Surgery and Infections

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SURGERY AND INFECTION

A. INDIVIDUALITY.

- The single most important aspect of Surgical infections must be FOCUS on individual patient. All the knowledge and understandings from science and research has to be streamlined to benefit an individual patient. This attention along with alertness of infection includes age, health, risk factors like DM, Obesity, Cardiovascular, Respiratory, Circulatory, Coagulation, Autoimmune, Hypoalbulinemia, Malnutrition and other systemic, general, regional or local abnormalities.
- Surgical Immunology causing anergy or poor response to major Surgery and/or Trauma must also be a consideration.

B. SURGICAL ANATOMY

- Awareness that anatomy of Surgical field plays a role in Surgical infections is vital.
- Areas like perineum, axilla, other hairy parts have more predisposition to infections.
- Intraabdominal contents like colon, dependent parts like pelvis, paracolic gutters, subdiaghragmatic, subhepatic, prevesical and other spaces predispose to infective collection and abscess.
- Redundancy of infected organs like Gallbladder, appendix, Diverticuli of colon carry a high risk of infection, with or without adhesions.
- Vascular anatomical variations and anomalies also impact Surgical infections

C. LOGISTICS

1. Duration of Pathology occult vs. overt
2. Detection of infection, early vs. late.
3. Surgical intervention, emergency vs. elective.
4. Exposure to infection, community, preop, nosocomial, intraoperative, postoperative.
5. Contamination, antibiotics MUST be in tissues at the time of contamination.
6. Asepsis vs. contamination.
7. Colon is the largest repository of bacteria in human body.
8. G.I. tract, infection confined to lumen and wall vs. penetration and perforation.
9. Peritonitis, local vs. regional vs. generalized.

D. SURGICAL PATHOLOGY

This bears a direct correlation to all degrees of Surgical infections.

1. Edema, static vs. progressive, infectious vs inflammatory

2. Hematoma, organizing vs. expanding vs. evaluable vs. drainable

Free Hemoglobin enhances the virulence and proliferation of microbes

3. Capillary ooze, settling vs. draining vs. packed with use of FB.

4. Transudate vs. exudate around Surgical field.

5. Tissue damage & necrosis from disease, cautery, pressure, manipulation, etc.

6. Vascular compromise; arterial ischemia, vascular congestion & engorgement, venous insufficiency, pressure, manipulation.

D. SURGICAL PATHOLOGY

7. PERFORATED VISCUS, ANASTOMOTIC LEAK
8. Contamination.
9. Adhesions & strangulation, omental, bowel, herniation, evisceration,
10. Risk of abscess formation
11. Risk of infectious, fibrous adhesions.
12. Risk of toxemia, bacteremia, pyemia, septicemia.
13. Risk of multiple organ failure

E. TRAUMA

1. Surgical Anatomy and pathology is always unpredictable.

2. Mechanism of trauma has to be assessed but has no bearing to occult damage.

3. Surgical pathology must be considered generalized and also blunt with penetrating injuries.

4. Surgical wounds from penetrating injuries must be considered contaminated.

5. Presence of FB, foreign bodies, correlates with infection.

6. Tissue damage from blasts, necrosis, burns, vascular compromise, pressure, FB, tourniquet, hypoxia, cardiovascular & respiratory hypoxia predispose to infections

F. CATEGORIZATION

SURGICAL INFECTION IMPACTION SCORE (SIIC).

1. Preoperative use of antibiotics on basis of obvious and anticipated Pathology in preventing Surgical infection.

2. Intraoperative use of antibiotics in basis of detected Surgical Pathology, overt, occult or suspected.

3. Postoperative use of antibiotics with Surgical site infections, SSI

a. Superficial SSI; skin and subcutaneous tissues.

b. Deep incision SSI; facial layers and muscles.

c. Deep space and organ SSI; Usually in association with repeat Surgical intervention, drainage, lavage, debridement, long term antibiotics.

4. Polymicrobial; most Surgical infections.

5. Superinfection; usually secondary to new microbial disease induced bt ATB.

6. Opportunistic infection, including nosocomial in noninfectious field.

7. Suprainfection; secondary infection unrelated to ATB.