

Surgical Infection

Surgical infection – host defense barrier, resident microbial flora, exotoxins

Infection :

presence of organisms in a normally sterile site, usually but not necessarily accompanied by an inflammatory host response. Before antibiotics are given, appropriate specimens of pus, wound swabs, blood cultures, sputum and urine should be sent rapidly to microbiology lab.

Wound infection

- Def : implantation of potentially infective inoculum under conditions that allow the organism to evade or overcome host defences
- “contamination” – denotes the passive presence of a relatively small number of various species of bacteria
- Open wound invariably contaminated with organisms – endogenously from patient’s skin or exogenously from an external source such as the soil or air or the hand of an attendant .
- Later replicates in the wound, bacterial invasion and toxin production.
- If contamination is minimal, defences of the host cope completely.
- Contamination is severe when other adverse factors involved (extreme age, immunocompromised)

Predisposing factor that promote infection:

1. Contamination with potential pathogens
2. Foreign materials in the wound
3. Virulence
4. Delay in primary attention
5. Devitalized tissue
6. Edema, pressure, constriction
7. Impaired blood supply
8. Extravasation of tissue fluids and blood
9. Host factor lowering resistance ; extremes of age, debility, DM, cigarette smoking, alcoholism, steroids, severe obesity, malnutrition, remote infection

Host defence :

- Primary host defences – phagocytosis and intraleucocytic microbial systems
- Effective phagocytosis, good tissue perfusion and oxygenation are requirements for the optimal function
- All wounded tissue is less aerobic than normal tissue; impaired oxygenation persists for some days until healing is established
- Both wound and patient hypothermia rise and to impaired tissue perfusion and oxygenation, leads to delayed wound healing, increase infection rate, intra- and post-operative myocardial ischemia, coagulation disturbances and prolonged hospital stay

Symptoms and signs of infection:

- Cardinal sign – pain, erythema, warmth, edema and possibly serous or seropurulent exudate
- Patient’s temperature may rise and local tenderness with muscle guarding
- Pyogenic organisms provoke a PMN leukocytosis
- Increase ESR, plasma viscosity and CRP
- If infection is severe – bacteremia, septicemia – patient may quickly and insidiously develop septic shock
- When operation involves an unavoidable and significant microbial challenge to the tissue as in colonic surgery, it is standard practice to protect the patient by giving antimicrobial prophylaxis just before or at anaesthesia induction – only for short of time to prevent selection of resistant organisms and side effects

General management:

- Prompt and adequate surgical treatment should be given before the stage of bacterial contamination has led to proliferation and passed into that of active infection
- Ideally should be treated within 1 -2 hours of injury
- Include thorough cleansing of the wound and removal of all debris (surgical toilet) followed by the excision of all devitalized tissue (debridement)
- If primary surgical care is not given within 6 hours, infection must be presumed.