

## CASE THREE

**Short case number: 3\_3\_3**

**Category: GIT/Metabolic**

**Discipline: Surgery**

**Setting: Hospital**

**Topic: Wound healing principles and management of acute dehiscence after laparotomy [SDL]**

### Case:

Wishie Lika, aged 81 years, has severe rheumatoid disease and requires a maintenance dose of prednisolone 5 mg with regular increases up to 30mg for exacerbations of pain. Wishie develops acute bowel obstruction that fails to respond to conservative management. An emergency laparotomy is undertaken and ischaemic bowel resected. Four days post operatively you are summoned urgently to see him as he has had a bout of coughing and his wound has dehisced. On arrival his intestines are clearly visible through an 8 cm opening in his midline abdominal incision.

### Questions

1. What is a wound ?
2. What are the phases of wound healing?
3. What is the role of granulation tissue?
4. What factors are involved in wound healing
5. What clinical factors in Wishie's history would impede wound healing and why?
6. What factors govern whether absorbable or non-absorbable sutures are used to close wounds?
7. What special steps might have been taken in wound closure in this case to prevent dehiscence?
8. How would you manage Wishie's situation?
9. If the edges of the wound were necrotic and looked infected, how would your management alter?

### Suggested reading:

1. Henry MM, Thompson JN, editors. Clinical Surgery. 3<sup>rd</sup> edition. Edinburgh: Saunders; 2012. Chapter 8.
2. Garden OJ, Bradbury AW, Forsythe JLR, Parks RW, editors. Davidson's Principles and Practice of Surgery. 6<sup>th</sup> edition. Philadelphia: Churchill Livingstone Elsevier; 2012. Chapter 9.

## ANSWERS

**1. What is a wound?**

“A wound is a disruption of normal anatomic relations as a result of an injury”

**2. The four phases of wound healing:**

- a) Haemostasis
- b) Inflammatory: ACUTE INFLAMMATORY RESPONSE
- c) Proliferative : GRANULATION TISSUE
- d) Maturation or remodelling : FORMATION OF FIBROUS SCAR

**3. The role of granulation tissue**

➤ New connective tissue that forms in the proliferative phase of wound healing and grows from base (+/- sides) of wound. Angiogenesis brings new vessels into the tissue. Macrophages, leukocytes and fibroblasts are involved in tissue remodelling.

**4. Factors are involved in wound healing**

- a) Patient factors – age; comorbidities e.g. diabetes, malnutrition, immunosuppression; medications e.g. steroids.
- b) Wound factors – infection, traumatic vs surgical incision, tension, size, site etc.

**5. Clinical factors in Wishie’s history would retard wound healing and why?**

➤ STEROIDS – mechanism unclear but likely immunosuppression, CHRONIC ILLNESS

**6. Factors that govern whether absorbable or nonabsorbable sutures are used to close wounds?**

Most surgeons would use permanent (Nylon) suture to close the fascial layer of a laparotomy wound.

However, slowly absorbable (PDS or Maxon) are alternatives

**7. Special steps might have been taken in wound closure in this case to prevent dehiscence?**

Use interrupted as well as continuous suture technique.

**8. How would you manage Wishie’s situation?**

- Explain to patient what has happened
- Fast if not already nil by mouth
- Sterile packs soaked in Normal Saline placed over the abdomen / wound
- Keep patient in the supine position
- Organise urgent return to the operating theatre

**9. If the edges of the wound were necrotic and looked infected, how would your management alter?**

- Debridement would be needed, might be difficult to close
- Potential open abdomen / dressing until clean
- Antibiotics