

# **Postoperative Complications**

# Common Post-operative Complications

Post-operative complications may either be general or specific to the type of surgery undertaken.

The highest incidence of post-operative complications is between 1 and 3 days after the operation. However, specific complications occur in the following distinct temporal patterns: early post-operative, several days after the operation, throughout the post-operative period, and in the late post-operative period

- General post-operative complications
- Immediate:
  - Primary haemorrhage: either starting during surgery or following post-operative increase in blood pressure - replace blood loss and may require return to theatre to re-explore wound.
  - Basal atelectasis: minor lung collapse.
  - Shock: blood loss, acute myocardial infarction, pulmonary embolism or septicaemia.
  - Low urine output: inadequate fluid replacement intra- and post-operatively.

- Early:
  - **Acute confusion**: exclude dehydration and sepsis
  - Nausea and vomiting: analgesia or anaesthetic-related; paralytic ileus
  - Fever
  - Secondary haemorrhage: often as a result of infection
  - **Pneumonia**
  - Wound or anastomosis dehiscence
  - Deep vein thrombosis (DVT)
  - Acute **urinary retention**
  - **Urinary tract infection** (UTI)
  - Post-operative wound infection
  - **Bowel obstruction** due to fibrinous adhesions
  - Paralytic Ileus

- Late:
  - Bowel obstruction due to fibrous adhesions
  - Incisional hernia
  - Persistent sinus
  - Recurrence of reason for surgery, e.g. malignancy

# Surgical Complications

**General surgical complications could be of :**

- Wound
- Thermal regulation
- Postoperative fever
- Pulmonary
- Cardiac
- Renal
- Gastrointestinal
- Metabolic
- Neurosurgical

- **Post-operative fever**
- Days 0 to 2:
  - Mild fever ( $T < 38\text{ }^{\circ}\text{C}$ ) (Common)
  - Tissue damage and necrosis at operation site
  - Haematoma
  - Persistent fever ( $T > 38\text{ }^{\circ}\text{C}$ )
  - Atelectasis: the collapsed lung may become secondarily infected
  - Specific infections related to the surgery, e.g. biliary infection post biliary surgery, UTI post-urological surgery
  - **Blood transfusion** or drug reaction

- Days 3-5:
  - Bronchopneumonia
  - Sepsis
  - Wound infection
  - Drip site infection or phlebitis
  - Abscess formation, e.g. subphrenic or pelvic, depending on the surgery involved
  - DVT



- After 5 days:
  - Specific complications related to surgery, e.g. bowel anastomosis breakdown, fistula formation
  - After the first week
  - Wound infection
  - Distant sites of infection, e.g. UTI
  - DVT, pulmonary embolus (PE)

# Postoperative fever

- **The Six Ws**

- Wind : pneumonia
- Wound : infections
- Water : UTI
- Walking :DVT(possible PE)
- Waste : abscess
- Wonder drug : medication

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# Haemorrhage :

It is classified into :

- 1-Primary :occurs during surgery or immediately after it .
- 2-Reactionaly :occurs within 24 hr after surgery .
- 3-Secondary hemorrhage :occur 7days postoperatively. It is mainly caused by infection.

# Wound Complications

- Dehiscence :burst abdomen and Evisceration
- Seroma
- Hematoma
- Infection
- Incisional hernia
- Abnormal wound healing

# Wound infection

- It is a major problem and it could be :
  - Superficial
  - Deep
  - Organ space
- Most commonly occur 4-6 days post-op
- Erythema ,tender ,edema
- 2.5% of abdominal incision
- Staphylococcus aureus
- Necrotizing fasciitis(polymicrobial with anaerobes)
- Clostridial Myositis (myonecrosis and gas gangrene)  
,Cl.perfringes

- **Disordered wound healing**
- Most wounds heal without complications and healing is not impaired in the elderly unless there are specific adverse factors or complications. Factors which may affect healing rate are:
  - Poor blood supply.
  - Excess suture tension.
  - Long term steroids.
  - Immunosuppressive therapy.
  - Radiotherapy.
  - Severe rheumatoid disease.
  - **Malnutrition** and vitamin deficiency.

## **Disorder wounds healing include:**

- 1- Wound dehiscence and burst abdomen.
- 2-Incisional hernia
- 3-Stretched or ragged scar.
- 4-Hypertrophic scar .
- 5-Keloid .

- **Surgical injury**
- Unavoidable tissue damage to nerves may occur during many types of surgery, e.g. facial nerve damage during total parotidectomy, impotence following prostate surgery or recurrent laryngeal nerve damage during thyroidectomy.



- **Respiratory complications**

- Occur in up to 15% of general anaesthetic and major surgery and include:

- **Atelectasis (alveolar collapse):**

- Caused when airways become obstructed, usually by bronchial secretions. Most cases are mild and may go unnoticed
- Symptoms are slow recovery from operations, poor colour, mild tachypnoea, tachycardia and low-grade fever
- Prevention is by pre-and post-operative physiotherapy
- In severe cases, positive pressure ventilation may be required

- **Pneumonia:** requires antibiotics, physiotherapy.

- **Aspiration pneumonitis:**

- Sterile inflammation of the lungs from inhaling gastric contents
- Presents with history of vomiting or regurgitation with rapid onset of breathlessness and wheezing. Non-starved patient undergoing emergency surgery is particularly at risk
- May help avoid this by crash induction technique and use of oral antacids or metoclopramide

Mortality is nearly 50% and requires urgent treatment with bronchial suction, positive pressure ventilation, prophylactic antibiotics and IV steroids

- **Acute respiratory distress syndrome**
- **Pulmonary embolism**

# Cardiac complications

- Hypertension
- Ischemia /infarction
  - Leading cause of death
  - Key to treatment :prevention
- Arrhythmias

- **Common urinary problems**
- **Urinary retention:** common immediate post-operative complication that can often be dealt with conservatively with adequate analgesia. If this fails may need catheterisation.
- **UTI:** very common, especially in women, and may not present with typical symptoms. Treat with antibiotics and adequate fluid intake.
- **Acute renal failure**
  - Pre-renal
  - Intrinsic
  - Post-renal

# Casterintestinal complications

- Postoperative ileus
- Mechanical IO (early and late)
- GI bleeding
- Pseudomembranous colitis
- Ischemic colitis
- Anastomotic leak
- Enterocutaneous fistula

# Metabolic complications

- Adrenal insufficiency
- Hyper/hypothyroidism
- SIADH

# Neurological complications

- Delirium ,Dementia and psychosis
- Seizure disorders
- Stroke and Transient ischemic attacks

# • **Thrombo-embolism**

- Major cause of complications and death after surgery. DVT is very commonly related to grade of surgery.
- Many cases are silent but present as swelling of leg, tenderness of calf muscle and increased warmth with calf pain on passive dorsiflexion of foot.
- Diagnosis is by venography or Doppler ultrasound.
- Pulmonary embolism:
  - Classically presents with sudden **dyspnoea** and cardiovascular collapse with pleuritic chest pain, pleural rub and haemoptysis. However, smaller PEs are more common and present with confusion, breathlessness and chest pain
  - Diagnosis is by ventilation/perfusion scanning and/or pulmonary angiography or dynamic CT
- Management: intravenous heparin or subcutaneous low molecular weight heparin for 5 days plus oral warfarin.



# Complications of thermal regulation

- Hypothermia
- Malignant Hyperthermia