

Intra-abdominal sepsis Peritonitis

Outline

- Definition
- Types
- Risk factors
- Diagnosis
- Treatment

Definition

- Infection contained within the peritoneum or retroperitoneal space.
- Peritoneal cavity contains:
 - Stomach
 - Small bowel / part of duodenum
 - Large bowel
 - Liver, gallbladder and spleen
- Retroperitoneal space:
 - Duodenum
 - Pancreas
 - kidneys

Intra-abdominal infection

- Peritonitis
- Intra-abdominal abscess
- Appendicitis
- Diverticulitis
- Pelvic inflammatory disease

GIT Microflora

❖ Stomach:

- H-pylori
- Streptococci
- Lactobacilli

❖ small intestine:

☐ Aerobes:

- Streptococci and Staphylococci
- Lactobacilli, enterobacter
- E. coli, klebsiella

☐ Anaerobes:

- Bacteroids
- Clostridium

Colon:

Aerobes:

- Staphylococcus, streptococci
- Enterobacter
- E.coli, klebsiella

Anaerobes:

- Bacteroides
- Clostridium

Peritonitis

Inflammation of the serous lining of the peritoneal cavity.

Due to:

- Microorganisms
- Chemicals
- Foreign body

Peritonitis

Types:

- Primary (spontaneous bacterial peritonitis)
- Secondary
- Tertiary

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- Peritoneal membrane measures about 1.7 m².
 - 20 -50 ml transudate
 - Peritonitis is a life threatening condition if not treated properly

Primary peritonitis

Risk factors:

- Liver cirrhosis with ascites; 25% of patients with alcoholic cirrhosis.
- Chronic ambulatory peritoneal dialysis; 60% of patient will have at least one episode in the first year
- Abdominal catheters connecting to exterior body.

Primary peritonitis

- ❑ Usually monomicrobial
- ❑ Bacteria transported from blood stream to peritoneal cavity

- ❑ Common microorganism:
 - E.coli
 - Streptococci
 - Enterococci
 - Klebsiella
 - Staphylococci
 - Bacteroides
 - pseudomonas

Secondary peritonitis

- Secondary to the entry of bacteria or enzymes into the peritoneum from the gastrointestinal or biliary tract.

Caused by:

- Perforated DU
- Perforated appendix
- Perforated diverticulitis
- Usually polymicrobial

Tertiary peritonitis

- Peritonitis in a critically ill patients which persists or recures at least 48 hr after apparently adequate management of primary or secondary peritonitis.

Diagnosis

History:

- Abdominal pain
- Nausea/ vomiting, constipation

P/E:

- Fever, low B/P, RR, HR.
- Abdominal guarding/rigidity
- Hypoactive bowel sounds

Labs:

- leucocytosis

Investigation

Peritoneal fluid analysis:

- WBC < 300 CELLS/mm³
- Protein: <3g/dl

Bacterial peritonitis:

- 300 – 500 ml inflow/hr resulting in hypovolemia
- WBC > 300 Cells/mm³
- Gram stain and culture

Microbiology

- Peritoneal fluid analysis
- Nosocomial organisms usually associated with infections at health care centres.

Prognosis

- Bad if not treated.
- If treated, mortality Depends on the underlying cause.

Intra-abdominal abscess

- Result from chronic inflammation and often occur without generalized peritonitis.
- Contained within a fibrinous capsule
- Size is variable
- Located within peritoneal cavity or visceral organs
- Appendicitis is the most common cause

Intra-abdominal abscess

Microorganisms:

- E.Coli
- Klebsiella
- Enterococci
- Clostridium
- B. fragilis

Symptoms

- Less dramatic than generalized peritonitis
- Localised

If ruptured:

- Spread of bacteria and toxins >>> generalized peritonitis.
- Spreading of bacteria and toxins into systemic circulation >>> sepsis

Treatment of intra-abdominal infection

- Resuscitation:
- Surgical:
- Abscess: depends on the size (surgical or IR).
- Repair of perforated DU.
- Resection of perforated colon
- Appendicectomy

Antimicrobial:

- Empiric antibiotic must cover aerobic and anaerobic coverage:
- Piperacillin/tazobactam
- Ampicillin/sulbactam
- Meropenem
- Metronidazole (anaerobic only).

Aerobic activity:

- Aminoglycoside
 - Gentamycin, tobramycin (g -ve only)
- B – Lactams
 - Cefotaxime and ceftriaxone
- Quinolones
 - Ciprofloxacin ; mostly gram negative.
 - Levofloxacin (+/- and anaerobic coverage)
- Vancomycin/ linezolid: MRSA/ Enterococci

Antibiotic therapy

Antibiotic selection:

- Suspected organism and severity of infection. Toxicity and allergy.
- Failure to improve:
 - Resistant organisms
 - Recurrent surgical infection
 - Other infections : UTI, pneumonia.