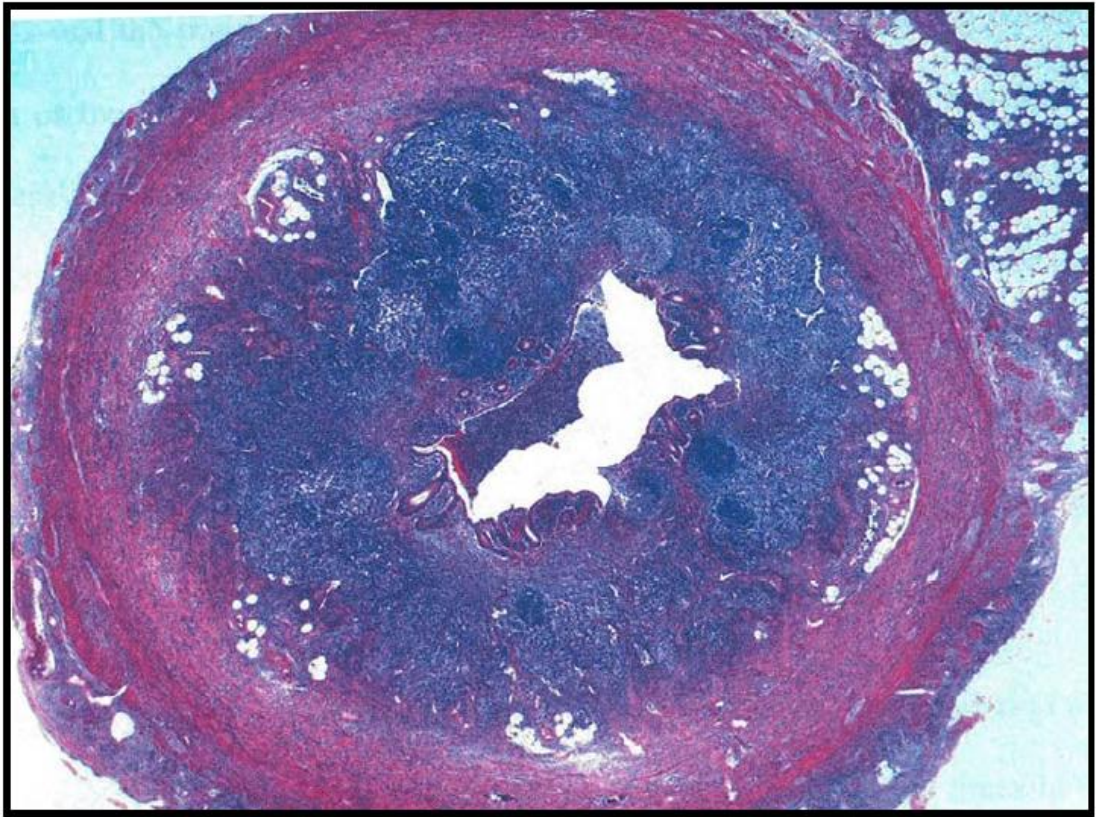
*Figure 4: Appendicular mass*



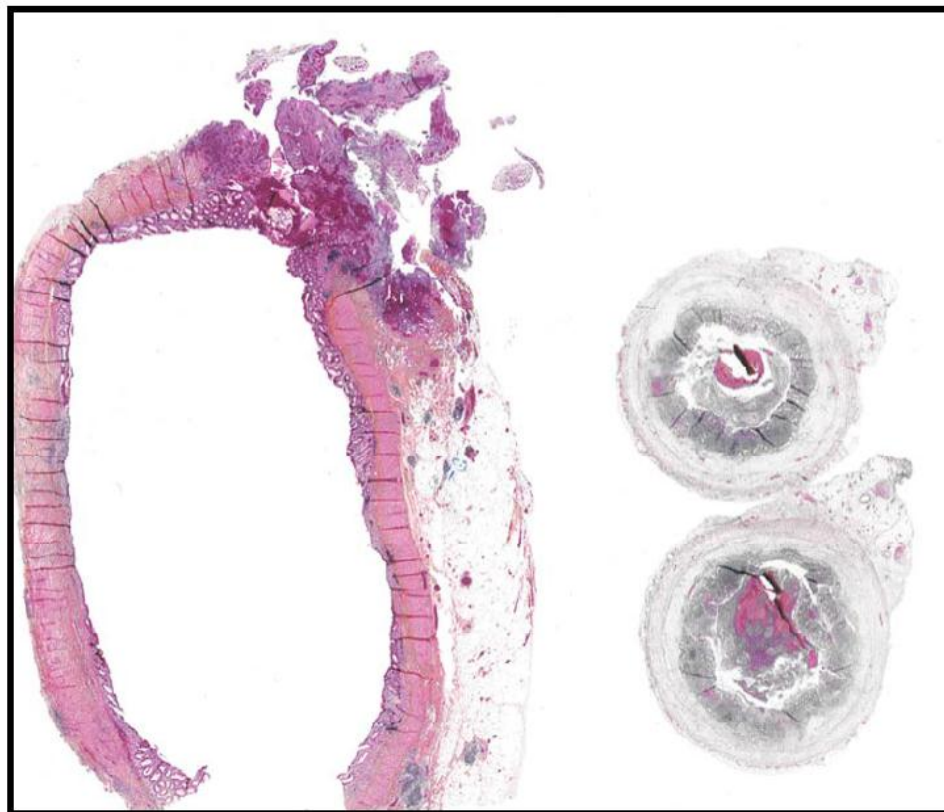
*Figure 5: Ileocaecal tuberculosis*



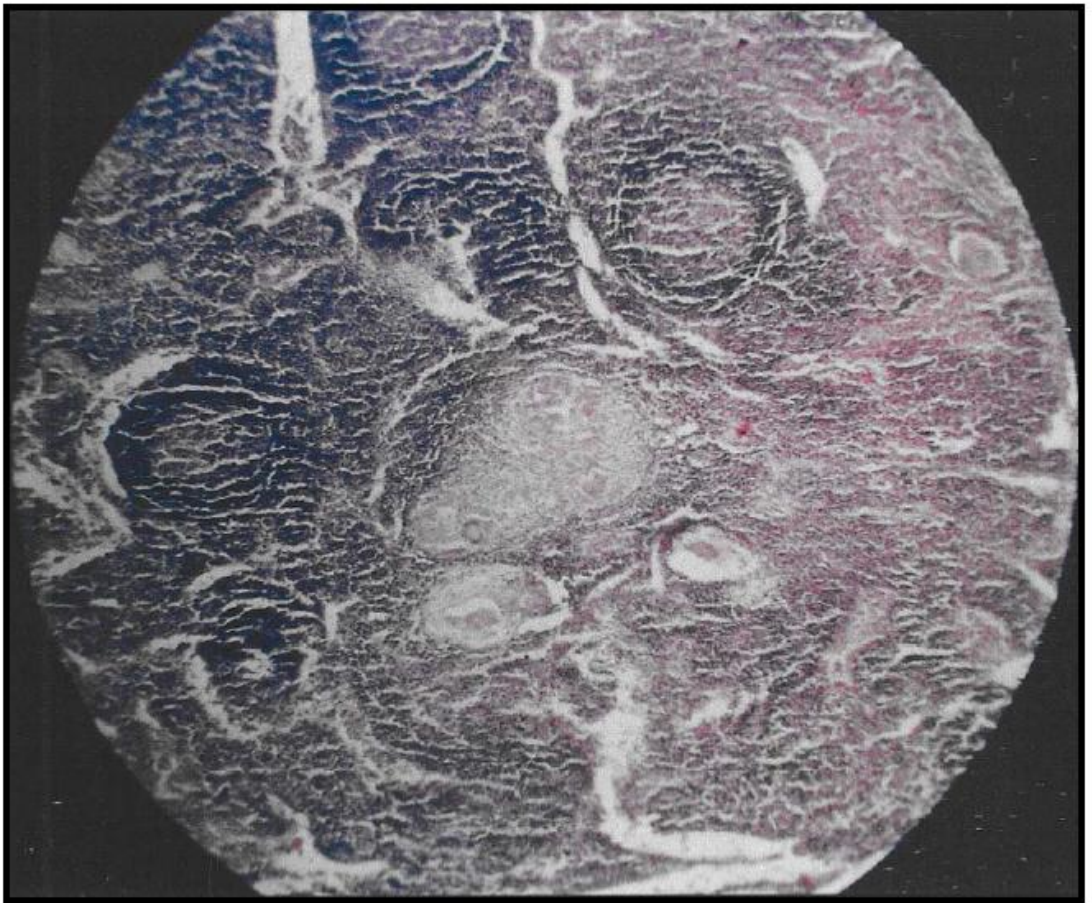
***Figure 6: Chronic appendicitis***



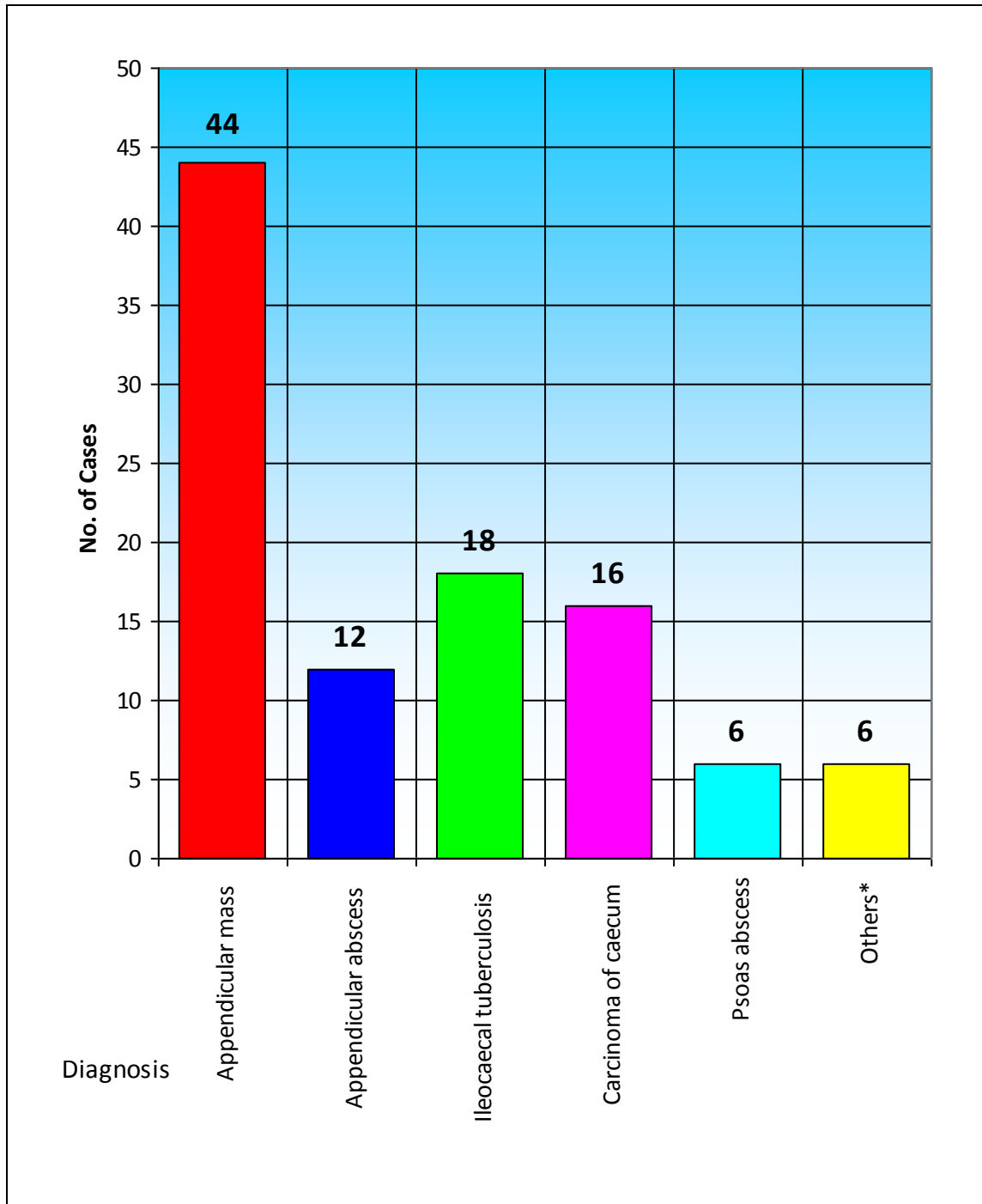
***Figure 7: Caecating granuloma***







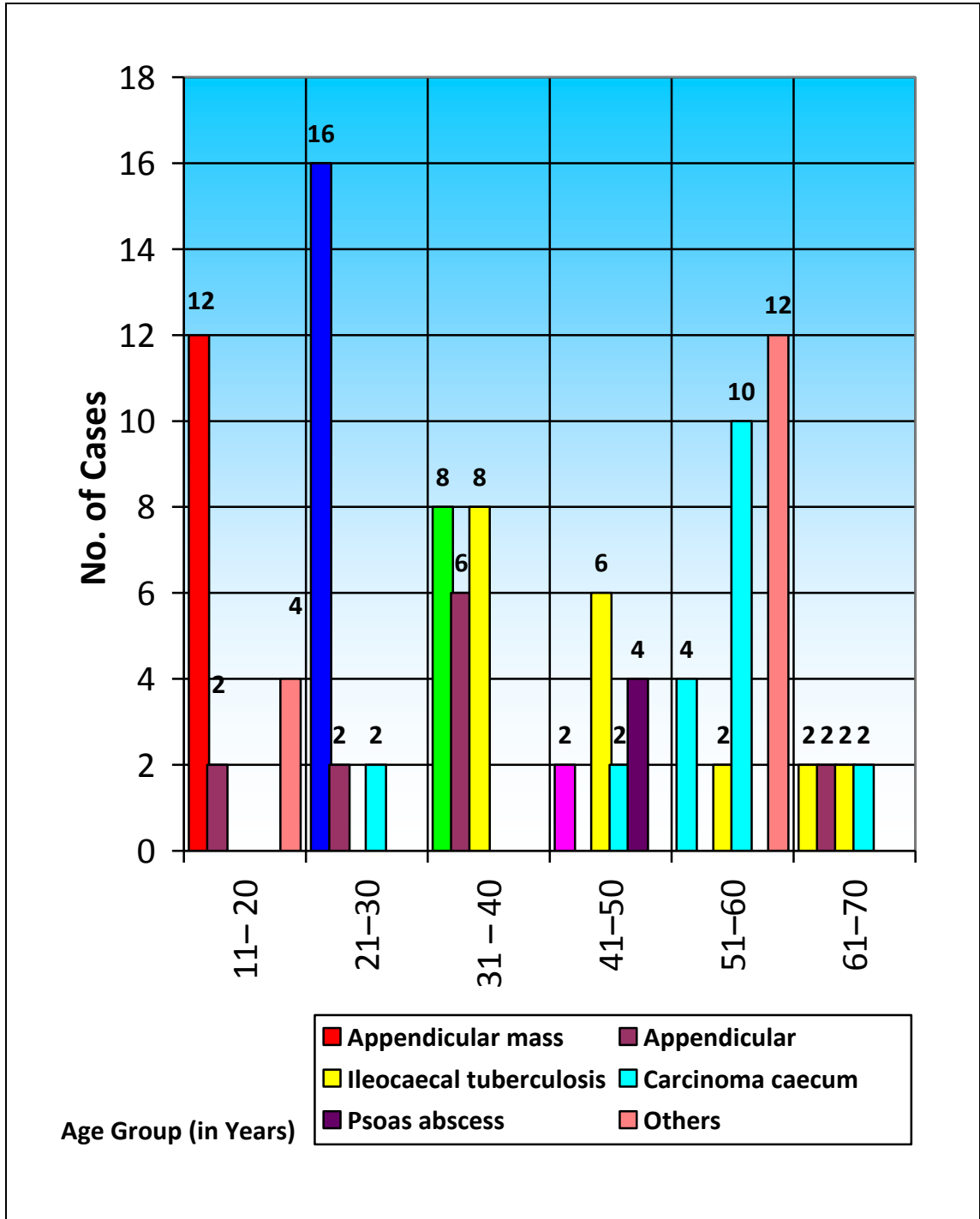
***Figure 8: Incidence of Various Conditions***



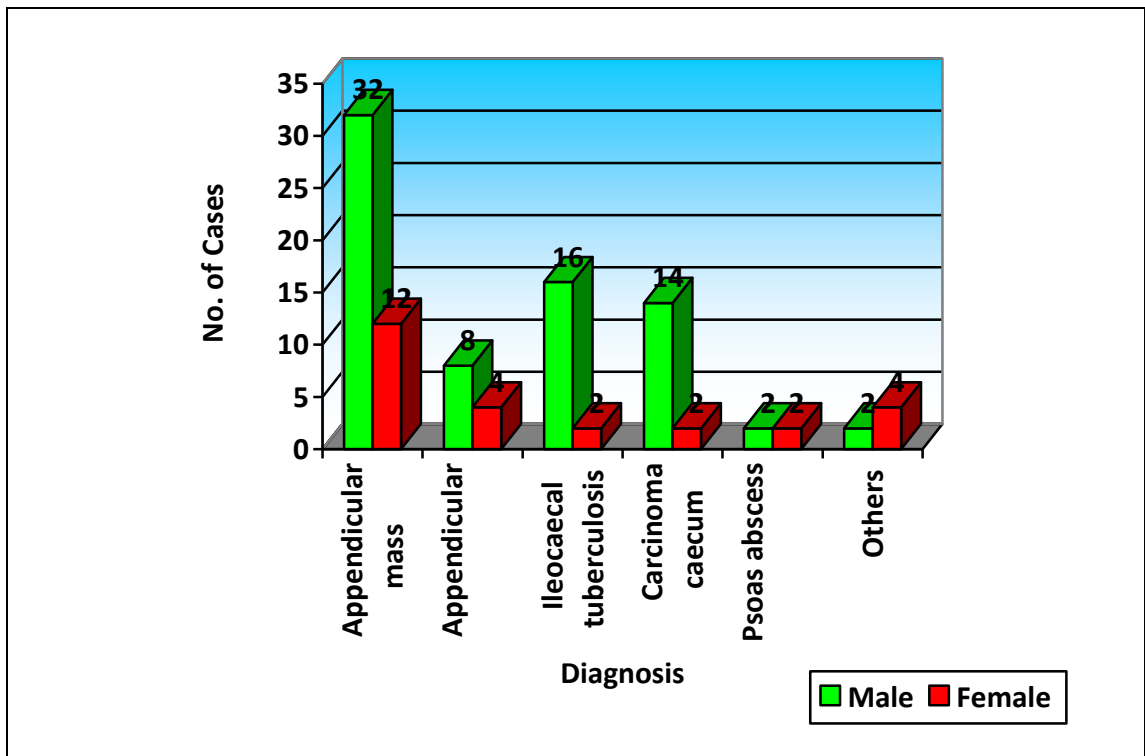
\* Actinomycosis; Unascended kidney; Neuroblastoma



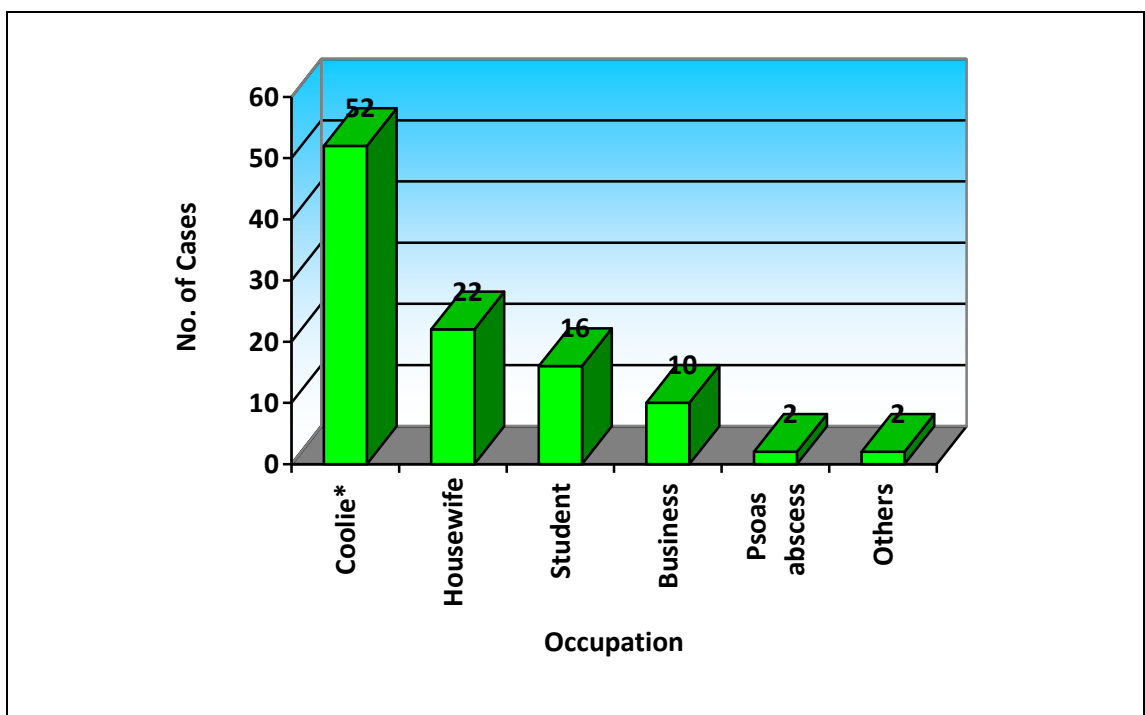
**Figure 9: Age Incidence**



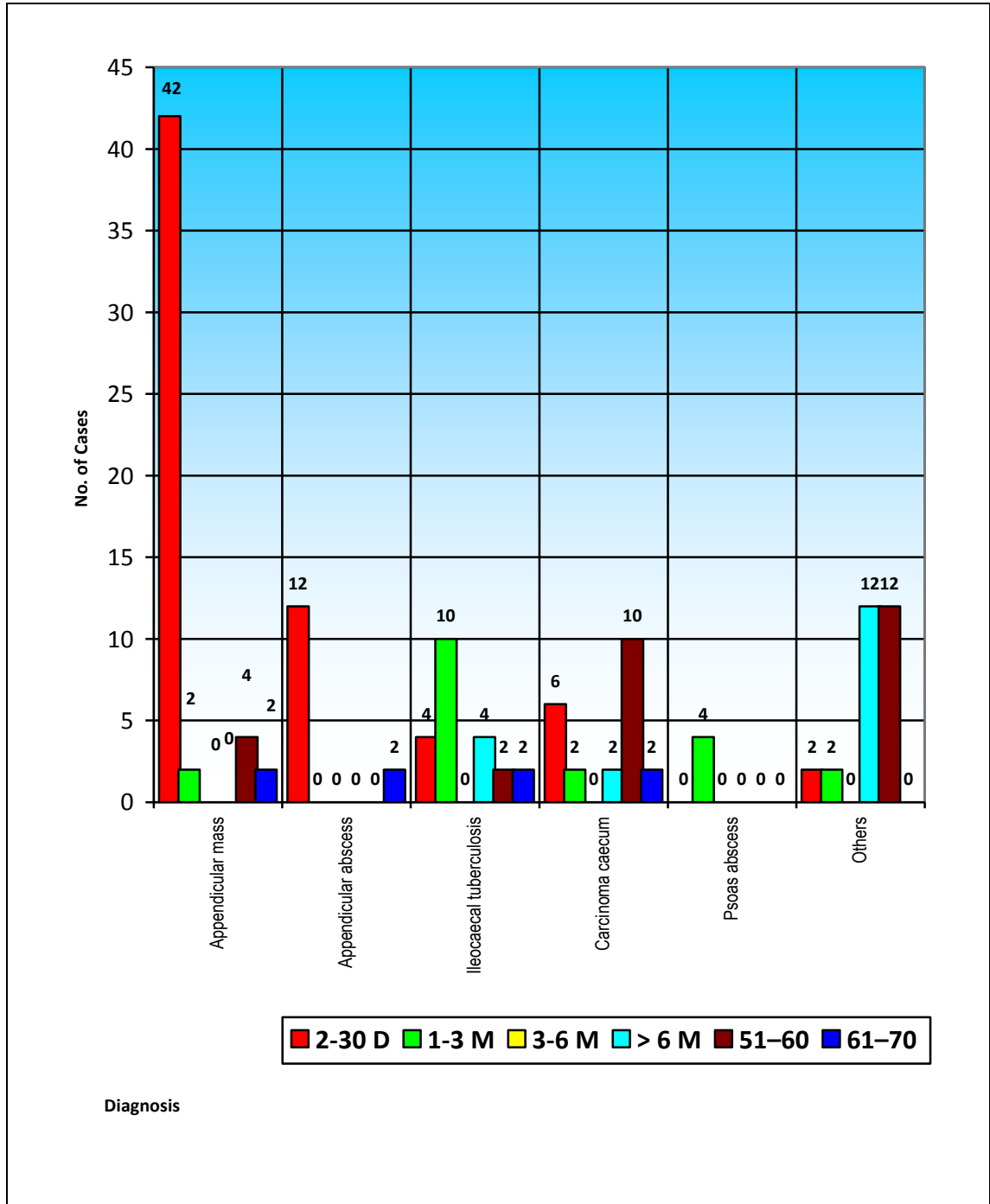
***Figure 10: Sex Incidence***



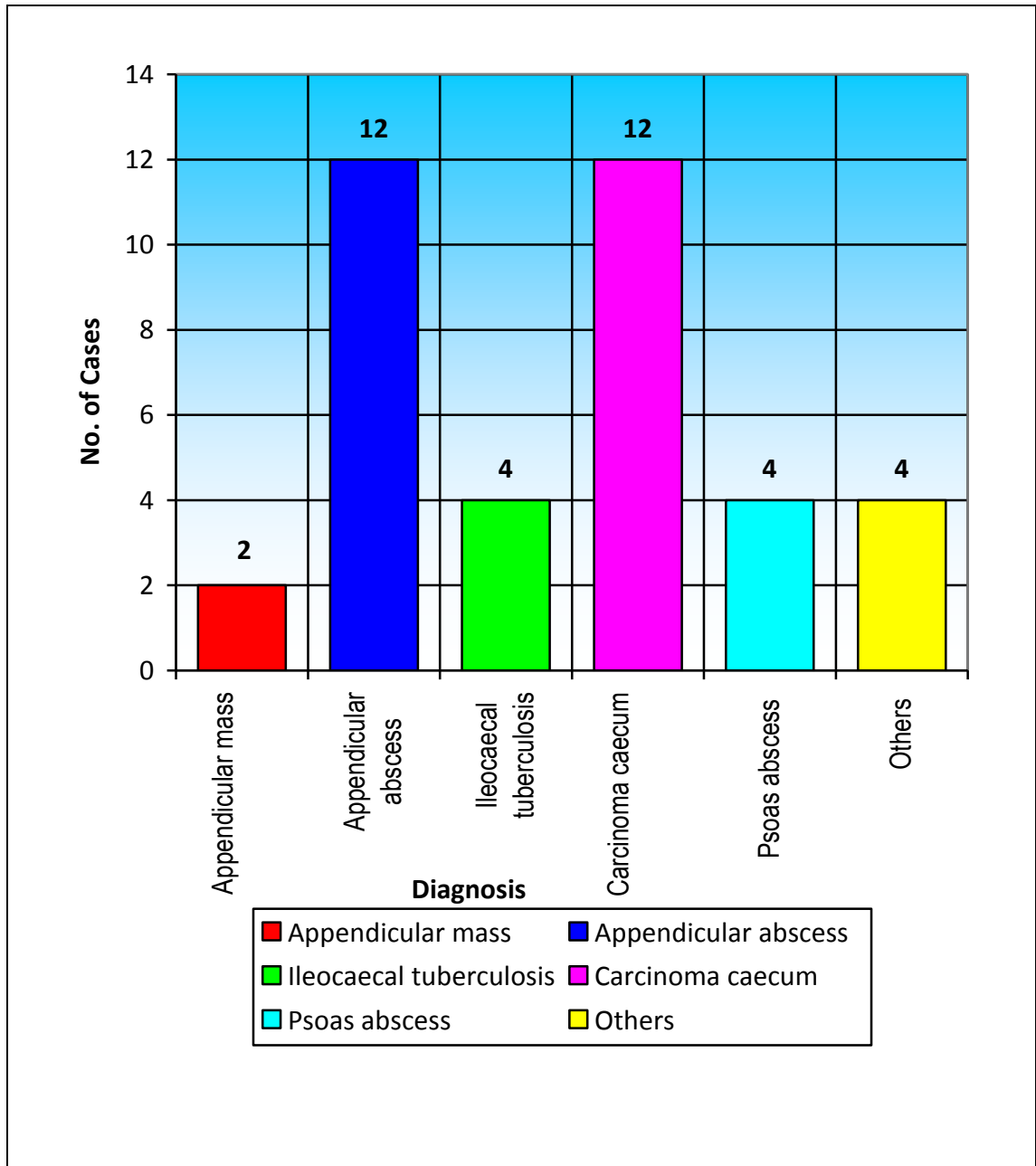
***Figure 11: Occupation***



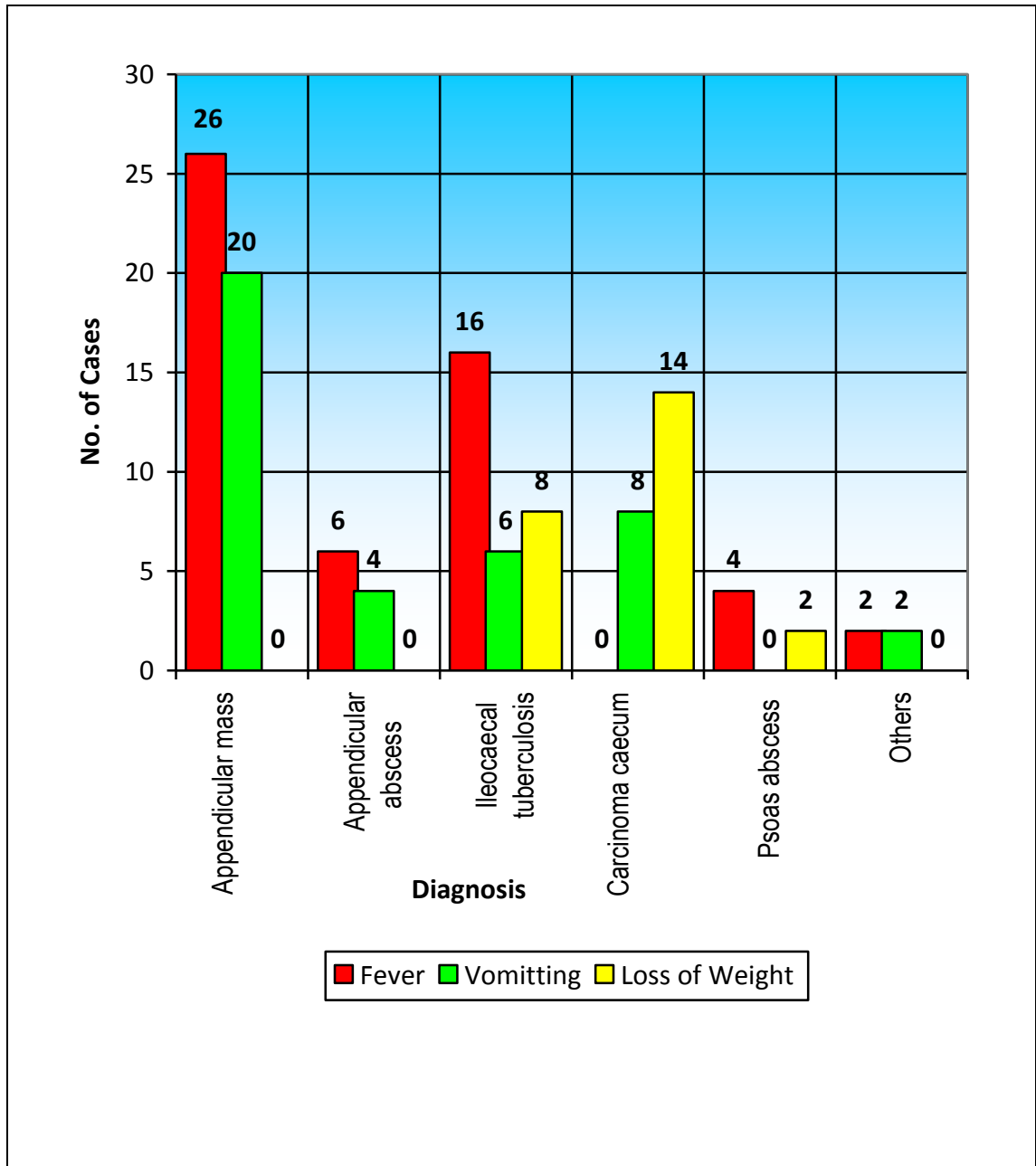
**Figure 12: Duration of Symptoms**



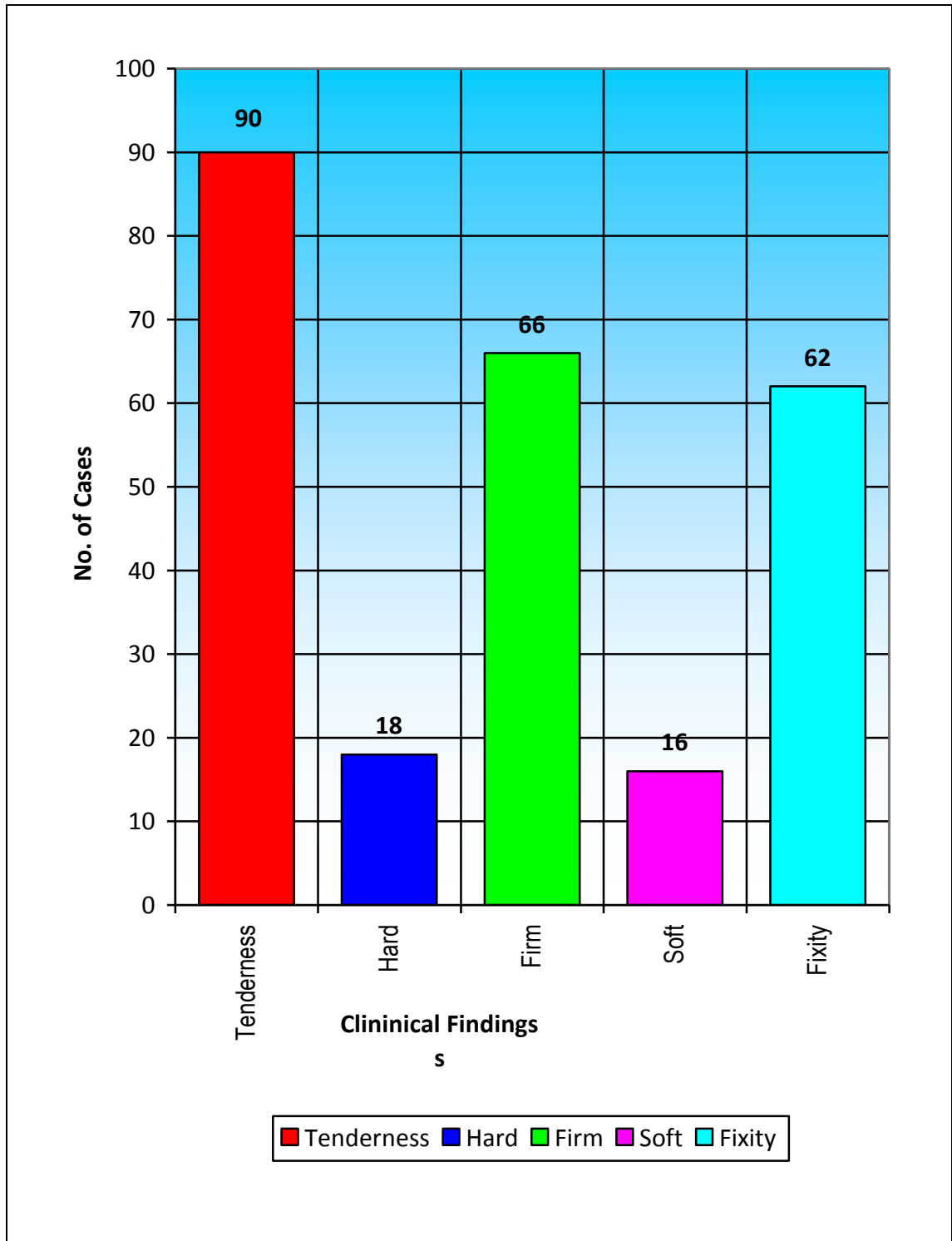
***Figure 13: Mass Abdomen (Symptom)***



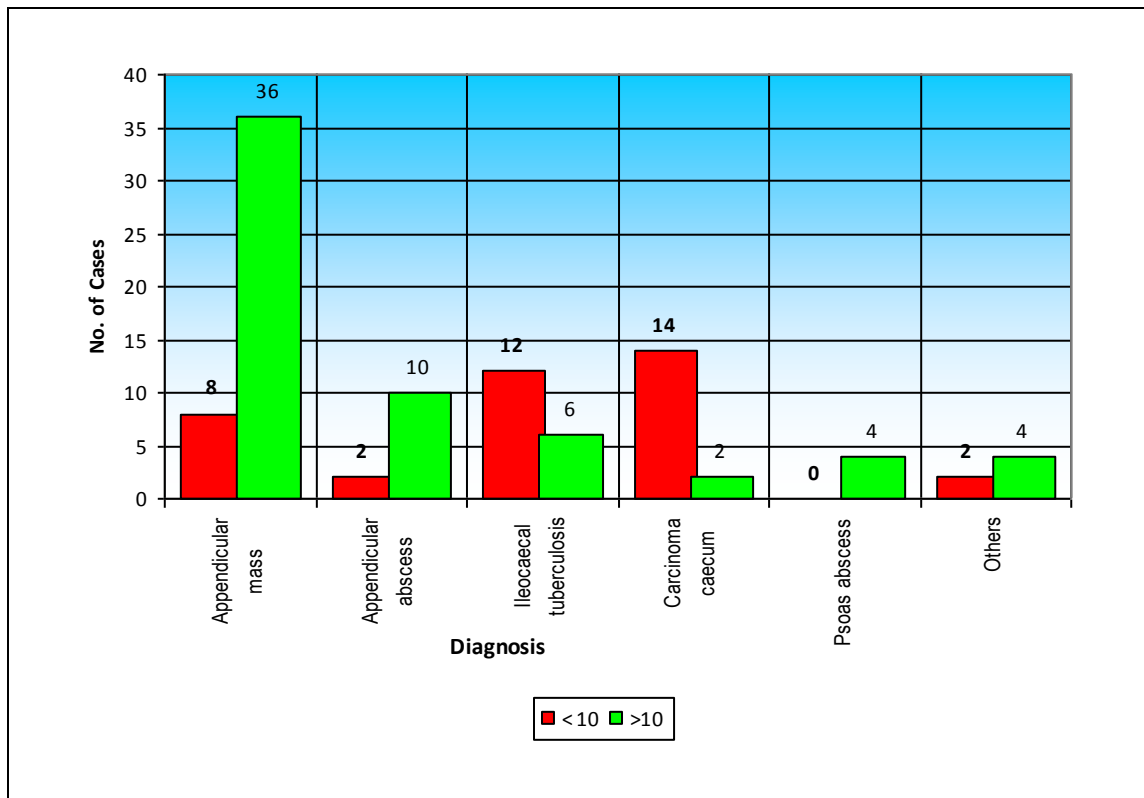
**Figure 14: Symptoms**



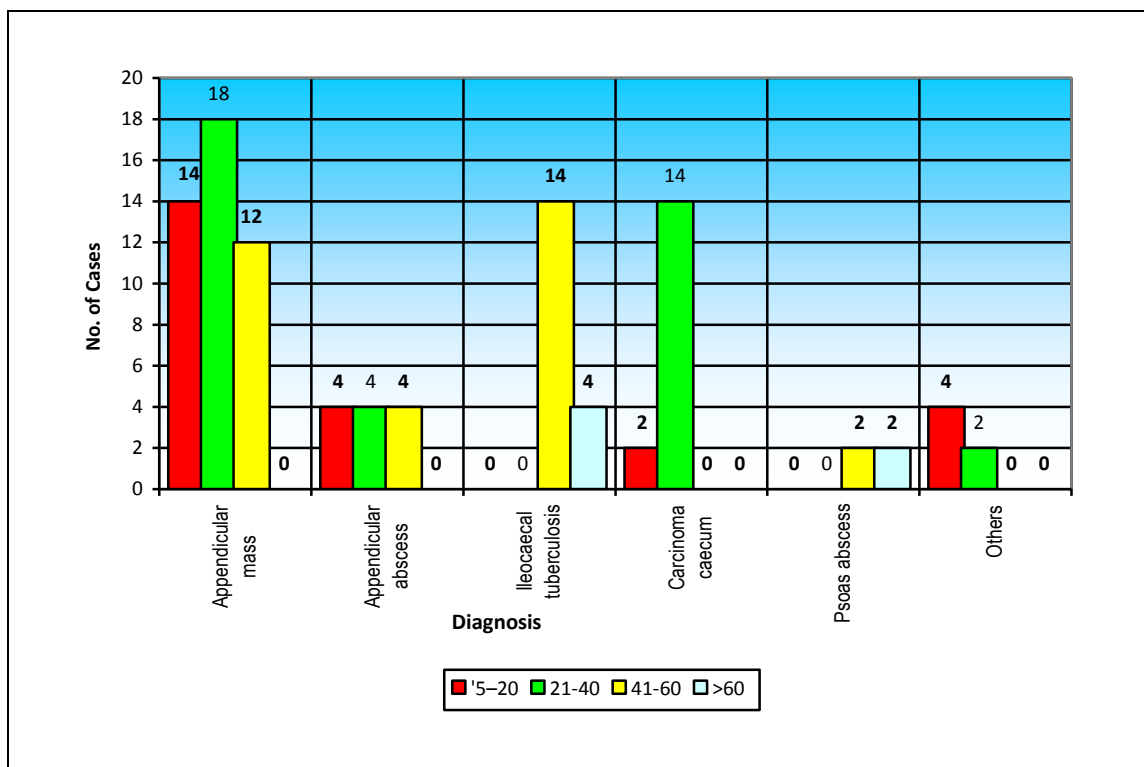
***Figure 15: Clinical Findings***



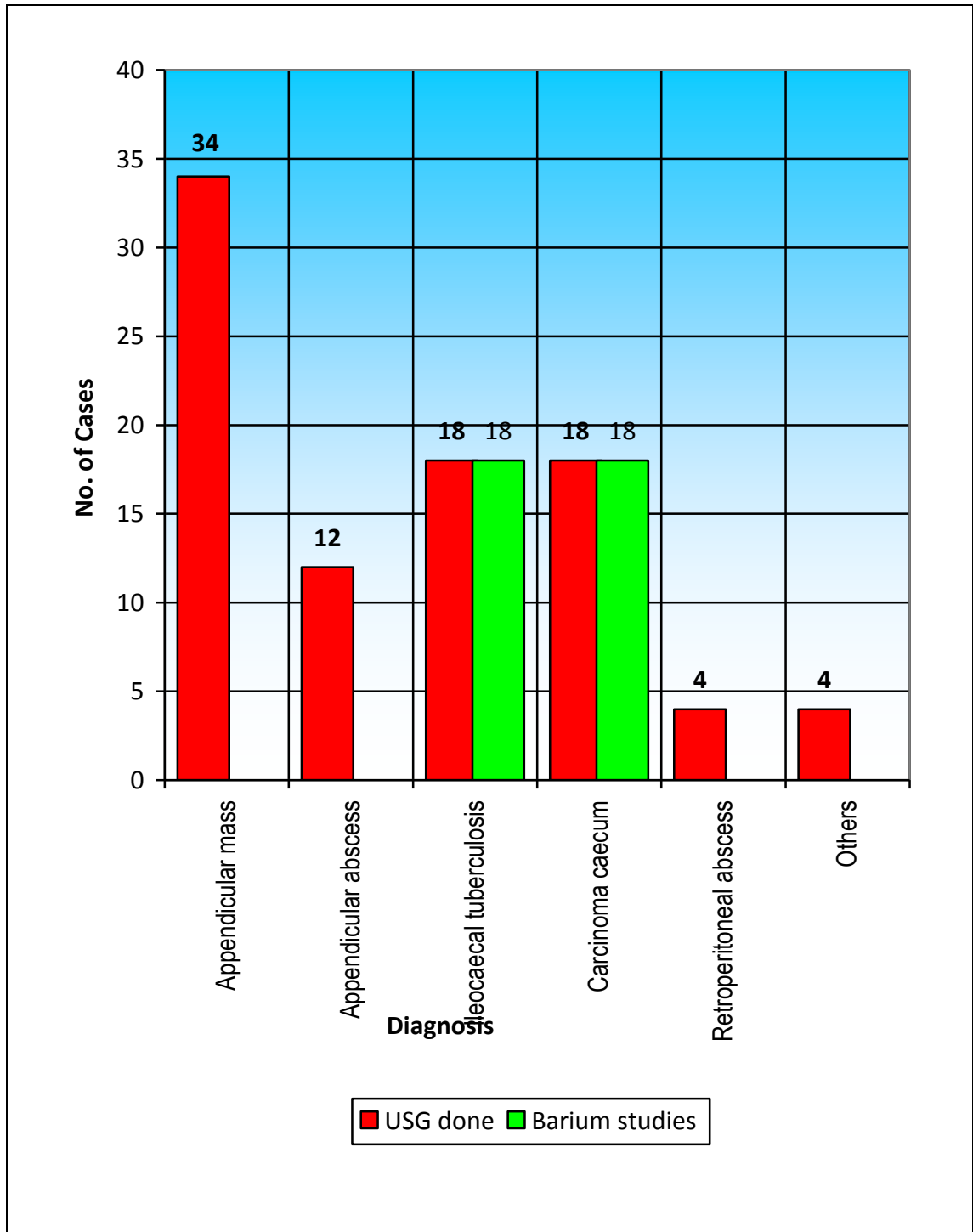
***Figure 16: Haemoglobin Percentage***



***Figure 17: Erythrocyte Sedimentation Rate***

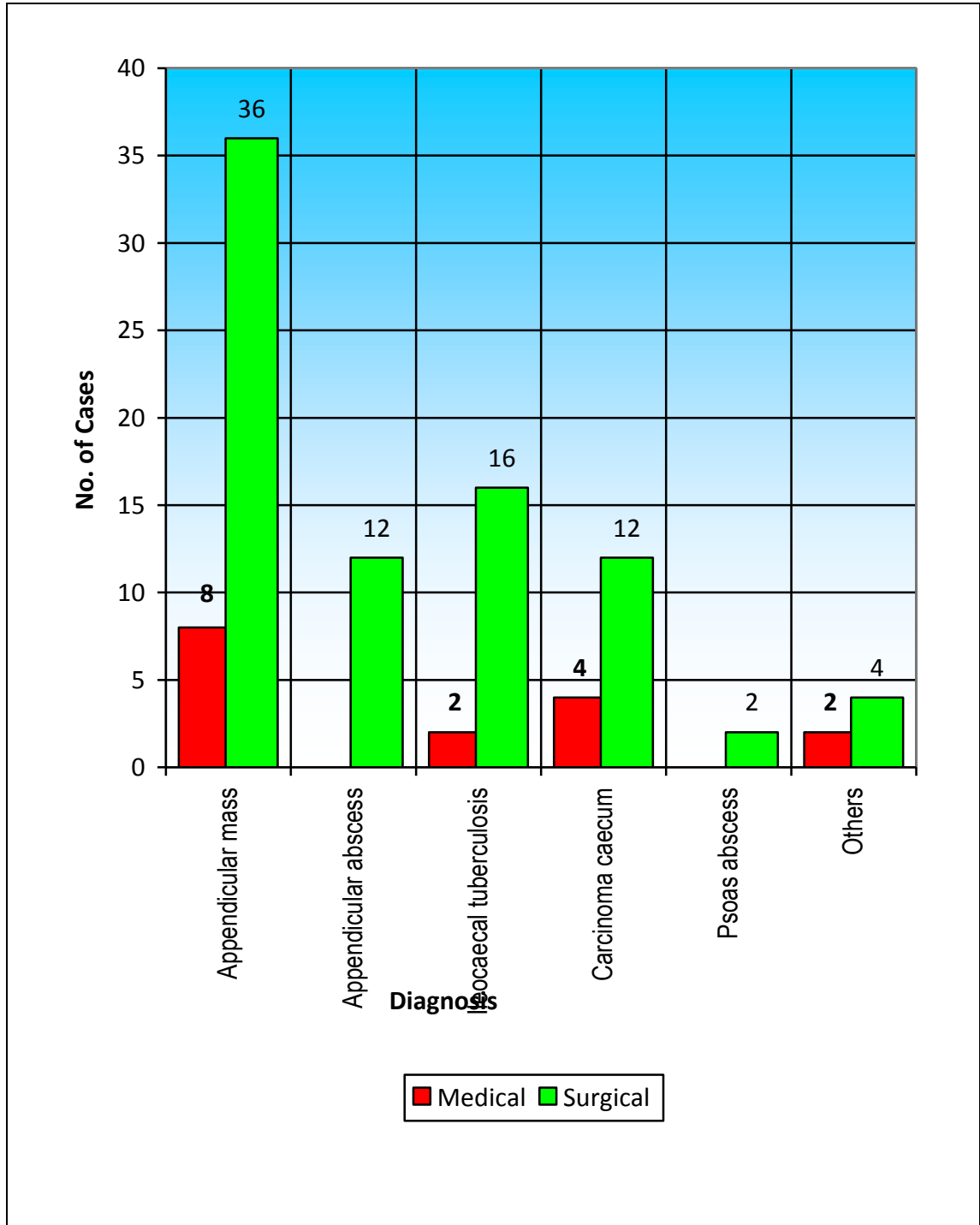


***Figure 18: Ultrasonography and Barium Studies***

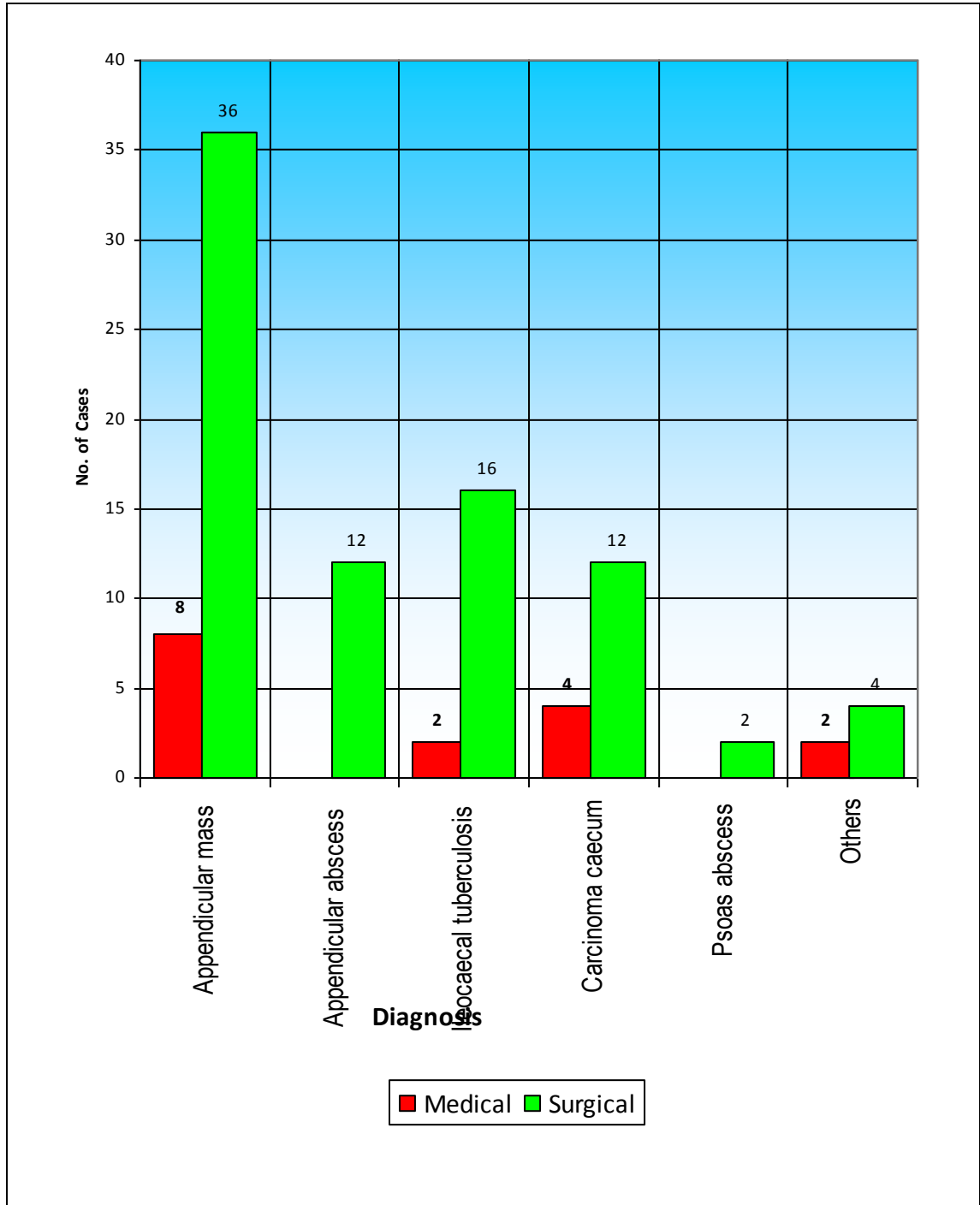




***Figure 19: Mode of Treatment***



***Figure 20: Various Types of Surgical Treatment***



**Figure 21: Complications and Follow-Up**

