



# NOTES

## PERITONEAL PATHOLOGY

### GENERALLY, WHAT IS IT?

#### **PATHOLOGY & CAUSES**

- Conditions affecting peritoneal cavity (e.g. serosal membrane inflammation, gas)

#### **CAUSES**

##### **Peritonitis**

- Spontaneous bacterial peritonitis
- Leakage of **gastrointestinal (GI) contents**
- Presence of foreign material
  - Bile, blood, contrast material
- Endometriosis
- Peritoneal dialysis

##### **Pneumoperitoneum**

- Perforation of anterior duodenal ulcer
- Iatrogenic
- Increased intrathoracic pressure

#### **SIGNS & SYMPTOMS**

##### **Peritonitis**

- Fever, chills, tachycardia**
- Ascites**, abdominal distention, abdominal rigidity, spider angiomas, jaundice
- Anorexia, nausea, vomiting, diarrhea
- Encephalopathy; delirium, confusion, cognitive decline
- Absent bowel sounds, ileus

##### **Pneumoperitoneum**

- Abdominal pain, rigidity**
- Absent bowel sounds, ileus

#### **DIAGNOSIS**

##### **DIAGNOSTIC IMAGING**

###### **X-ray**

- Peritonitis
  - Supine, upright abdominal films
- Pneumoperitoneum
  - Upright chest radiography
  - Subdiaphragmatic free gas; cupola sign
  - Rigler's sign, football sign
  - Lateral decubitus X-ray

###### **CT scan**

- Pneumoperitoneum
  - Small quantities of air

##### **LAB RESULTS**

###### **Paracentesis**

- Peritonitis
  - If ascites present

###### **Complete blood count (CBC)**

###### **Blood chemistry**

#### **TREATMENT**

##### **MEDICATIONS**

- Systemic antibiotics

##### **SURGERY**

- Exploratory laparotomy

# PERITONITIS

[osms.it/peritonitis](https://osms.it/peritonitis)

## PATHOLOGY & CAUSES

- Inflammation of serosal membrane lining abdominal cavity, organs (AKA peritoneum).
- Neutrophilic infiltration, formation of fibrinopurulent exudate

## CAUSES

- Spontaneous bacterial peritonitis
  - Bacterial migration from GI lumen; more common in people with ascites/cirrhosis
  - *E. coli*, *Klebsiella*, *Pseudomonas*, *Proteus*, Gram-negatives
- Leakage of GI contents; most common; perforated viscera
  - Proximal GI tract perforation → Gram-positive bacteria
  - Distal GI tract perforation → Gram-negative bacteria
- Foreign material
  - Bile, blood, contrast material
- Endometriosis
- Peritoneal dialysis

## SIGNS & SYMPTOMS

- Fever, chills, tachycardia
- Ascites, abdominal distention, abdominal rigidity, spider angiomas, jaundice
- Anorexia, nausea, vomiting, diarrhea → hypovolemia, renal failure
- Absent bowel sounds, ileus
- Early stages
  - Dull, poorly localized abdominal pain
- Late stages
  - Severe, localized abdominal pain; acute abdomen
- Encephalopathy; delirium, confusion, cognitive decline

## DIAGNOSIS

### DIAGNOSTIC IMAGING

#### Supine, upright abdominal films

- Subhepatic/subdiaphragmatic free air, abscesses in case of perforated viscus

### LAB RESULTS

- Leukocytosis, acidosis

#### Paracentesis

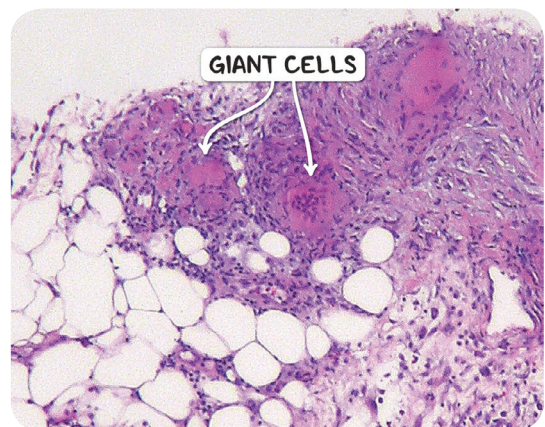
- If ascites present
- Serum ascites albumin gradient (SAAG)
  - $> 1.1$  in spontaneous bacterial peritonitis
- Neutrophil count  $> 250$  cells/microliter

## TREATMENT

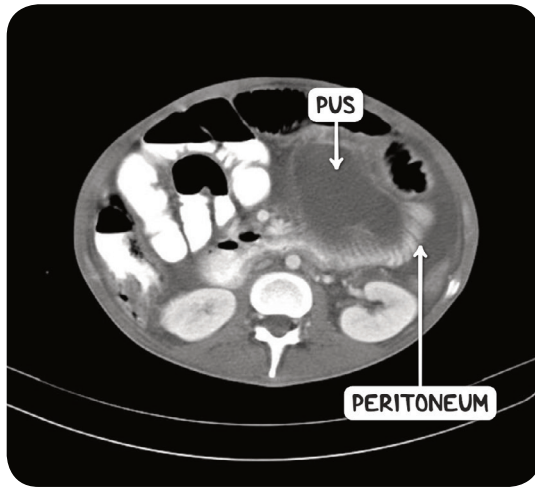
### MEDICATIONS

#### Systemic antibiotics

- Third generation cephalosporins/quinolones



**Figure 41.1** The histological appearance of tuberculous peritonitis, a rare kind of peritonitis. There are numerous epithelioid macrophages and giant cells infiltrating the peritoneal biopsy.



**Figure 41.2** An abdominal CT scan with oral contrast in the axial plane demonstrating severe peritonitis. There is diffuse peritoneal thickening and large amounts of radiodense fluid. On laparotomy this was discovered to be pus.

# PNEUMOPERITONEUM

[osms.it/pneumoperitoneum](https://osms.it/pneumoperitoneum)

## PATHOLOGY & CAUSES

- Abnormal collection of gas within peritoneal cavity.

### CAUSES

- Most common
  - Perforation of anterior duodenal ulcer secondary to peptic ulcer disease
- Iatrogenic
  - Abdominal surgery; resolves spontaneously
- Increased intrathoracic pressure (mechanical ventilation, chest compressions)

## SIGNS & SYMPTOMS

- Abdominal pain, rigidity
- Absent bowel sounds, ileus

## DIAGNOSIS

### DIAGNOSTIC IMAGING

#### CT scan

- Small quantities of air

#### Upright chest radiography

- Subdiaphragmatic free gas; Cupola sign (free intraperitoneal air, well-defined superior border formed by diaphragm)

#### Supine abdominal X-ray

- Rigler's sign (double wall sign): both sides of abdominal wall visible
- Football sign (massive pneumoperitoneum): ellipsoid shape of abdominal cavity outlined by gas

#### Lateral decubitus X-ray

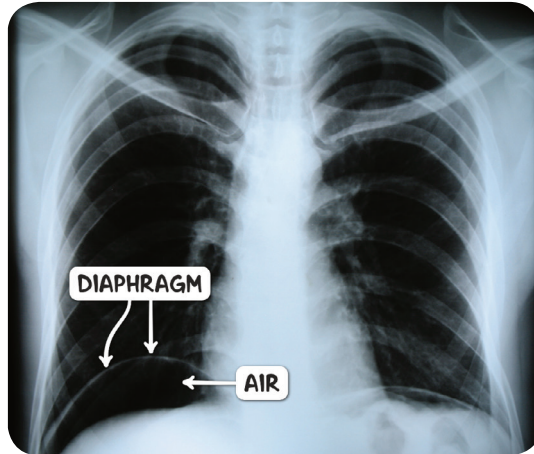
- Free gas between liver, abdominal wall

## TREATMENT

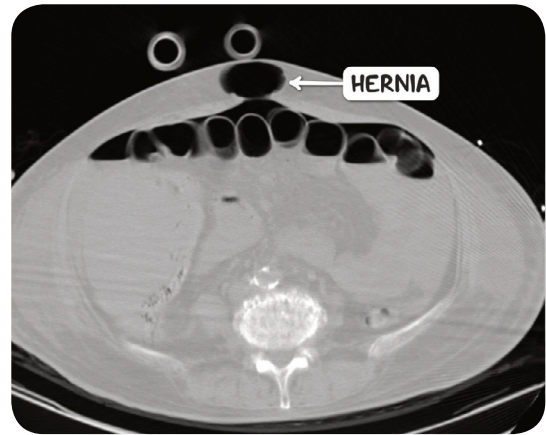
### SURGERY

#### Exploratory laparotomy

- Repair perforated viscus



**Figure 41.4** An erect chest radiograph demonstrating a sub-diaphragmatic air bubble, diagnostic of pneumoperitoneum.



**Figure 41.3** A CT scan in the axial plane demonstrating air in the peritoneal cavity. The air has also tracked along an umbilical hernia.