Diseases of Peritoneum & Retroperitoneal Space

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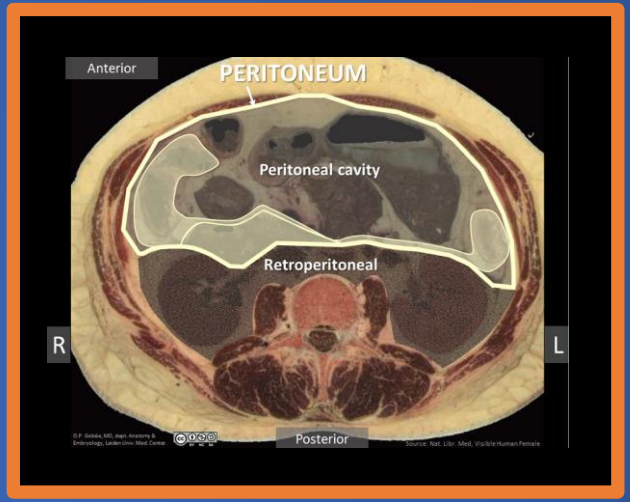
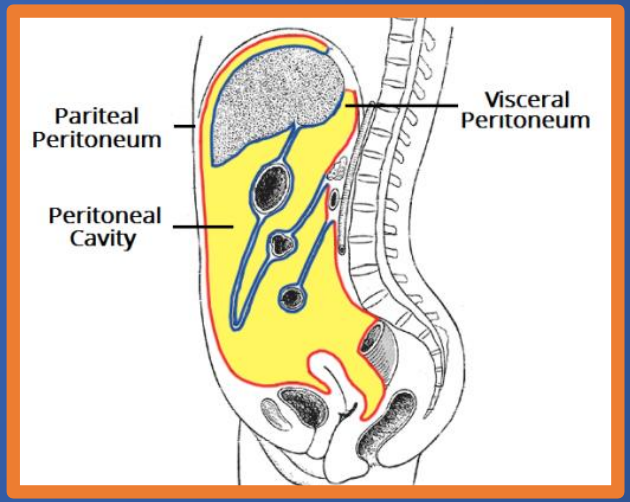


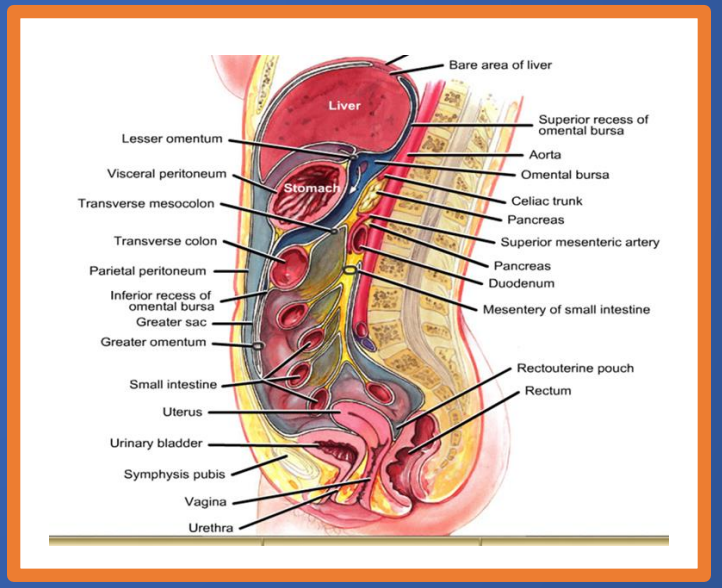


Objectives

- Brief Anatomy- peritoneum & retroperitoneum space
- Diseases: Aetiology, pathogenesis & clinical presentation
- Diagnostic workup
- Management

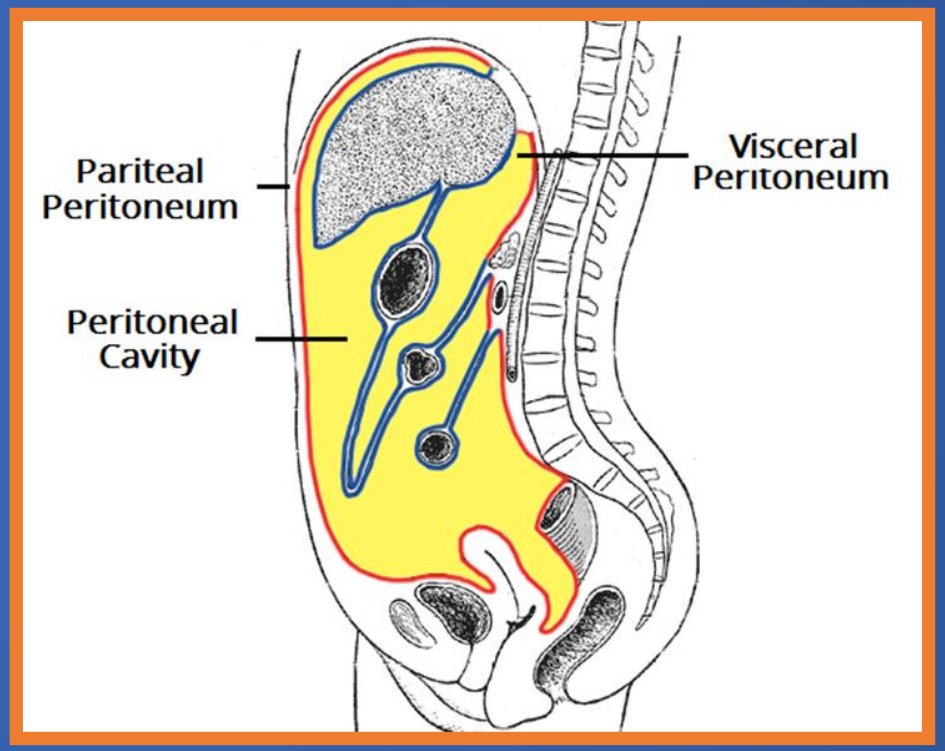
Surgical Anatomy

- The **peritoneum** forms the lining of the abdominal cavity & viscera
- Single layer **mesothelial cells** on a layer of fibroepithelial tissue.
- Few ml of pale yellow **fluid lubricates** peritoneal surface.
- **Visceral & parietal peritoneum**
- **Greater & lessor sac.**



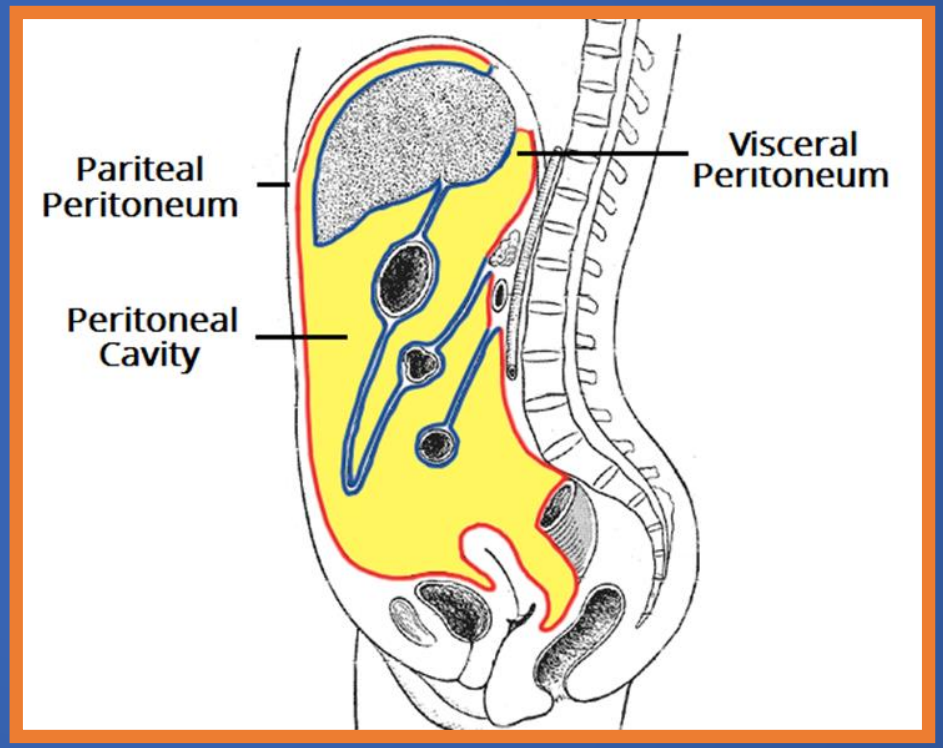
Surgical Anatomy

- **<u>Visceral peritoneum</u>**:
  - Poor nerve supply (ANS)
  - Irritation & inflammation:
    - Pain poorly localized
    - Dull & felt in midline



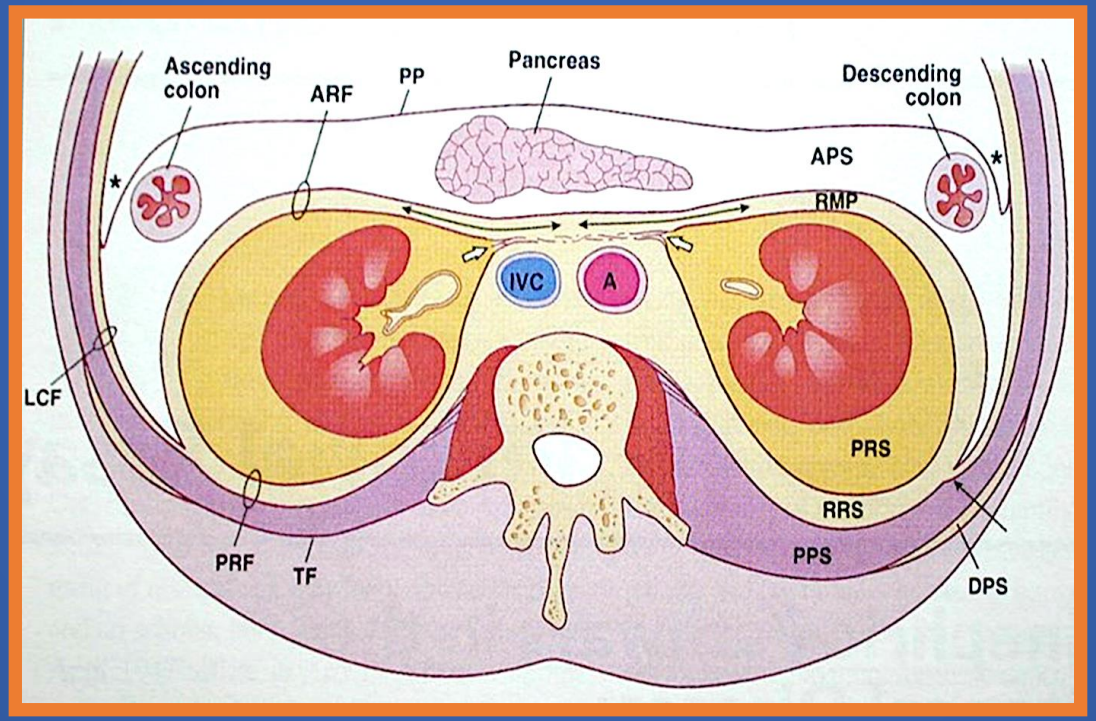
Surgical Anatomy

- **<u>Parietal peritoneum</u>:**
  - Somatic nerve
  - Irritation & inflammation:
    - Accurately localized
    - Sharp



Surgical Anatomy

- Retroperitoneal space



Diseases of the Peritoneum

- **Peritonitis**
  - **Acute vs chronic**
  - **TYPES:**
    - Primary (uncommon)
    - Secondary peritonitis:
      - Generalized vs Localized
      - Polymicrobial
      - Common organisms: E coli, Streptococci, Bacteroides, Klebsiela, staphylococcus
      - Uncommon organisms: Chlamydia, Pneumococcus, Mycobacterium tuberculosis

Diseases of the Peritoneum

- **Peritonitis**
  - **Routes of infection**
    - **GI perforation**: **most common**
    - **Exogenous:** Drains, trauma
    - **Transmural:** Ischemic bowel, **fallopian tubes** (PID)
    - **Haematogenous:** Rare ? Primary peritonitis

Diseases of the Peritoneum

- **Peritonitis**
  - **Aetiology:**
    - **Bacterial** infection:
      - Acute: Perforated bowel, appendicitis
      - Chronic: Tuberculosis
    - **Chemical** peritonitis: Bile peritonitis, Acute pancreatitis
    - **Ischemic** injury: Bowel strangulation, vascular occlusion
    - **Trauma:** Surgery
    - **Allergic**: Starch peritonitis from gloves

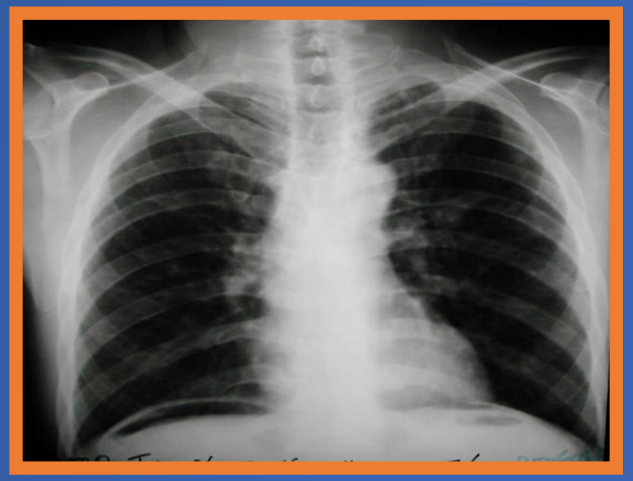
Generalized Peritonitis

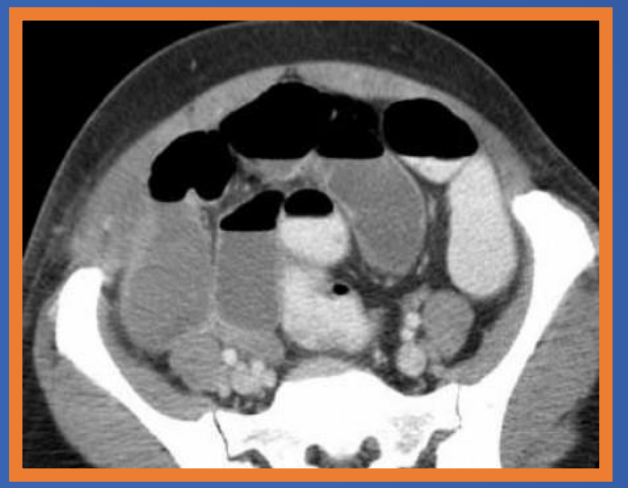
- **Pathogenesis**
  - Free bowel perforation (commonest cause)
  - Inflammation leads to **exudation & transudation**
  - Exudates **inhibits** peristalsis & **glues** greater omentum
  - Fibrinous adhesion **prevents** spread
  - Fluid **accumulates** in lumen & peritoneum
  - Intravascular **hypovolaemia**

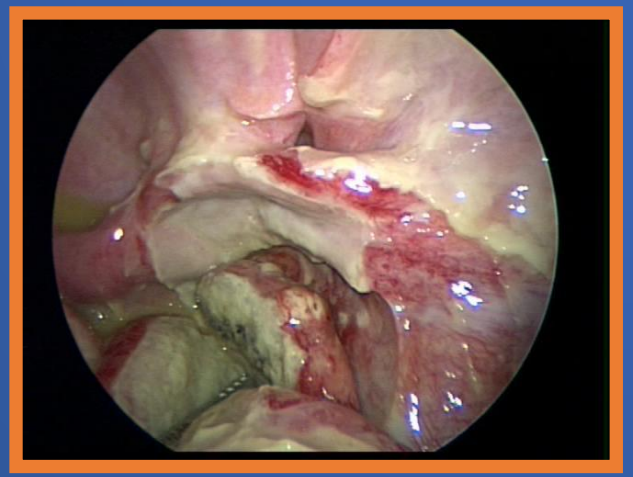
Generalized Peritonitis

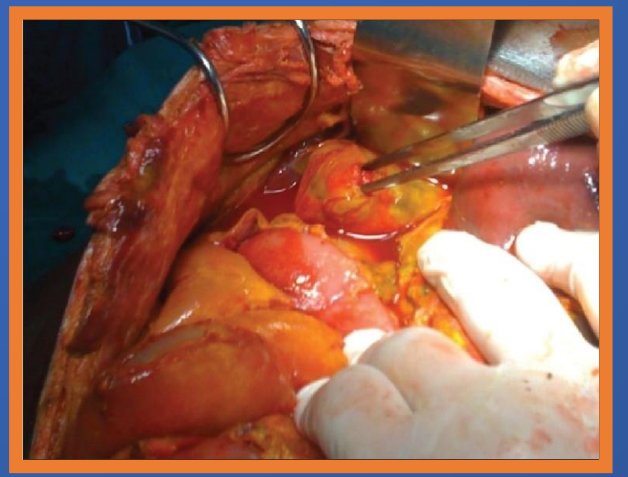
- **Clinical features**
  - Abdominal **pain:** localized initially, spreading to **whole abdomen,**
  - Aggravated with movement
  - **Fever, tachycardia**
  - Restricted abdominal wall movement,
  - **Generalized tenderness**, **guarding, rigidity, rebound tenderness** - (peritonism)
  - **Absent bowel sounds**
  - **Late cases**: Septic shock, silent abdomen, increasing distension, anxious face

Generalized Peritonitis









Generalized Peritonitis

- **Investigations**:
  - Labs: CBC, u/e, amylase,
  - Imaging: upright CXR, AXR, U/S , CT scan, peritoneal aspiration
- **Treatment**:
  - NPO, IV fluid- correct fluid & electrolyte imbalance
  - NG tube: Aspiration & drainage
  - Broad spectrum antibiotics
  - Analgesia
  - Operative management: Excision, repair, lavage & drainage

Localized Peritonitis

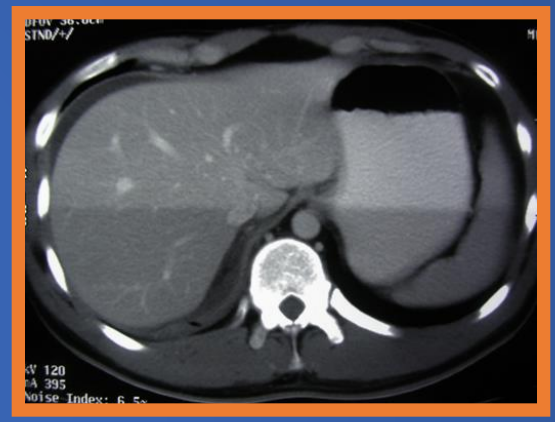
- **Factors for localization:**
  - **Pathological** factors: Inflammatory, adhesions, slow progress
  - **Anatomical** divisions: Subphrenic, peritoneal cavity proper (supracolic, infracolic), pelvic
- **Common sites:**
  - **Primary site:** iliac fossa (appendicitis, diverticulitis)
  - **Pelvic**
  - **Other intraperitoneal:** subphrenic, subhepatic, inter-loop

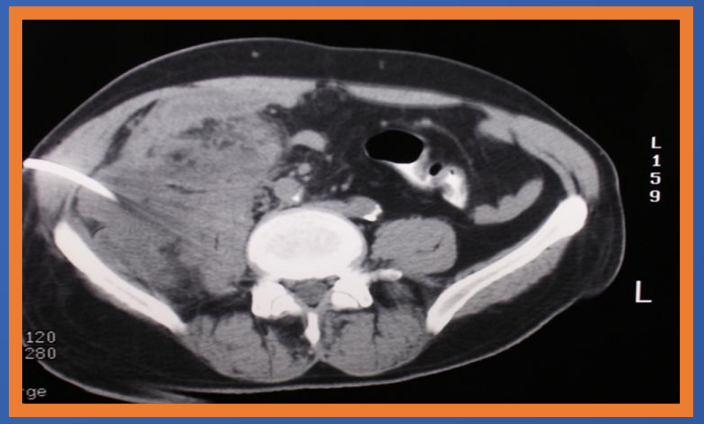
Localized Peritonitis

- **Clinical features:**
  - Pain in the area of the involved organ.
  - Fever, tachycardia
  - Guarding, rigidity & rebound tenderness overlying the involved area.
  - Rest of the abdomen non-tender.
  - Special features:
    - Shoulder tip pain (Subphrenic),
    - Both iliac fossa tenderness (Suprapubic)
    - Mucoid diarrhea, tenesmus (Pelvic abscess)
  - Pelvic abscess: DRE, anterior pelvic tenderness and fullness

Localized Peritonitis

- **Investigations**:
  - Labs: CBC, u/e
  - Imaging:, AXR, Ultrasound, **CT scan**-most helpful
- **Treatment**:
  - NPO, IV fluid,
  - **Antibiotics**- polymicrobial cover.
  - **Percutaneous/ open surgical drainage**
    - if no resolution or abscess formation



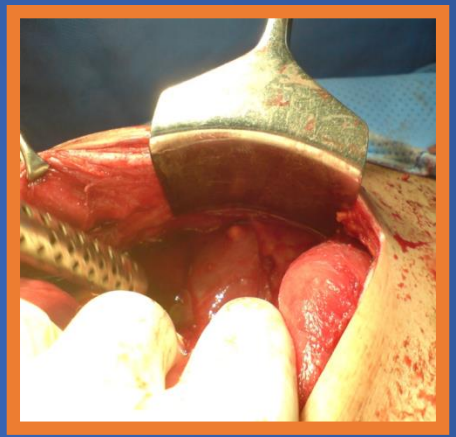


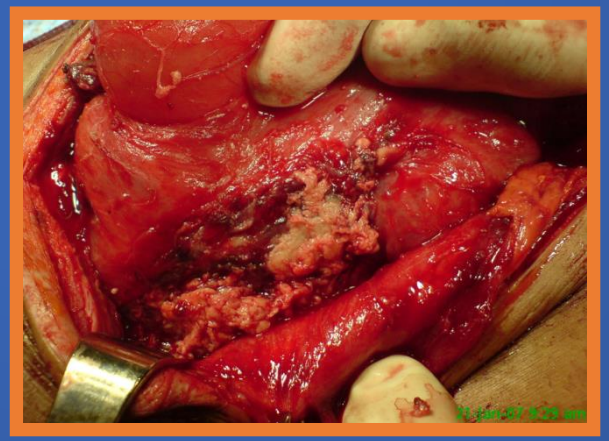
Tuberculous Peritonitis

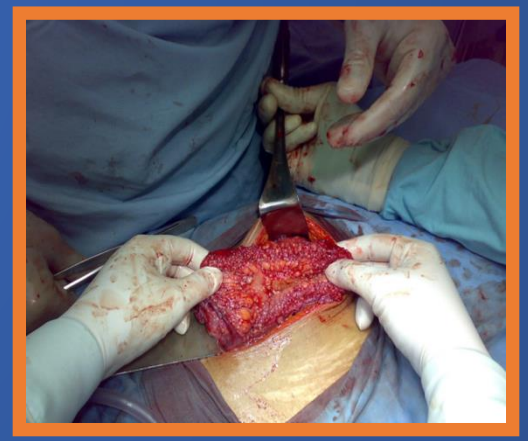
- Uncommon, **seen where tuberculosis** still occurs
- **Infection originates from**-
  - Lymph nodes, ileo-caecal, pyosalpinx, haematogenous
- **Abdominal pain** (90%), **fever & loss of wt.** (60%), **ascites** (60%), **night sweats, abdominal mass**

Tuberculous Peritonitis

- **Diagnosis**:
  - Tuberculin test,
  - Mycobacterium in ascitic fluid,
  - **Biopsy-** tubercle /caseating area (laparoscopy)
- **Treatment:**
  - Anti-tuberculous therapy
  - **Surgery:** Diagnosis/**complications**

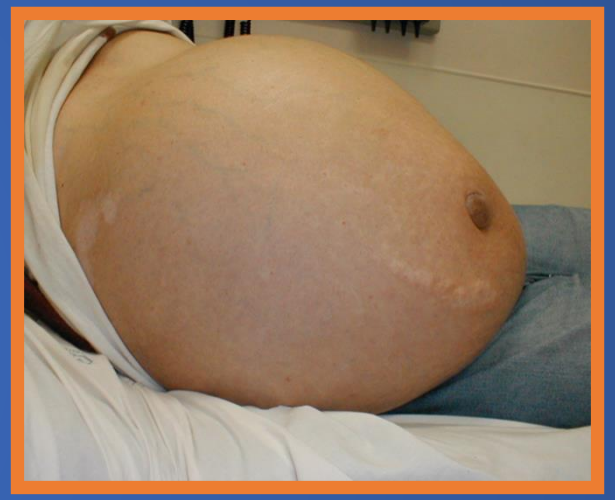






Primary Peritonitis

- (**Spontaneous Bacterial Peritonitis**)
- Acute bacterial infection of ascitic fluid
- **No source of infection is easily identifiable**
- Affects children & adults
- Fever, Abdominal pain, tenderness, Leukocytosis
- **Risk group**:
  - Cirrhosis (70% child class C), CCF, Budd-Chiari syndrome



Primary Peritonitis

- **Organisms:**
  - Monomicrobial- 92%,
  - E coli (50%), Streptococci (19%)
- **Diagnosis:**
  - Paracentesis of ascitic fluid:
  - Polymorphonuclear > 250 per mm^3 or a positive ascites culture.
- **Treatment:**
  - 5- to 10-day of cefotaxime or amoxicillin & clavulanic acid.

Complications of Peritonitis

- **Systemic:**
  - Septic shock, pneumonia, respiratory failure, multi-system failure
- **Local**:
  - Adhesions, paralytic ileus, abscess formation (residual or recurrent), portal pyaemia, liver abscess

Torsion of Greater Omentum

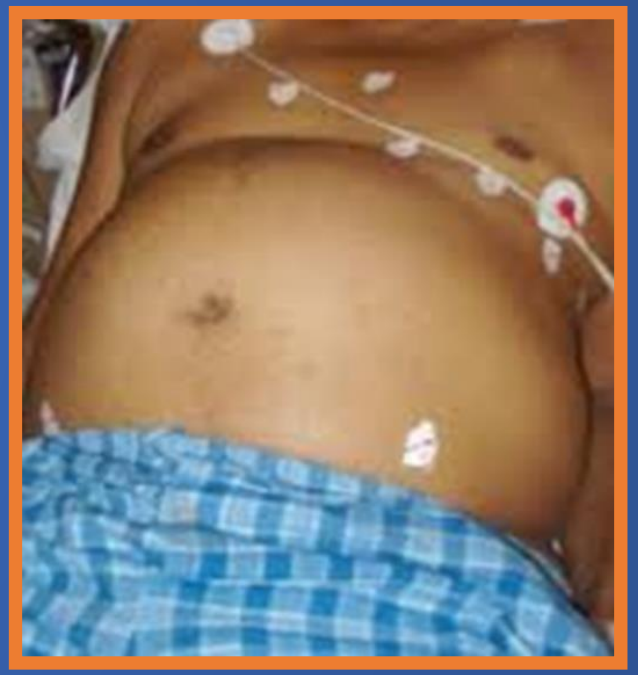
- **Rare**, as acute abdomen
- Primary or secondary to adhesion
- Occasionally tender abdominal mass
- Rarely diagnosed correctly: CT
- Surgical resection

Mesenteric Cysts

- **Rare**
- **Chylolymphatic:** sequestrated lymphatics
- **Enterogenous: Intestinal duplication, has all intestinal layers**
- **Urogenital:** remnant cyst of Wolffian duct

Ascites

- Collection of excessive, free intraperitoneal fluid
- Fluid movement: hydrostatic/ colloid pressure balance
- **Clinical assessment:**
  - Fluid thrill (large)
  - Shifting dullness (small)
- **Causes**:
  - Transudates (Protein <25/L)- low pp, CCF, PH
  - Exudates: TB, peritoneal malignancy, chylous, pancreatic ascites

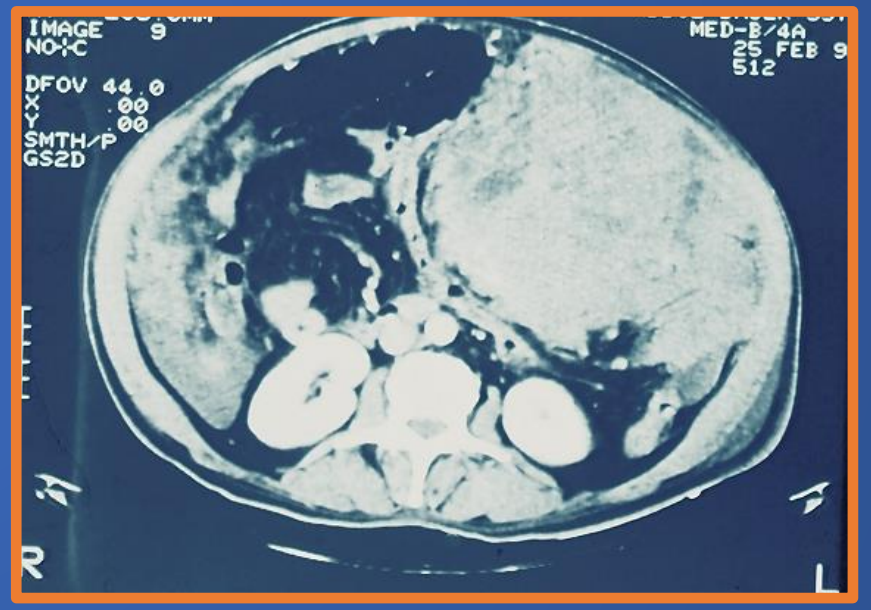


Ascites

- **Diff. diagnosis:**
  - Int. obst., large ovarian cyst/abd. mass, advance pregnancy
- **Investigations**:
  - underlying cause, US, CT
- **TREATMENT:**
  - Underlying cause, low Na diet, diuretics, paracentesis, peritoneo-venous shunt (LeVeen)

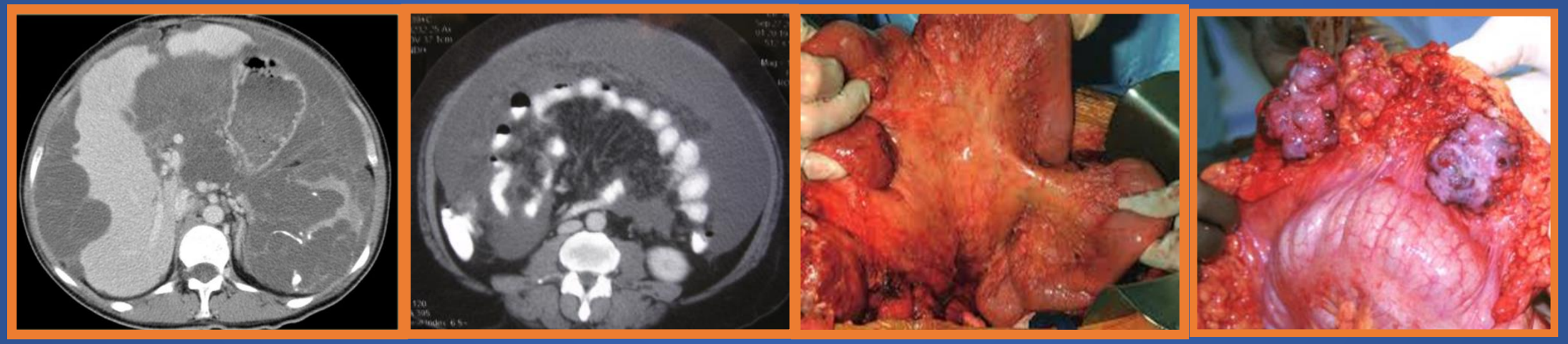
Neoplasms of Peritoneum

- **Primary:**
  - **Mesothelioma**
    - **Rare**
    - Exposure to **asbestos**
    - Poor prognosis
    - **Abdominal pain , wt. loss. mass**
    - US, CT
    - Debulking surgery ,
    - Chemo/ radiotherapy



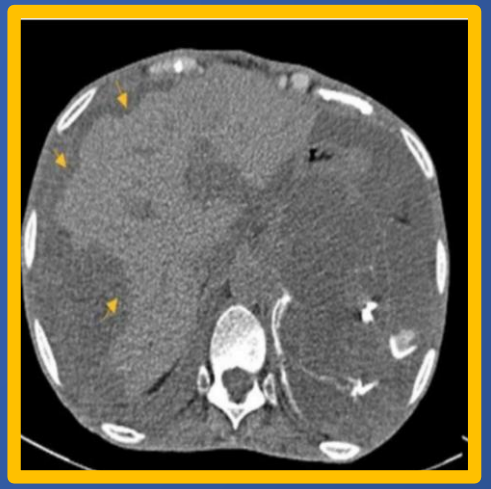
Neoplasms of Peritoneum

- **Secondary:**
  - **Carcinomatosis peritonei:** Terminal event, studded with secondary growth, ascites (straw, blood stained).

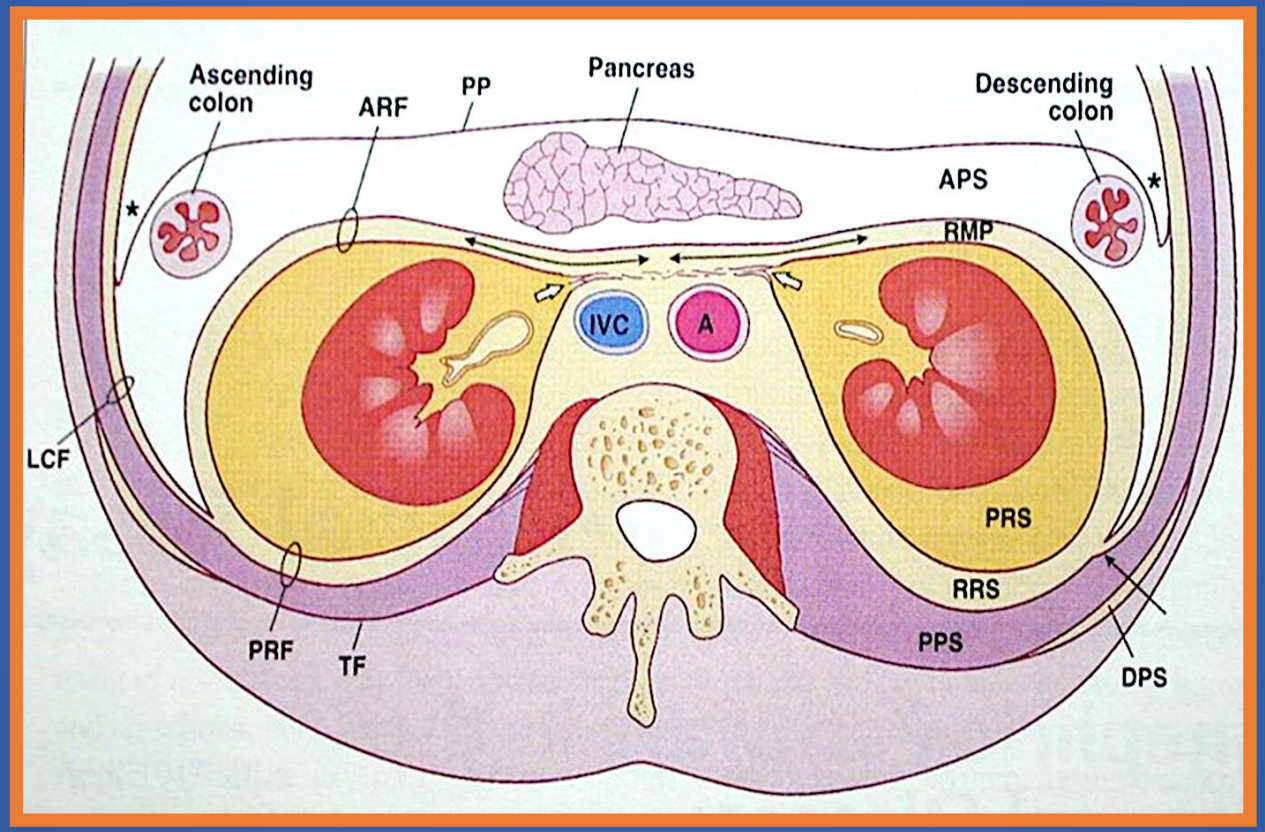


Neoplasms of Peritoneum

- **Secondary:**
  - **Pseudomyxoma peritonei:**
    - Rare, commoner in female due to ruptured mucinous cystadenocarcinoma **(appendiceal origin in most cases)**.
    - Abdominal distended due to yellow jelly like fluid.
    - U/S, CT- scalloped indentation help diagnosis.
    - **Treatment**: Excision of primary, debulking, chemotherapy.
    - Recur over months to years



Retroperitoneal Space



Retroperitoneal Infections

- **Aetiology**:
  - Extension of intraperitoneal infections- appendicitis, perforated DU, diverticulitis.
- **Presentation**:
  - Tachycardia, pain , fever, malaise, Palpable mass (sometime)
- **CT scan** – modality of choice
- **Management**:
  - Antibiotics, treatment of primary infection,
  - CT guided drainage for unilocular abscess,
  - Surgical drainage for multilocular abscesses.

Retroperitoneal fibrosis

- **Proliferation of fibrosis in retroperitoneum**.
- **<u>Aetiology</u>:**
  - **Idiopathic** (Ormond's disease), **autoimmune,** Hodgkin's, carcinoid, methysergide.
- Common in **men, 4-6th decade**.
- Fibrosis involves- **ureter, IVC, aorta, mesenteric vessels**.

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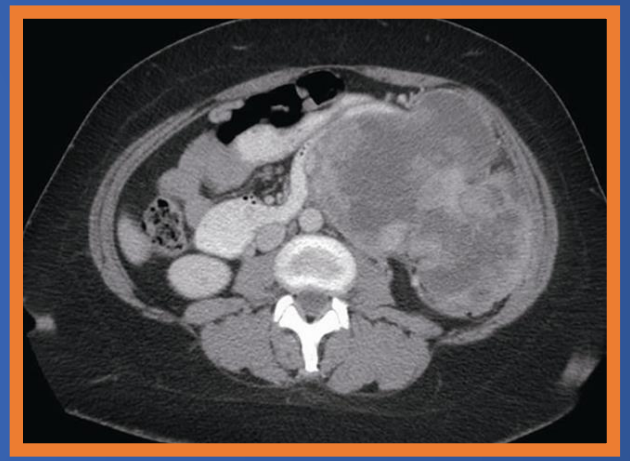
- Common in **men, 4-6th decade**.
- Fibrosis involves- **ureter, IVC, aorta, mesenteric vessels**.
- **<u>Presenting symptoms</u>: (**depends upon organs involved)
  - Poorly localized **abdominal pain**, sudden sever pain, unilateral **leg swelling**, **oliguria**, dysuria, haematuria.

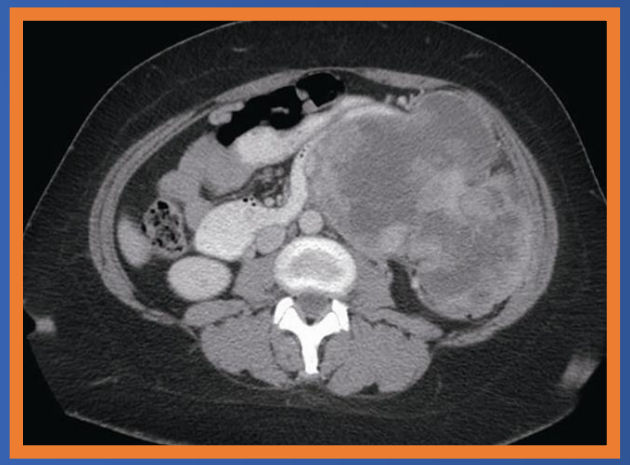
Retroperitoneal Malignancies

- **Primary :**
- **<u>Retroperitoneal Sarcoma</u>-**
  - Most common
  - 15% of soft tissue sarcomas in retroperitoneum
  - **Asymptomatic abdominal mass**
    - (Often- **considerable size)**.
  - **Abdominal pain (50%)**
  - Uncommon symptoms- GI bleeding, early satiety, nausea, vomiting, wt. loss, lower limb swelling



Retroperitoneal Malignancies

- **Primary :**
- **<u>Retroperitoneal Sarcoma-</u>**
  - **CT , MRI**
  - Lymph node metastases- (rare)
  - **Treatment:**
    - Complete **en bloc resection** of the tumor & involved adjacent organs.



Retroperitoneal Malignancies

- **Secondary:**
  - Kidney,
  - Adrenal,
  - Colon,
  - Pancreas,
  - lymphoma,
  - Metastases from a remote primary malignancy

Thanks