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A COMPREHENSIVE REVIEW OF INTRA-ABDOMINAL ABSCESS. AN EVIDENCE BASED MANAGEMENT.

Surgery

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Anatomy of Peritoneal Cavity: Abscess occupies one of the following four sites namely

1. Sub-phrenic space
2. Right and Left Paracolic space
3. Right Iliac fossa
4. Pelvic space

Clinical Features of an abdominal abscess:

Symptoms:

1. Malaise, Headache, Lethargy, Lassitude, Failure to thrive
2. Anorexia and Weight loss
3. Sweating and rigors
4. Abdominal or Pelvic Pain
5. Symptoms of local irritation characterised by

· Shoulder tip pain or hiccoughs for subphrenic abscess
· Diarrhoea or mucus stool for pelvic abscess
· Nausea and vomiting for any upper abdominal pus

Signs:

1. Swinging pyrexia which may be low grade
2. Localised Tenderness
3. Palpable mass

Pelvic Abscess: Most commonly abscess collects in Recto-vaginal pouch of Douglas or Recto-vesicle pouch.

Causes of Pelvic Abscess:

1. Appendicitis
2. Pelvic infection
3. Anastomotic Leakage from colorectal surgery
4. Any cause of diffuse peritonitis

·**Clinical Presentation:**

1. Diarrhoea with passage of mucus in stool with pelvic pain
2. Increased frequency and burning Micturition
3. On digital Rectal Examination, bulging anterior wall of rectum and later the abscess is felt as a soft, cystic, boggy, tender mass.

Investigations:

1. Routine Blood Examination: TLC increased
2. USG Pelvis: Diagnostic. Pus in Recto-vesical pouch or Recto-vaginal Pouch.
3. CT Pelvis: To find out size and extent.

Treatment:

1. Spontaneous rupture through rectum
2. Drainage through boggy area in the ant wall of rectum or through posterior colpotomy.
3. Percutaneous or Per-vaginal or Per-rectal Drainage tube insertion under USG or CT guidance.
4. Laparotomy almost never needed.

Sub-phrenic Abscess:

Spaces below diaphragm and in relation to liver consisting of 7 spaces of which 4 are intraperitoneal and 3 are extraperitoneal. These with their boundaries and common causes for abscess are as following:

Relation with Peritoneum	Name of Space	Boundary	Aetiology of abscess
INTRAPERITONEAL	Right Sub-phrenic Space	Anterior: Ant abdominal wall and right dome of diaphragm; posterior: ant surface of liver; superior: anterior layer of rt coronary ligament and rt triangular ligament; inferior: continuous with hepato-renal pouch of Morrison; left: Falciform ligament.	Perforating cholecystitis Perforation duodenal ulcer Duodenal stump blowout following gastrectomy/appendicitis.
	Left Sub-Phrenic Space	Anterior: ant abdominal wall and diaphragm Posterior: Lt triangular ligament, ant surface of left lobe of liver, Gastro-hepatic omentum, anterior surface of stomach; Superior: Diaphragm, left triangular Ligament; Inferior: communicating with rest of supracolic compartment; left: spleen, gastro-splenic ligament, diaphragm; right: falciform ligament.	Following operation of stomach, tail of pancreas, splenic flexure of colon, spleen.
	Left Sub-hepatic space (Omental bursa or Lesser sac)	Closed on all side except at Epiploic Foramen through which communicates with Hepato-Renal pouch of Morrison.	Complicated acute Pancreatitis Perforated posterior wall Gastric Ulcer.

	Right Sub-hepatic space (Hepato-Renal pouch of Morrison)	Anterior: Inf surface of right lobe liver and gall bladder; Posterior: Ant surface of right kidney with right suprarenal, 2nd part of duodenum, Hepatic flexure of colon, Transverse colon, Part of head of pancreas; Above: Inf layer of coronary Ligament; Below: opens into general peritoneal cavity; Left: Communicating with Lesser Sac by Epiploic Foramen; Right: Communicating with right sub-phrenic space around free margin of right triangular ligament.	Appendicitis Perforated 2nd part of duodenum Perforated Cholecystitis Upper abdominal surgery. *Most dependant part of abdomen and most common space for sub-phrenic abscess.
EXTRAPE RITONEAL	Right Extraperitoneal Space	Around right Suprarenal and upper pole of right kidney	TB Trauma Hematoma
	Left Extraperitoneal Space	Around left Suprarenal and upper pole of Left kidney	TB Trauma Hematoma
	Midline Extraperitoneal Space	Above and below: Superior and inferior layer of coronary ligament; Right: right triangular ligament; Left: IVC. Lies between bare area of liver and diaphragm.	Amoebic Hepatitis Pyogenic Hepatitis

Pathogenesis:

1 During expiration Intra-abdominal Pressure decreases which along with movement of diaphragm and capillary action makes peritoneal fluid to go upward towards diaphragm. This accounts for Sub-phrenic abscess to be common.

2. More common on Right side because

- nfectious conditions are more common
- Width and depth of right paracolic gutter more and without any barrier.

3. Congestion and hyperaemia of pleura with elevation of diaphragm there will be sympathetic pleural effusion on the side of abscess. If sub-phrenic abscess is severe acute then empyema thoracis can occur.

4. Aetiological agents:

- E. coli
- Klebsiella
- Streptococci
- Anaerobic organisms

· Clinical Presentation of Sub-Phrenic Abscess:

1. Symptoms:

- Infective focus in abdomen after which patient relieves temporarily again to appear toxaemic following few days.
- Sweating, wasting, anorexia
- Epigastric fullness and pain
- Pain in shoulder of affected side
- Persistent hiccoughs
- Tachypnoea
- Respiratory distress
- 2.Signs:
- Swinging pyrexia and tachycardia
- Abdominal exam shows tenderness, rigidity, even palpable swelling
- For right sub-phrenic abscess liver is displaced downwards
- Atelectasis or basal effusion on examination of chest
- Tenderness at 11th intercostal space for right sub-phrenic abscess
- Hoover's sign: Scoliosis towards same side of sub-phrenic abscess.

·**Investigations:**

1. Routine blood examination: TLC increased
2. Plain Chest X-ray: Collapse of lung, Basal effusion, tented diaphragm
3. Fluoroscopy: Elevated diaphragm with reduced movement
4. USG/CT scan of abdomen: Investigation of choice
5. Radio-labelled white cell scanning.

·**Treatment:**

1. Drainage of abscess:

- USG/CT guided Drainage: Treatment of Choice.
- Open Drainage:
- Swelling at sub-costal region: Extraperitoneal drainage.
- No swelling: Exploration of sub-phrenic space. This is done by ant subcostal approach or from posteriorly by removing outer part of second rib.

2. Appropriate Antibiotic
3. Monitoring:

- Blood tests at regular interval
- Making out limits on ant abdominal wall if palpable
- Repeat USG or CT scan abdomen.