

POSTOPERATIVE
ASSESSMENT AND
MANAGEMENT OF
SURGICAL COMPLICATIONS

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*Objectives.

*references

1/principal and practice of surgery .by James
garden

2/current surgical diagnosis and treatment
By Laurence w. way

3/surgery by peter Laurence

4/Churchill pocket book by Andrew T.raftery

Overview

- This tutorial composed of two topics to be discussed
 - Post op care
 - Post op surgical complications
- **Post operative Care**
 - Objective
 - Understand the principles of patient management in the recovery phase immediately after surgery
 - Understand the general management of the surgical patient in the ward
 - Consider the initial management of common acute complications during postop period.

Overview

- Post op care has 3 phases
 - Immediate post op care (Recovery phase)
 - Care in the ward while discharging from the hospital
 - Continued care after discharge from the hospital

MONITORING IN RECOVERY ROOM

Immediate post operative monitoring should be done in accordance with the ABC of emergency

- A **Airway** attention to
 maintenance of airway.
- B **Breathing** ensure adequate
 ventilation.
- C..... **Circulation** adequacy of circulatory
 status with heamorrhage
 control.

IN RECOVERY ROOM

Patient should be thoroughly reassessed by both the surgeon and anesthetist before being shifted out of OR. Clinical notes available with the patients in recovery room should include:-

- Operation notes describing the procedure performed.
- Anesthesia record of the patient 's progress during surgery.
- Post operative instructions sheet including all drugs, intravenous fluids and fluids balance sheet.

Discharge from the theatre and post anesthetic recovery

- **Anesthetic and surgical staff** should record the following items in the patients case notes:
 - ✓ Any **anesthetic, surgical or intraoperative** complications.
 - ✓ Any **specific treatment or prophylaxis** required(eg: fluids, nutrition, antibiotics , analgesia , anti-emetic , thromboprophylaxis)

First Postoperative Assessment

- Its **start** after the patient discharge from the theatre.
- if the patient at risk of deterioration he need frequent assessment.
- Risk factors for deterioration are:
 - ✓ ASA grade ≥ 3
 - ✓ Emergency or high risk surgery.
 - ✓ Operation out for hours.

**ASA classification:

A normal healthy patient.

A patient with mild systemic disease.

A patient with severe systemic disease.

A patient with severe systemic disease that is a constant threat to life.

A moribund patient who is not expected to survive without the operation.

A declared brain-dead patient whose organs are being removed for donor purposes.

- The patient must be reassessed within 2 hours of the 1st postoperative assessment.
- The doctor complete 1st postoperative assessment with the monitoring regimen .

Check list for 1st postoperative assessment

- Intraoperative Hx & postoperative instructions:
 - ✓ Past medical Hx
 - ✓ Medications
 - ✓ Allergies
 - ✓ Intraoperative complications
 - ✓ Postoperative instructions
 - ✓ Recommended Rx & prophylaxis

Check list for 1st postoperative assessment

- Respiratory assessment status:
 - ✓ O2 saturation. (should be from 90 to 100)
 - ✓ Effort of breathing ..
 - ✓ Respiratory rate.
 - ✓ Trachea central or not.
 - ✓ Symmetry of respiration and expiration.
 - ✓ Breath sounds.
 - ✓ Percussion.

Check list for 1st postoperative assessment

- Volume status assessment:
 - ✓ **Hands**-warm or cool pink or pale.
 - ✓ **Capillary return** <2s or not .
 - ✓ **Pulse** rate , volume and rhythm.
 - ✓ blood pressure.
 - ✓ Conjunctival pallor.
 - ✓ Jugular venous pressure.
 - ✓ **Urine** color & rate of production.
 - ✓ **Drainage** from drains, wound& NG tube

Check list for 1st postoperative assessment

- Mental status assessment:
 - ✓ Patient conscious and normally responsive?(AVPU: Alert,respond for Verbal & Painful stimuli,unresponsive)
- Finally RECORD any significant symptoms (e.g. chest pain, breathlessness) Pain and pain adequacy control.

Post op Surgical Complications



OBJECTIVES



RISK FACTORS



TYPES OF PATHOLOGY



TYPES OF SURGERY



**COMPLICATIONS & THEIR
MANAGEMENT**

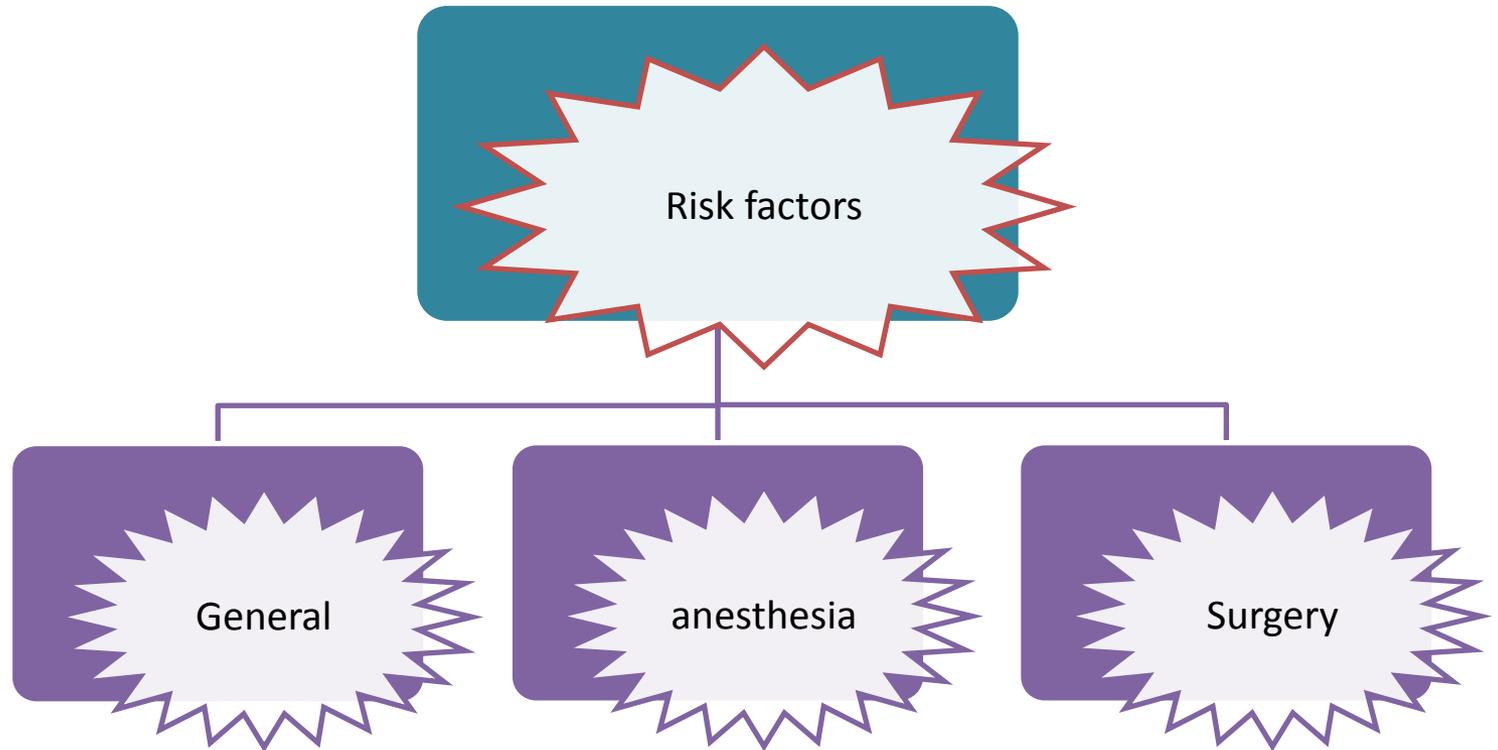
OVERVIEW

Postoperative Complications (Morbidity) Account for:

- 1. Considerable human pain and suffering.**
- 2. Increased cost of the health-care.**
- 3. Can lead to postoperative death.**

OBJECTIVES:-

- **Accept that complications are best anticipated and avoided.**
- **Recognize the incidence of co-morbidity.**
- **Understand the importance of matching the procedure to the associated risks.**
- **Appreciate the importance of recognizing complications early and treating them vigorously.**



General risk factors

- Age both extremes (Very young & Very old)
- Obesity
- Smoking
- Co-morbid conditions:
 - Cardiovascular diseases
 - Respiratory diseases
 - DM
 - Renal diseases
 - Metabolic factors
 - Infections
 - Wound healing
 - Peripheral vascular diseases

- **Drug therapy (Concurrent drugs used)**

e.g steroids ,
immunosuppressant, antibiotics
and contraceptive pills

- **Blood transfusion**

Anesthesia risk factors

- **Anaphylactic reactions to medications, injury during laryngoscopy, neuropathy from positioning**
- **Even spinal/epidural carries risk: inadequate, need to convert to general, sympathectomy with vasodilation, etc**

TYPES OF PATHOLOGY:

- **Obstructive Jaundice**
- **Neoplastic Diseases**

هذه الامراض المضاعفات فيها وفي عملياتها شائعة بسبب تدهور الوظائف الاساسيه مثل الكبد والدم

TYPES OF SURGERY:

- **Minimally Invasive Surgery**
- **Orthopedic Surgery**
- **Gynaecology**
- **Thoracic & Upper Abdominal Surgery**
- **Prolonged Operations**

COMPLICATIONS & THEIR MANAGEMENT

Complications of surgery may broadly be classified as those:

- I. Due to Anesthesia**
- II. Due to Surgery**

DUE TO ANESTHESIA:

The anesthetic complications depend upon the mode (General, Regional & Local) and types of anesthetic (the anesthetic agent toxicity).

COMMON COMPLICATIONS OF ANESTHESIA

(A) LOCAL ANESTHESIA:

- Injection site:
Pain, haematoma, Nerve trauma, infection
- Vasoconstrictors:
Ischemic necrosis → especially in the terminal organs like the fingers and the toes
- Systemic effects of LA agent:
Allergic reactions, toxicity

(B) SPINAL, EPIDURAL & CAUDAL

ANESTHESIA:

- **Technical failure**
- **Headache due to loss of CSF**
- **Intrathecal bleeding**
- **Permanent N. or spinal cord damage**
- **Paraspinal infection**
- **Systemic complications
(Severe hypotension)**

This type of anesthesia has so many complications and
Need an expert to do it

(C) GENERAL ANESTHESIA:

- **Direct trauma to mouth or pharynx.**
- **Slow recovery from anesthesia due to drug interactions OR inappropriate choice of drugs or dosage.**
- **Hypothermia due to long operations with extensive fluid replacement OR cold blood transfusion.**

- Allergic reactions to the anesthetic agent:

- **Minor effects**

eg: Postoperative nausea & vomiting

- **Major effects**

*eg: Cardiovascular collapse,
respiratory depression)*

- Haemodynamic Problems:

Vasodilation & shock

Postoperative Surgical Complications:

1-Haemorrhage:

a- immediate

During the operation due to drugs (like Aspirin)

Early postoperative:

Inadequate haemostasis , unrecognized damage to blood vessels , defective vascular anastomosis , clotting factor deficiency , intraoperative anticoagulants

surgical re-exploring is usually required

b-Secondary hemorrhage:

Several days postoperative , Related to infection which erodes blood vessel

treatment of infection

2. Hypothermia

- Drop in body temperature of 2 degrees C
- Causes : Trauma, Exposure, Cool Fluids – IV / Irrigation
- Temperature below 35 C
 - Coagulopathic
 - Platelet dysfunction
- Mild - 32 – 35C = 90-95F
- Mod – 28 – 32C = 82–90F
- Severe – 25 – 28C = 77-82F
- Extreme
- Treatment with warmers and warm fluids

3. Postoperative Fever

- Causes
 - Pneumonia
 - Infections
 - UTI
 - DVT (possible PE)
 - Abscess
 - Medication
- Noninfectious
 - Within the first 48-72 hours (Atelectasis, anesthetic drugs)
- Infectious
 - Fevers POD 3-8
 - UTI 3rd POD
 - Wound Infection 3rd to 5th POD
 - Abscess 5th to 7th POD
 - DVT 7th to 10th POD
 - Standard work up includes
 - Blood cultures
 - UA and Urine Cultures
 - CXR
 - Sputum cultures
 - Tylenol/Motrin

4. Wound

- **b-bleeding**
- **c-haematoma**
- **d-seroma** (pocket of clear serous fluid that sometimes develops in the body after surgery)

a- infection

- **e-suture sinus**
- **f- breakdown:**
 - incisional hernia
- **-anastomotic breakdown**



Wound
Dehiscence



Evisceration



Incisional Hernia

5. Cardiovascular

- **a-MI** (coronary artery thrombosis)
- **b-cardiac arrest** (cardiac shock)
- **c-arrhythmia**
- **d-pulmonary oedema** (usually old pt or young with cardiac or renal disease)
 - **Cardiogenic:** left ventricular failure , arrhythmias , Hypertensive crisis , cardiac tamponade , Fluid overload, e.g., from kidney failure or intravenous therapy
- **e-DVT**
- **advanced age**
- **Obesity**
- **Hormonal therapy**
- **Immobilization**
- **Infection**

6. Respiratory Complications

- **a-atelectasis**

post-surgical atelectasis, characterized by restricted breathing after abdominal surgery
Smokers , elderly ==>> High risk

- **b-aspiration:**

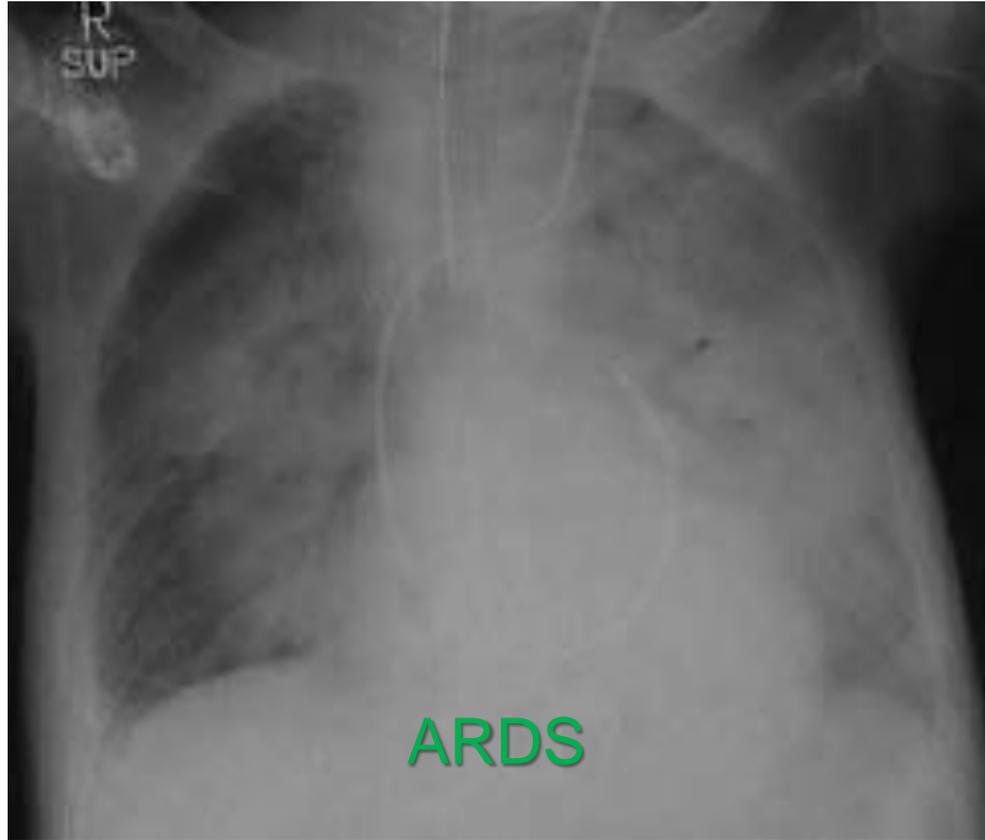
- fasting for six hours before elective surgery is enough to empty the stomach

- **f-pneumothorax (iatrogenic)**

- **c-pneumonia**

- Hospital acquired pneumonia (nosocomial pneumonia)

mechanical ventilation



7. Cerebral

- **a-confusion**
 - *sepsis
 - *electrolyte/glucose
 - *hypoxia
 - *alcohol withdrawal

b-stroke

8. Urinary

a-acute retention

b-UTI

c-acute renal failure

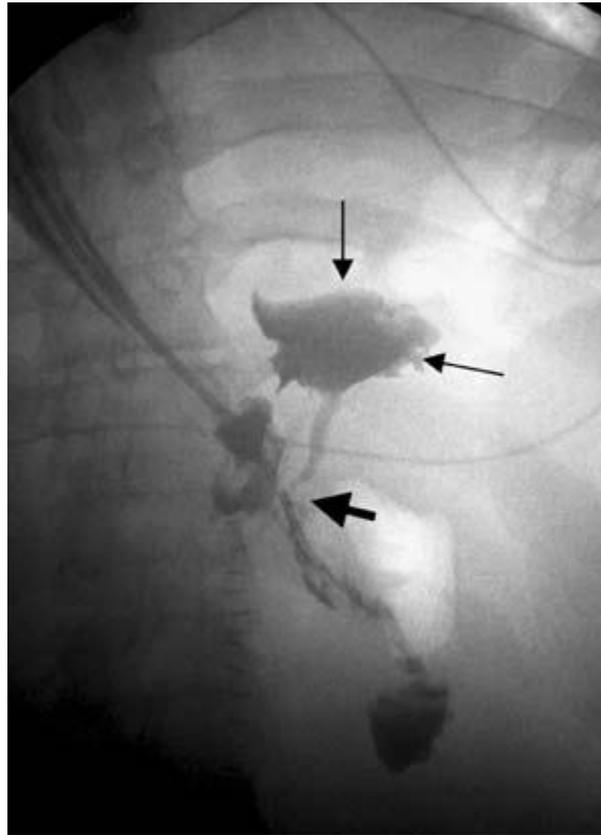
9. Gastrointestinal Complications

- Postoperative ileus
- Anastomotic Leak
- Enterocutaneous fistula
- Adhesions
- GI Bleeding
- Pseudomembranous colitis

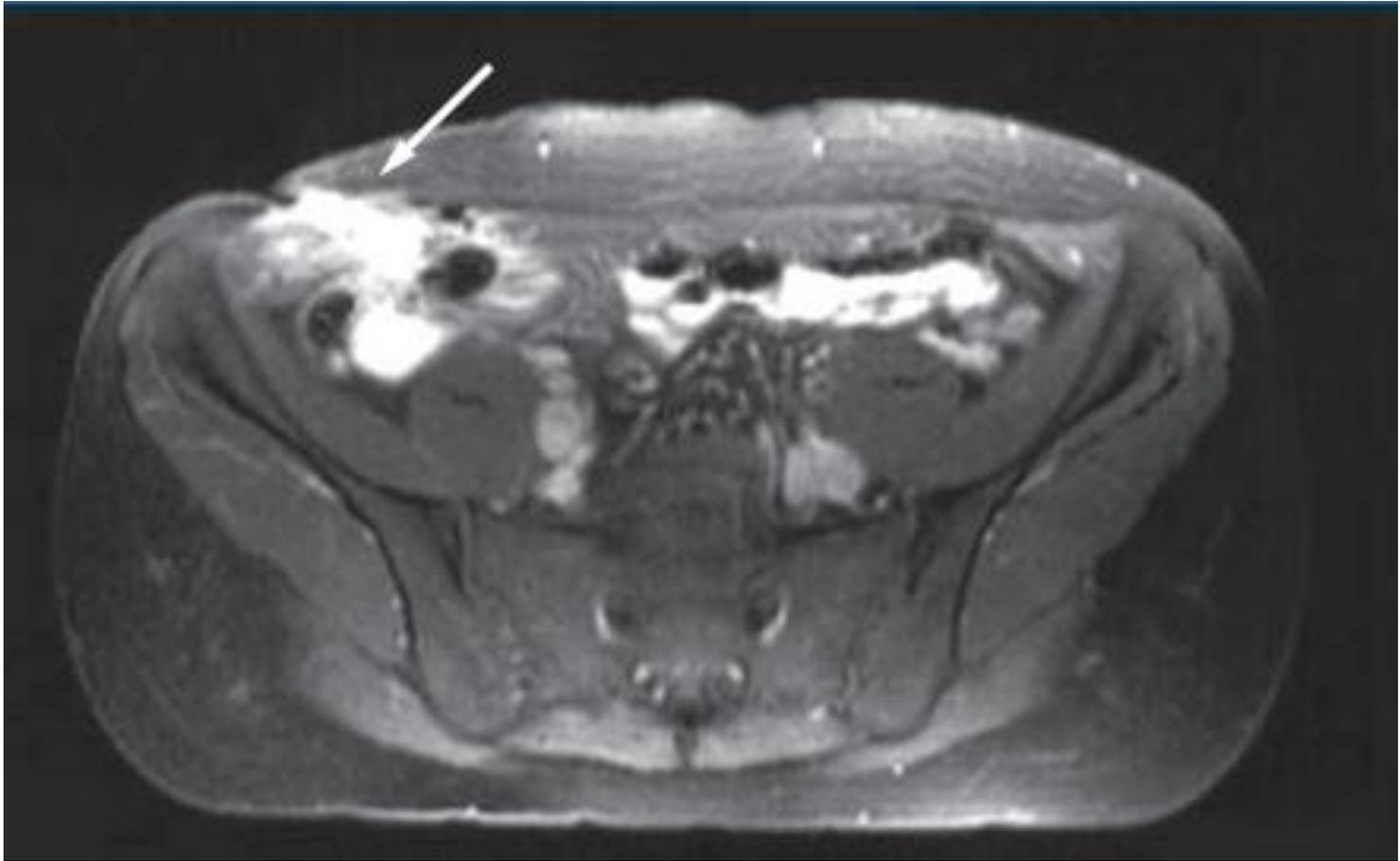


Paralytic
Ileus

Anastomotic leak



Enterocutaneous Fistula



10. Neurologic

- Drug Induced
- ICU Psychosis
- Neuropsychiatric Complications
- Operative Nerve Injuries

LATE POSTOPERATIVE COMPLICATIONS:

- Wound:
 - Hypertrophic scar, keloid, wound sinus, implantation dermoids, incisional hernia
- Adhesions:
 - Intestinal obstruction, strangulation
- Altered anatomy/Pathophysiology:
 - Bacterial overgrowth, short gut syndrome, postgastric surgery syndromes, etc.
- Susceptibility to other diseases:
 - Malabsorption, incidence of cancer, tuberculosis, etc.