

Post Implantation Wound Care

Suzette Turner RN(EC)

February 7, 2015

FACULTY/PRESENTER DISCLOSURE

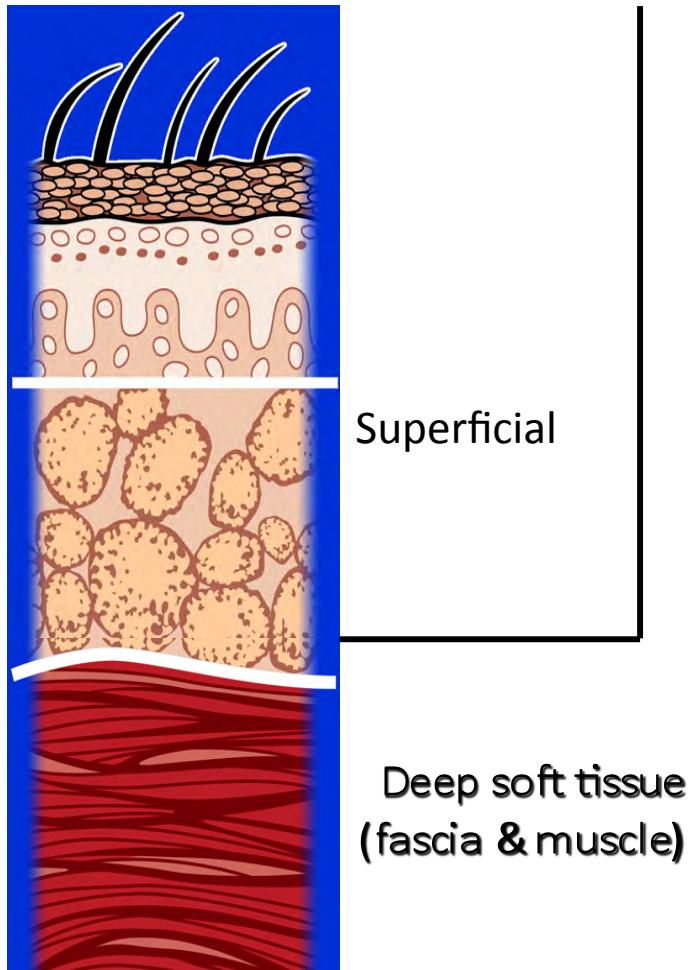
Relationships with commercial interests:

NONE

Outline

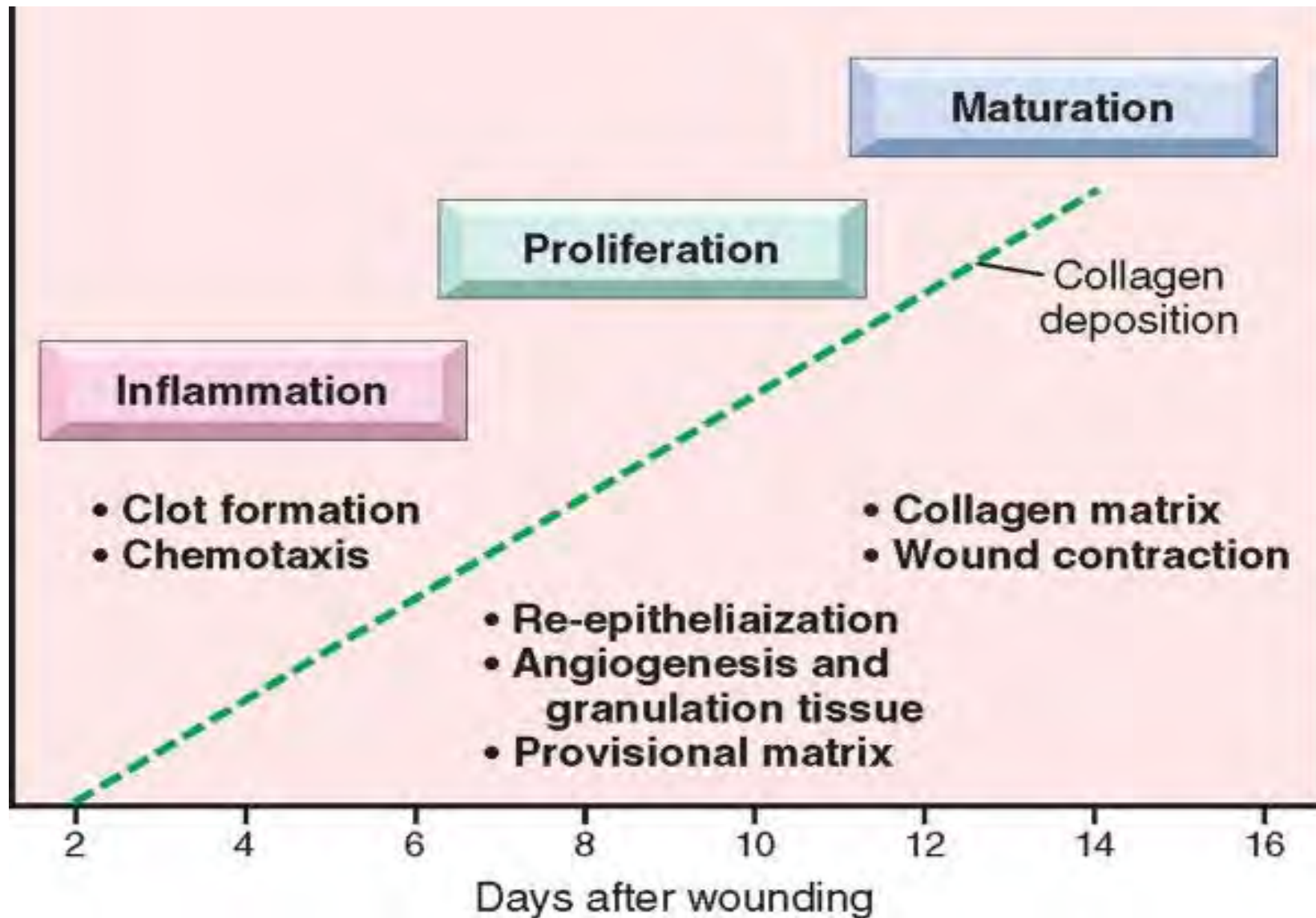
- 1) General aspects of post-operative healing
- 2) Review post operative wound care
- 3) Discuss management of post-operative wound complications
- 4) Identify preventative strategies of wound complications

Definition of surgical wound healing

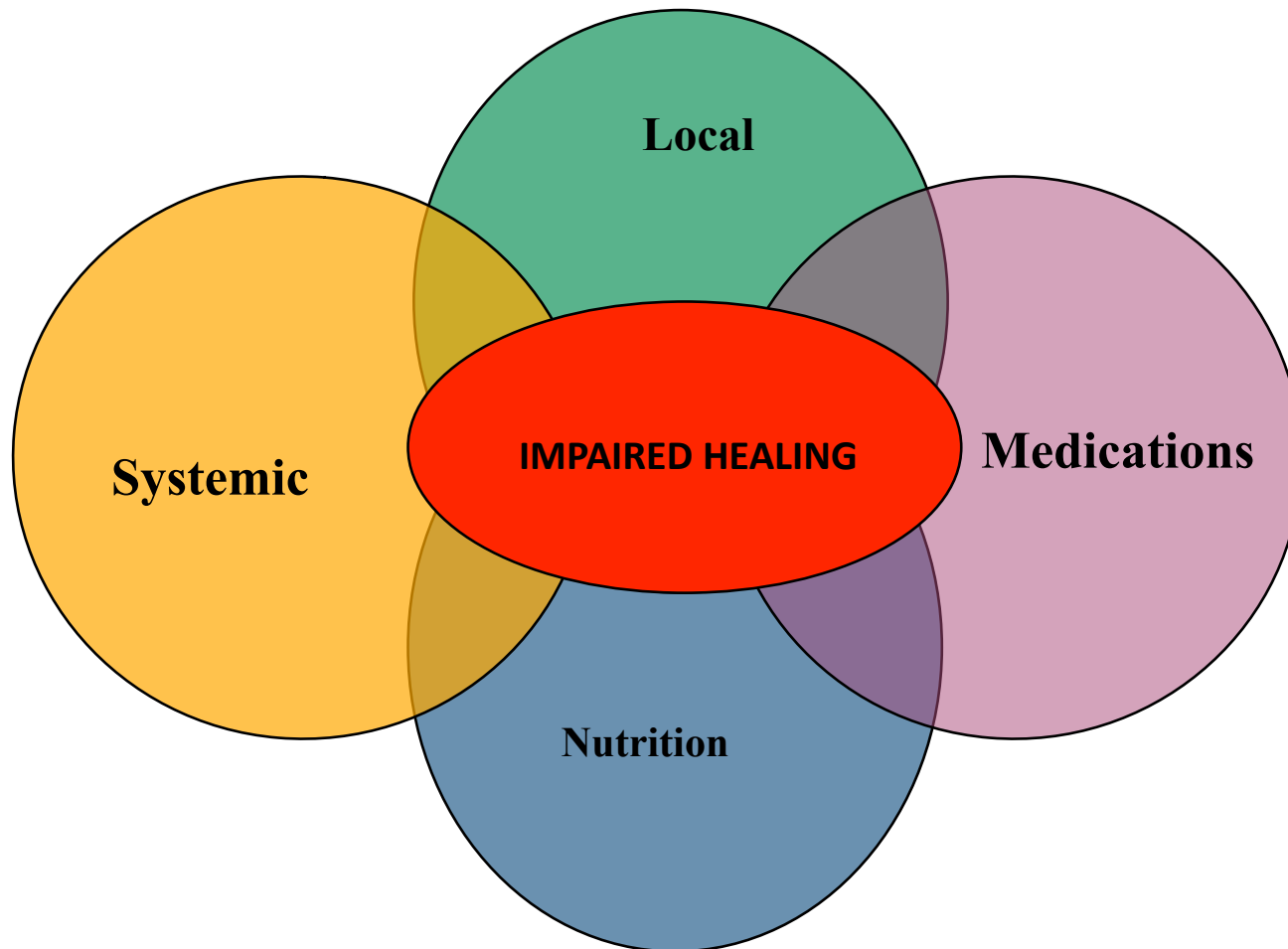


- A disruption of the normal structure of the skin and underlying soft tissue in a controlled setting

Phases of wound healing



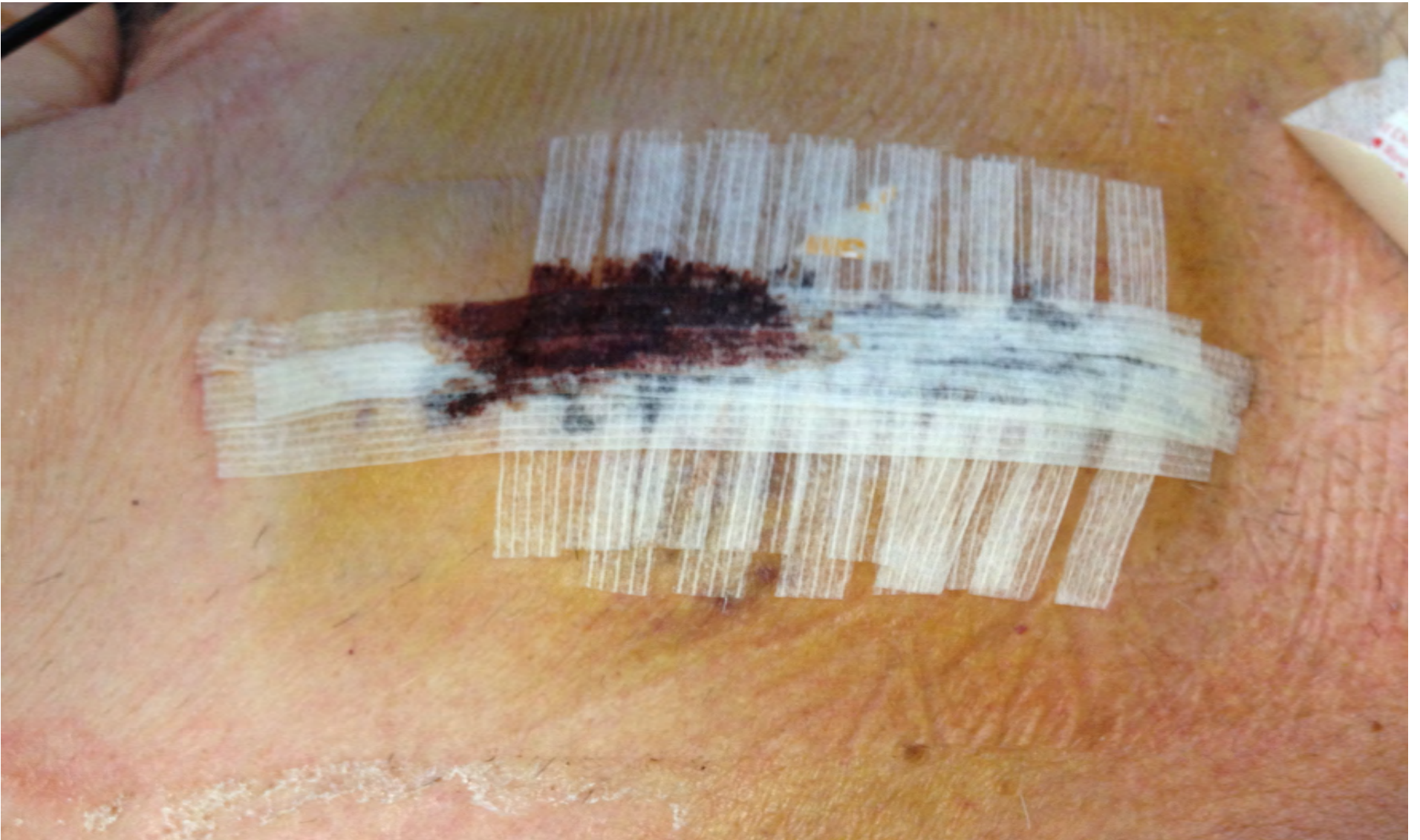
Factors affecting wound healing



Describing the incision/wound

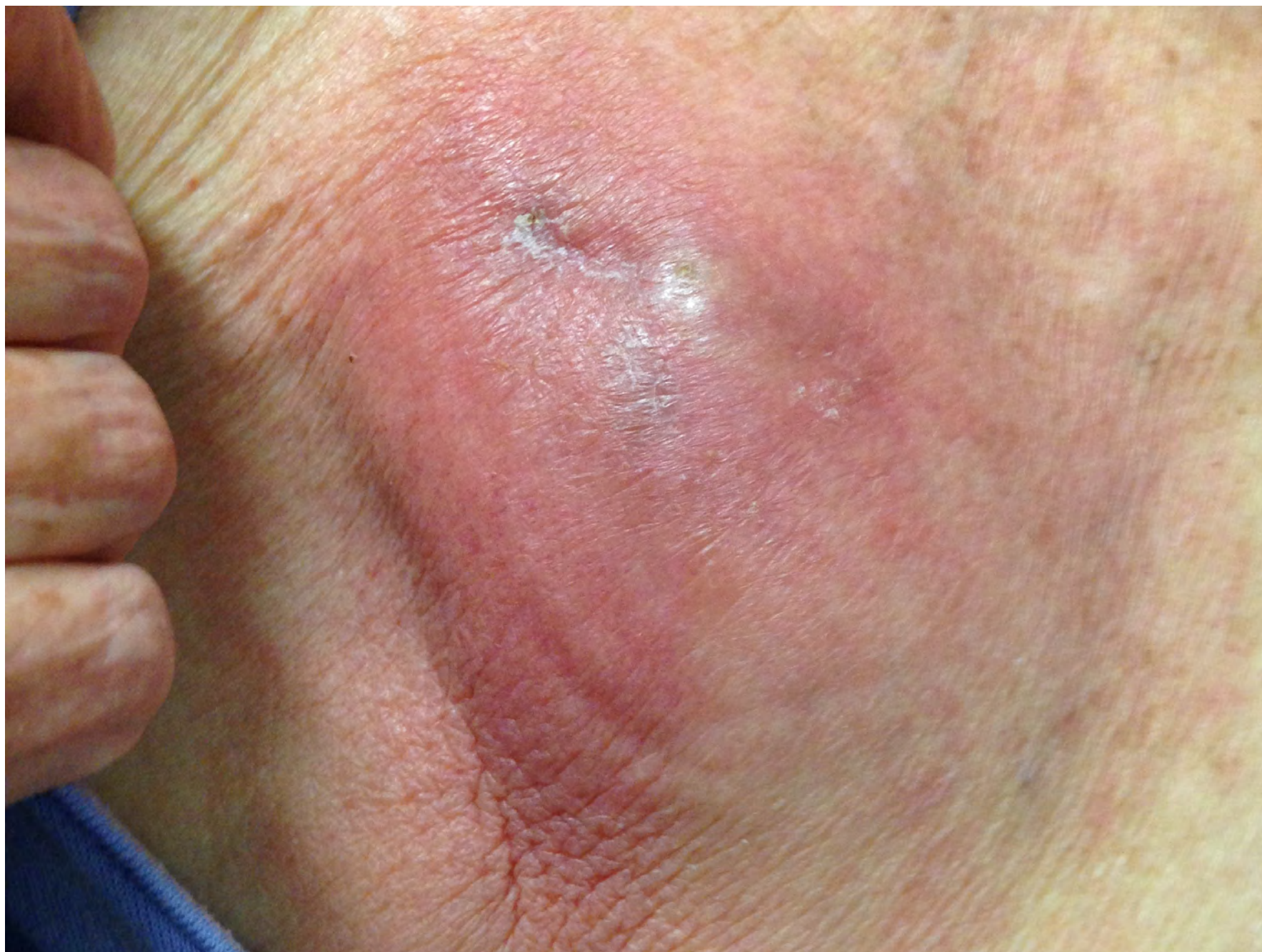
- Size
- Colour e.g., erythema
- Temperature e.g., warmth
- Pain
- Drainage/Exudates
 - Is it serous
 - Is it sanguinous
 - Is it purulent
- Dehiscence
- Fistula

TYPES

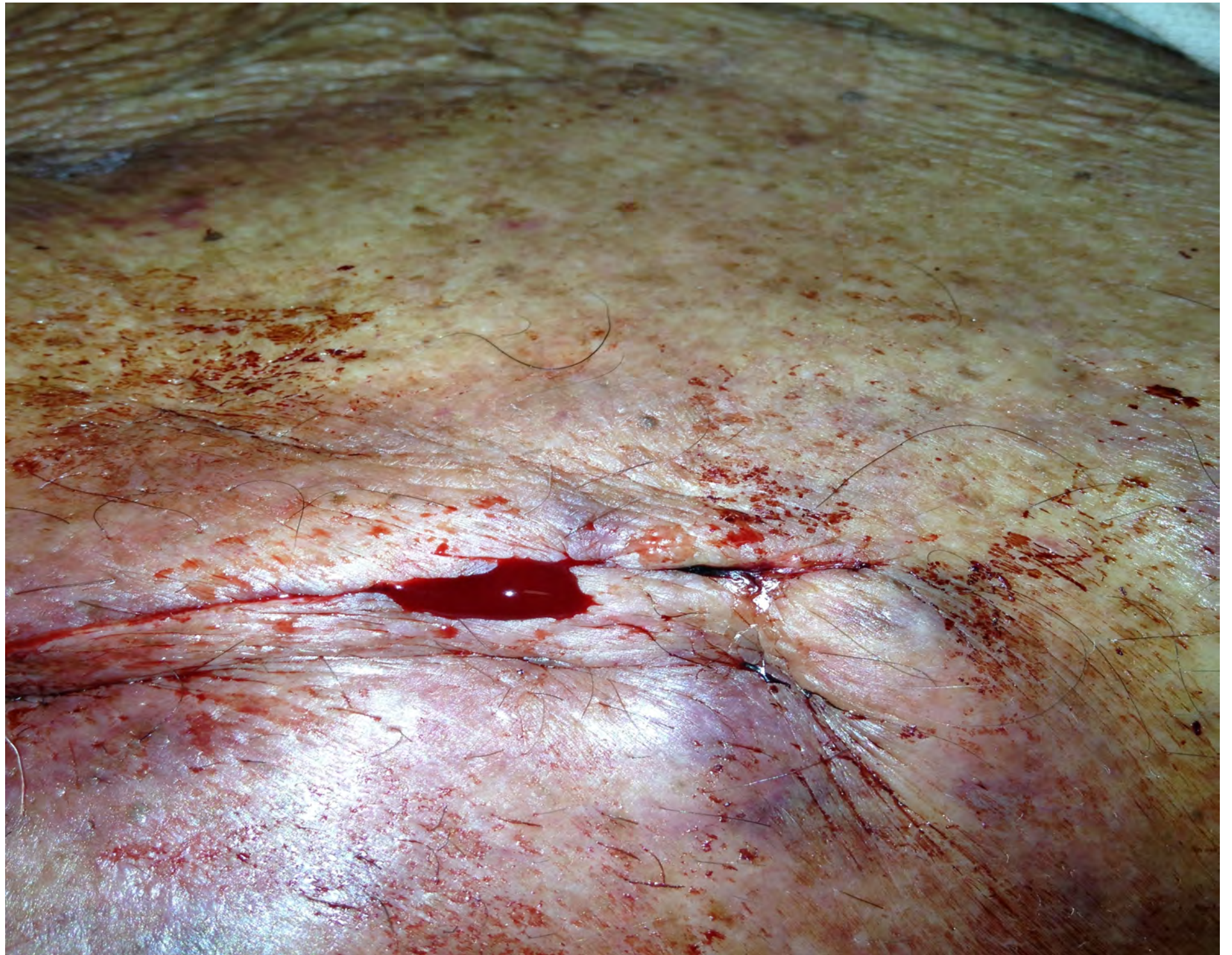






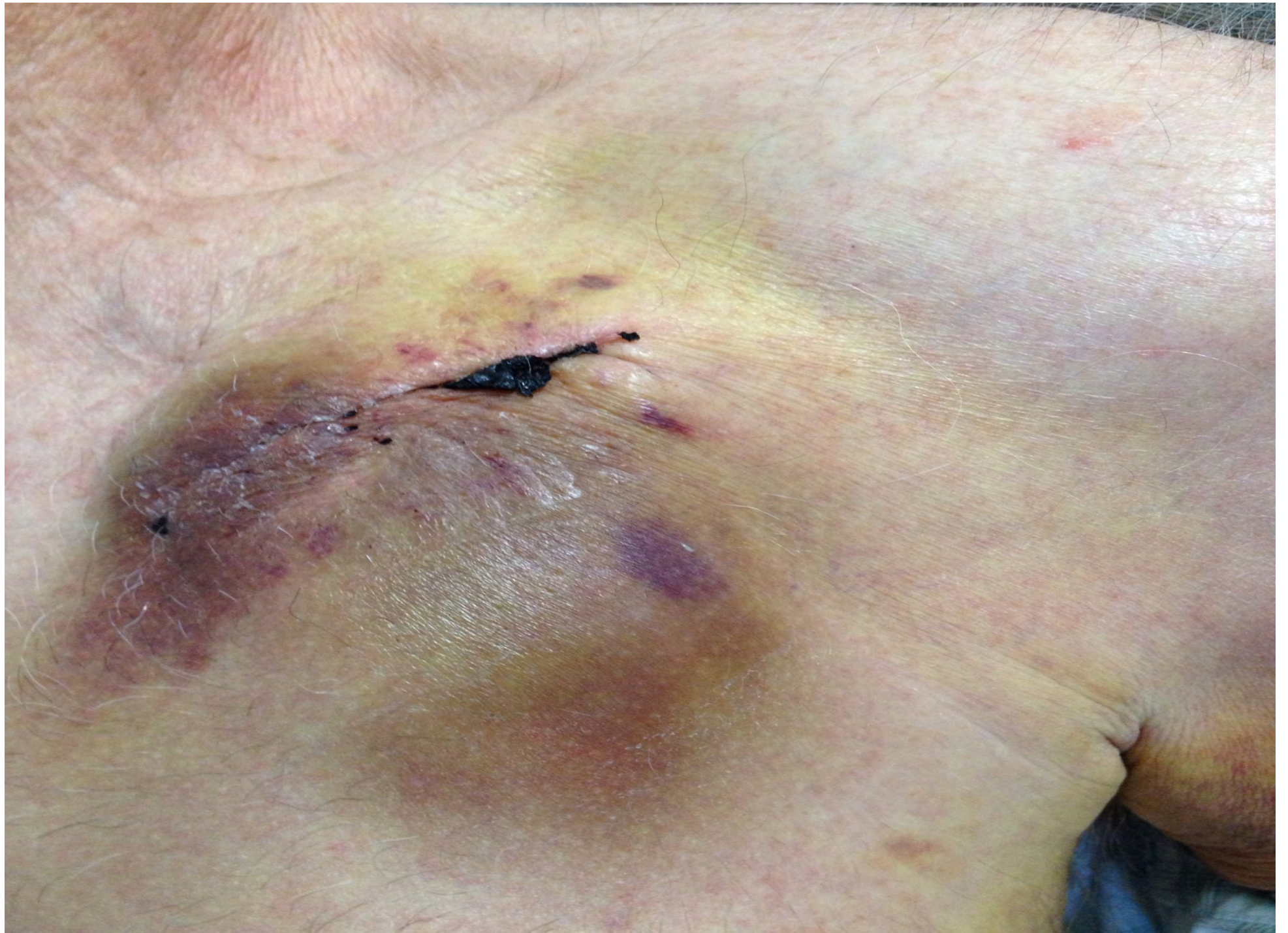




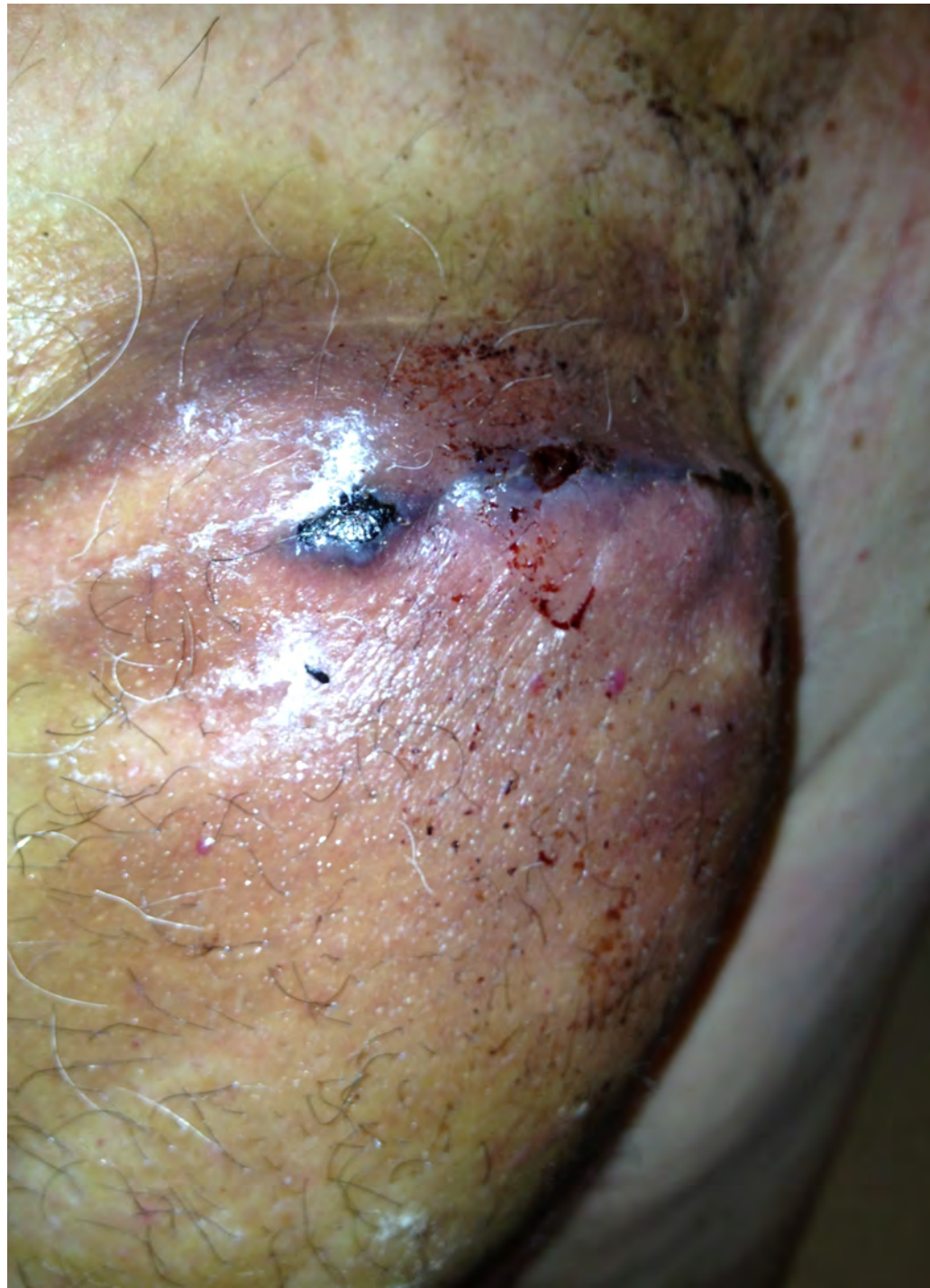
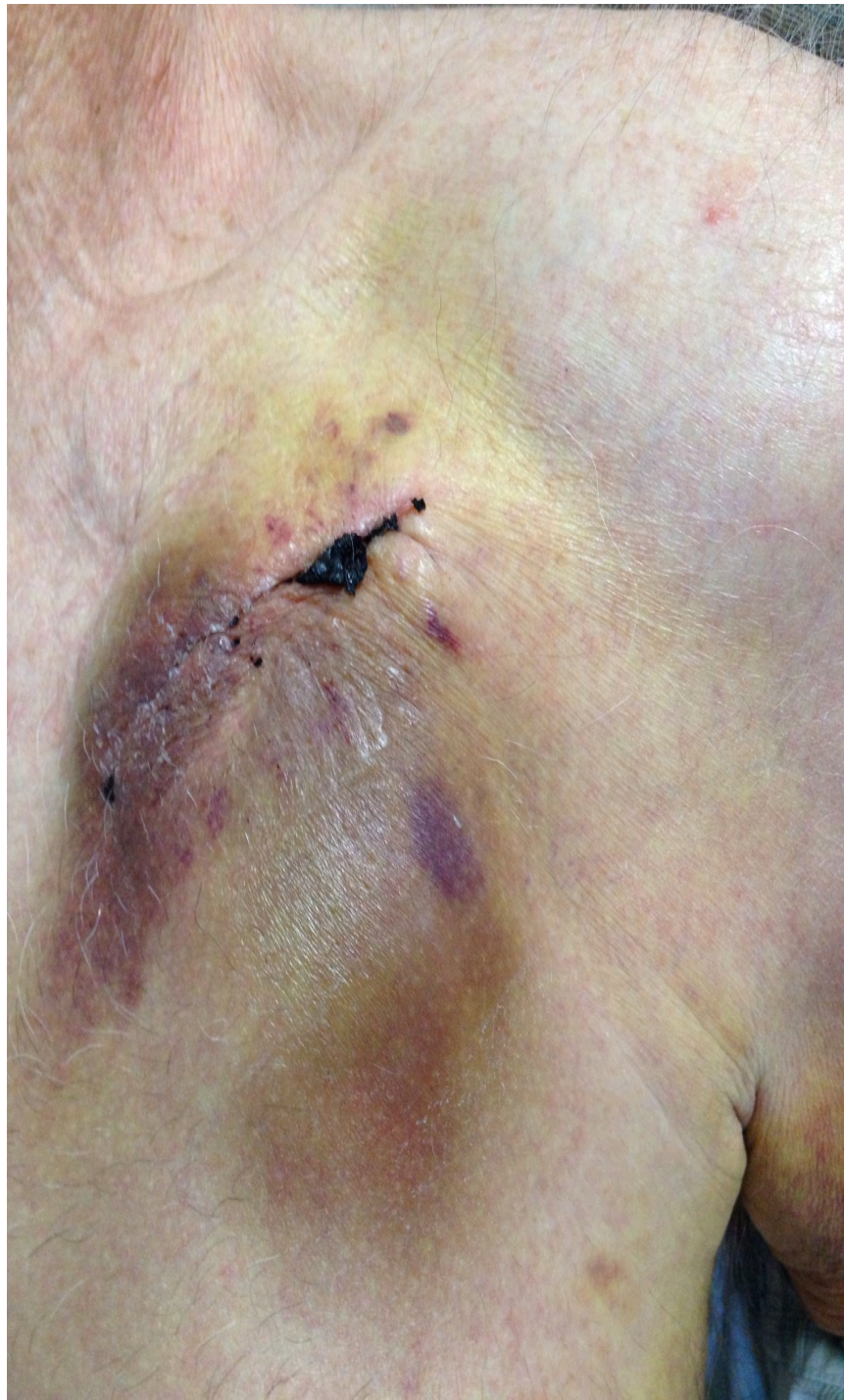


Dressing should be discontinued less than 24 hrs when...

- It is no longer serving its purpose/ dressing falling off
- Excessive exudate soaking through the dressing







Haematoma Management

- No needle aspiration
- Reoperation/Evacuation (<0.5% of cases)
- Delay IV heparin for 24-48 hours
- Avoid bridging prior to implantation _BRUISE
- Hold DOAC 1-3 doses prior to procedure
- Continue Coumadin if INR less than 2.5





Collection of specimen for culture

- Blood culture
- Wound swab – if pocket is draining
 - Cleanse the wound with sterile saline
 - If wound is dry, moisten with saline, for open wounds avoid wound edges and rotate tip for about 5 seconds
 - For closed wounds/incisions- collect newly expelled fluid avoiding skin surfaces
 - Place the swab in a sterile container for transport

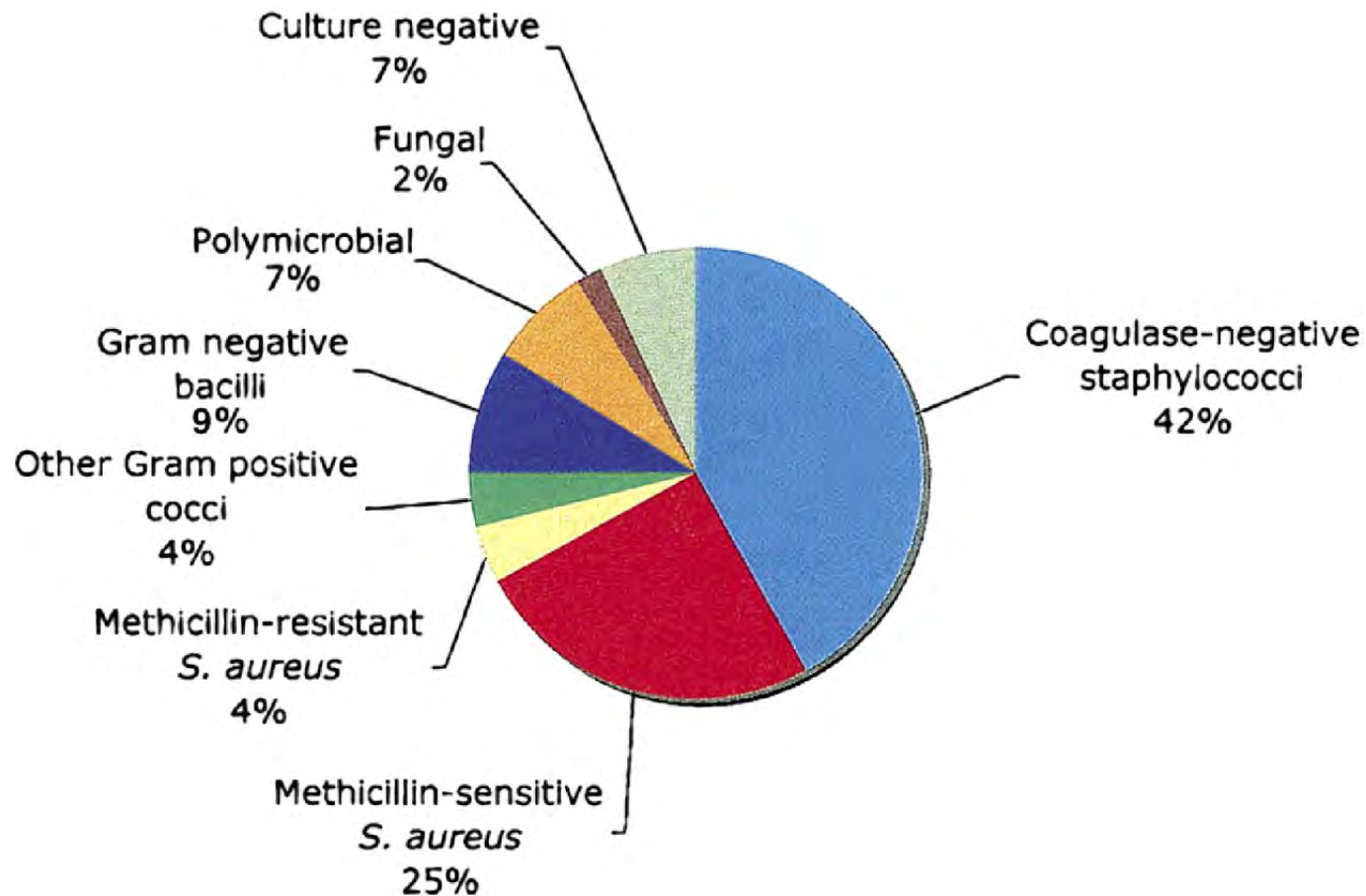
Case 1 -60 yr old female

- A fib w/ rapid ventricular response for years
- PPM in 2007, pack changed November 2014
- PMHx: CAD, HTN
- Sick for 2 weeks w/fever; tx with oral antibiotics, fatigue, and loss of appetite
- Multiple visits to family physician treated with antibiotics



4 NOV 03

Microbiology of Cardiac Device Infections



Prevention is Better than Cure

- **A**ctive Surveillance of high risk patients - **think outside the wound**
- **B**arrier Precautions – aseptic technique -dressings
- **C**ompulsive Hand Hygiene – 4 moments
- **D**isinfection / Environmental Cleaning- NS/
Chlorhexidene

CDC. Available at http://www.cdc.gov/drugresistance/healthcare/surgery/12steps_surgery.htm

Case 2 - 85 year old male with ICM

- NYHA Class III, LBBB with EF 20%- 2005
- CRT-D therapy with improvement in symptoms and EF (45%-2013)
- 2010 generator change
- 2015 generator change
- One week later

Haematoma



Haematoma Management

- Compression on the suture line
 - No needle aspiration
 - Reoperation/Evacuation

Case 3 - 88 year old male

- Second degree AV block with syncope, HTN, NIDDM and tobacco use
- Presented to clinic with the following device pocket





Do Not

- Apply topical anti-microbial agents for surgical wounds that are healing by primary intention

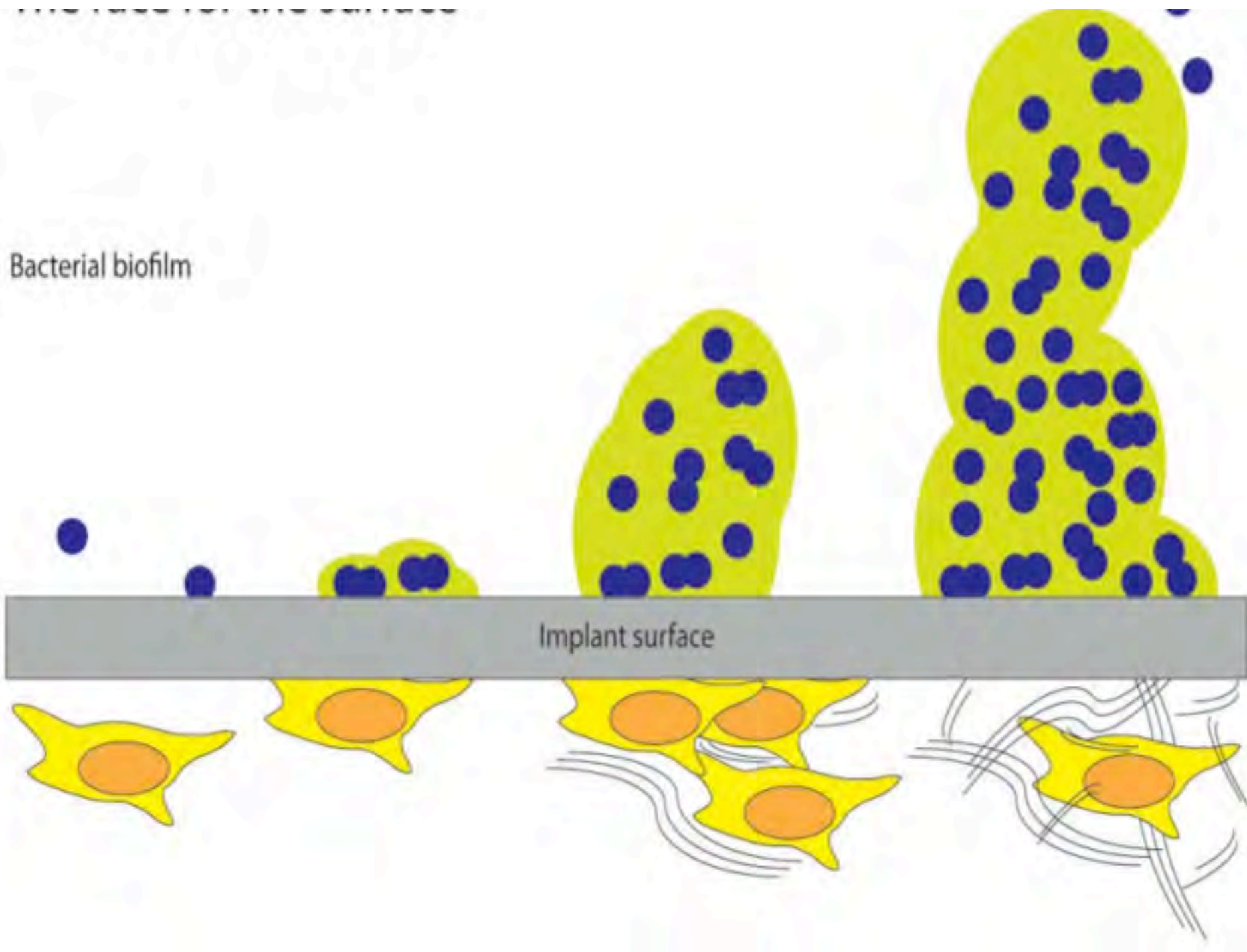


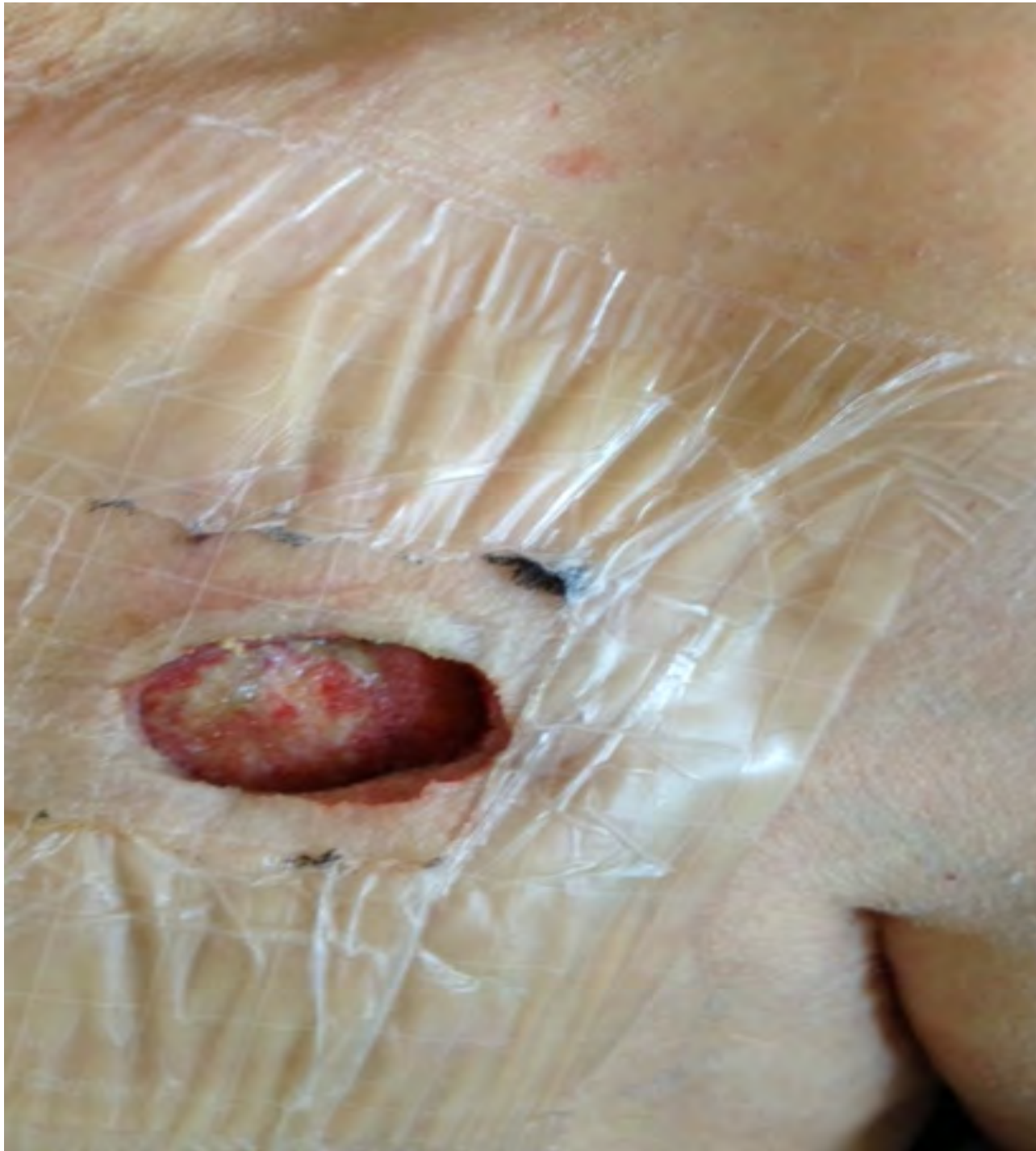
Typical signs of wound/pocket infection

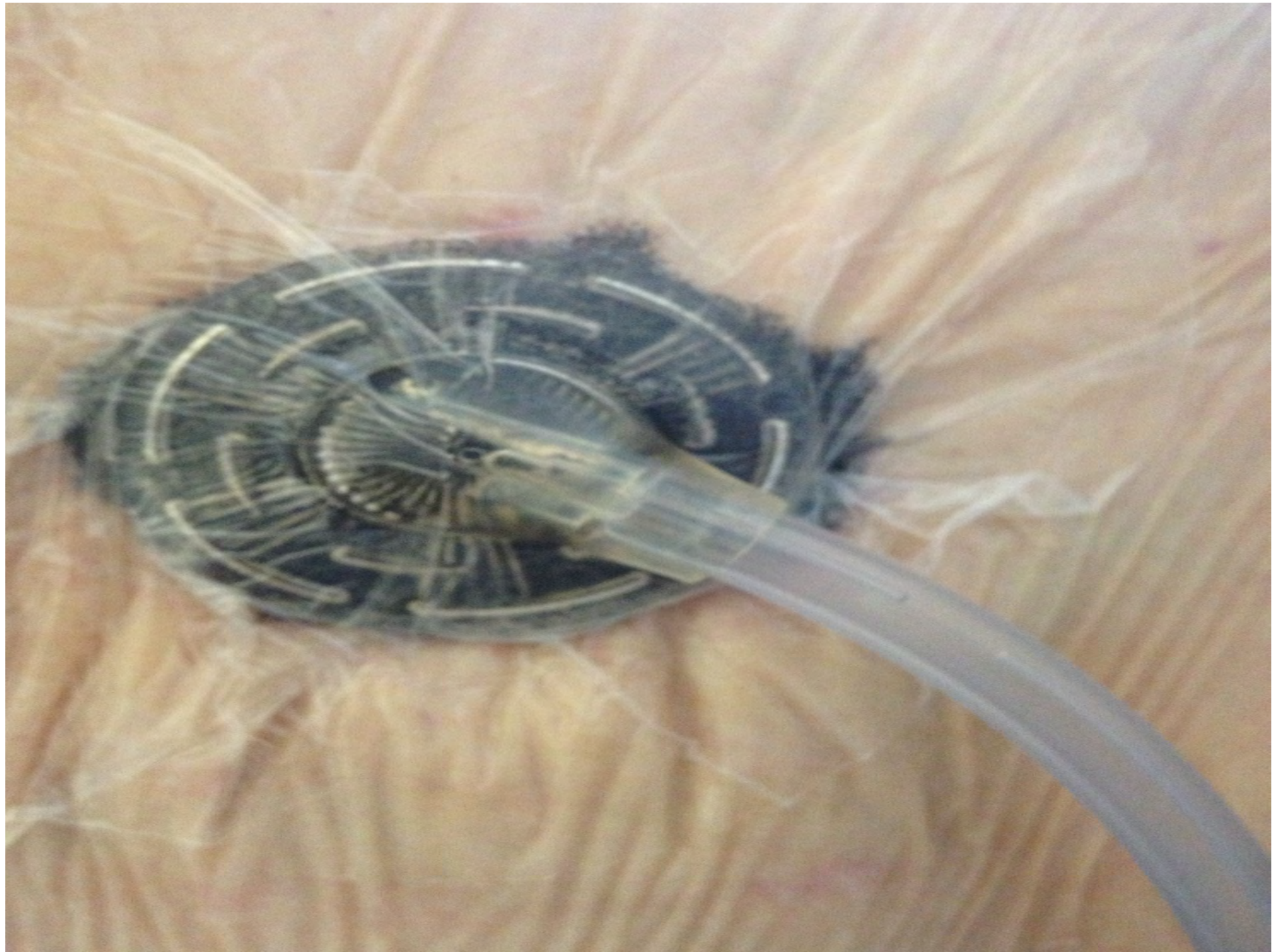
- Localized swelling at the site
- Erythema
- Pain
- Warmth
- Drainage/Exudate
- Erosion
- Dehiscence of overlying skin

Bacterial biofilm

Implant surface







PREVENTION- patient strategies

Local care of the skin

- Leave wound untouched for up to 48 hours
- Use aseptic technique for changing or removing dressings –sterile normal saline
- Avoid mechanical scrubbing unless heavily contaminated

Dressing



- A good dressing should promote:
 - hemostasis and prevent edema
 - be able to remove excessive exudate/ provide a good barrier against bacterial or fluid contamination
 - be adherent to the skin but atraumatic on removal

Patient care of the incision

Wash hands with soap and water



Remove dressing 3 days after



Patient care of the incision

Pat dry



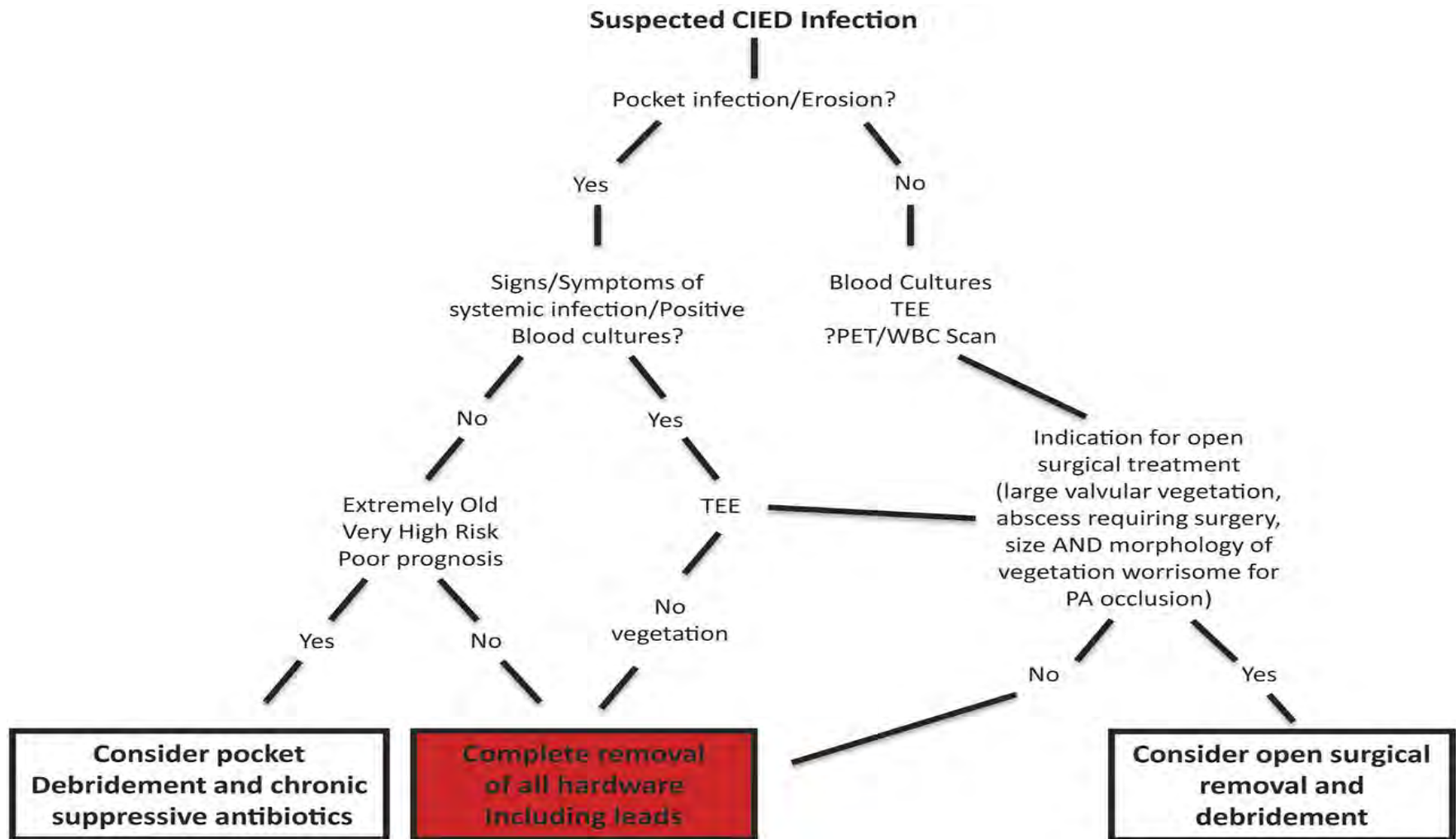
Remove steri strips if they have not fallen off after 7 days



References

- CDC. Available at http://www.cdc.gov/drugresistance/healthcare/surgery/12steps_surgery.htm- Surgical site infections: New solutions to a continuing problem
- Baddour L M et al. Microbiology of cardiac device infections. *Circulation*. 2010;121:458-477
- Chambers CE, Eisenhauer MD, McNicol LB, et al. (2006) Infection control guidelines for the cardiac catheterization laboratory: society guidelines revisited. *CCI*;67:78-86
- Gaston RG, Kuremsky MA. Postoperative infections: prevention and management. *Crit Care Nurs Clin North Am* 2012;24:323–44.
- Ruszczak Z, Schwartz RA, Joss-Wichman E, Wichman R, Zalewska A. Medscape reference: surgical dressings. Available at [emedicine.medscape.com/ article/1127868-overview#showall](http://emedicine.medscape.com/article/1127868-overview#showall) [Accessed 29 January 2015].
- Singer AJ, Dagum AB. Current management of acute cutaneous wounds. *NEJM* 2008;359:1037–46.
- Sohail et al, (2010) Contemporary management of cardiovascular implantable electronic device. *Expert Rev Anti Infect Ther*; 8(7), 831-839
-
- Sohail MR et al. ((2007. Risk factor analysis of permanent pacemaker infection. *Clin Infect Dis*.;45(2):166-173
- Walter CJ, Dumville JC, Sharp CA, Page T. Systematic review and meta-analysis of wound dressings in the prevention of surgical-site infections in surgical wounds healing by primary intention. *Br J Surg* 2012;99:1185–94.
- Witte MB, Barbul A. General principles of wound healing. *Surg Clin North Am* 1997;77:509–28.

A suggested algorithm of managing a patient with an infected cardiac implantable electrophysiological device.

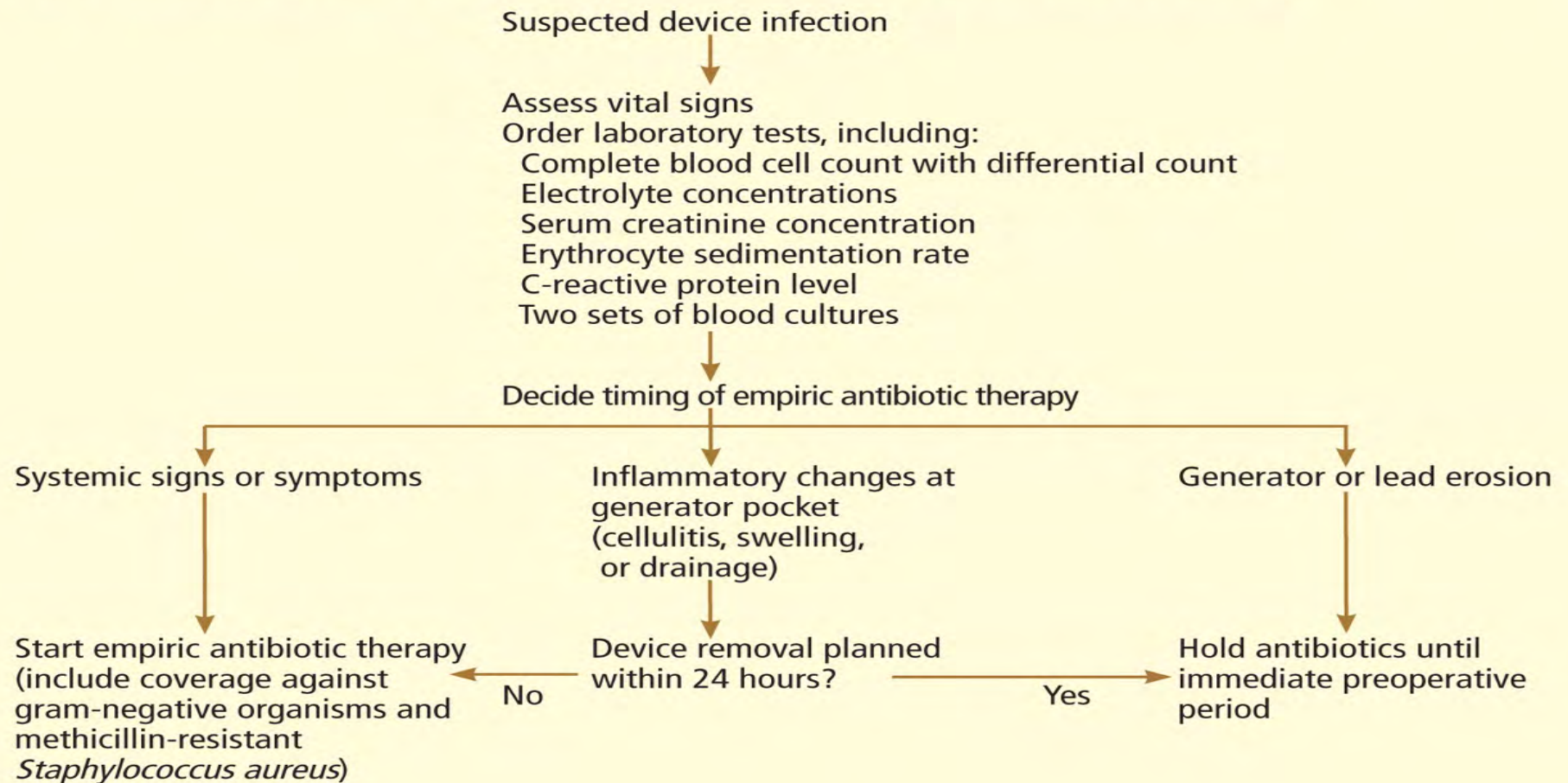


Nof E , and Epstein L M Eur Heart J 2012;eurheartj.ehs352

Published on behalf of the European Society of Cardiology. All rights reserved. © The Author
2012. For permissions please email: journals.permissions@oup.com

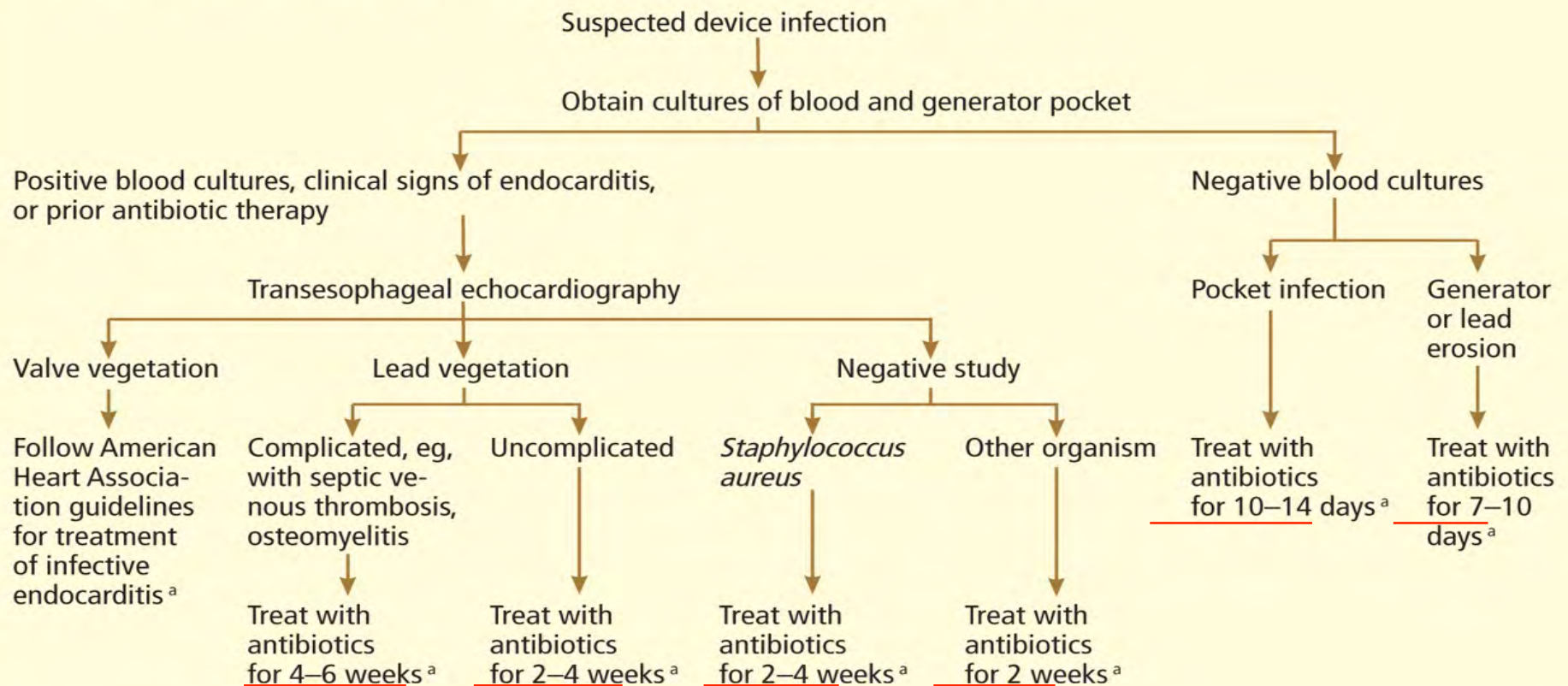
Initial evaluation and empiric antibiotic therapy for cardiovascular implantable electronic device infection.

Initial evaluation and empiric antibiotic therapy for cardiovascular implantable electronic device infection



How to determine the duration of therapy for cardiovascular implantable electronic device infection.

How to determine the duration of therapy for cardiovascular implantable electronic device infection



^aDuration of antibiotics should be counted from the day of device explantation.

ADAPTED FROM SOHAIL MR, USLAN DZ, KHAN AH, ET AL. MANAGEMENT AND OUTCOME OF PERMANENT PACEMAKER AND IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR INFECTIONS. J AM COLL CARDIOL 2007; 49:1851–1859, WITH PERMISSION FROM ELSEVIER. WWW.SCIENCEDIRECT.COM/SCIENCE/JOURNAL/07351097.