IWII Education Session
Tissue Identification
EWMA 2019

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Vice Chair IWII
The discussion and concern

“For years it’s been worrying me how best to teach about slough in the wound bed”

“Many nurses and other clinicians refer to all the yellow / creamy / greyish tissue as ‘slough’, yet some slough can be cleared by autolytic debridement alone, whereas others require other forms of debridement”
<table>
<thead>
<tr>
<th>Tissue Types</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fascia</td>
<td>• Shiny, gleaming white</td>
</tr>
<tr>
<td></td>
<td>• Firm</td>
</tr>
<tr>
<td>Muscle</td>
<td>• Pink to dark red in colour, highly vascular</td>
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<tr>
<td></td>
<td>• Tears easily</td>
</tr>
<tr>
<td></td>
<td>• Frim</td>
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<tr>
<td>Bone</td>
<td>• Hard and milky white when healthy</td>
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<tr>
<td></td>
<td>• Desiccates rapidly when exposed to air</td>
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<tr>
<td>Cartilage</td>
<td>• Shiny, white to purple</td>
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<tr>
<td></td>
<td>• Covers bone at joint</td>
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<tr>
<td>Tendon</td>
<td>• Pearly white and smooth when healthy</td>
</tr>
<tr>
<td></td>
<td>• Strong, stringy, elastic</td>
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<tr>
<td></td>
<td>• Moving the extremity can show the movement</td>
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</tbody>
</table>
Fascia and muscle
Bone
Tendon
Universal Wound Colour System
Granulation = Red

- Hypergranulated
- Agranular
- Gelatinous granulation
- Pale granulation
- Beefy red
- Friable
### Types of and colour of nonviable tissue

<table>
<thead>
<tr>
<th>Colour</th>
<th>Moisture content (range)</th>
<th>Consistency</th>
<th>Adherence to wound bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cream/yellow</td>
<td>Moist or wet</td>
<td>‘Mucinous’/slimy soft</td>
<td>Non-adherent</td>
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<tr>
<td></td>
<td></td>
<td>‘Gelatinous’ soft</td>
<td></td>
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<tr>
<td>Tan/brown</td>
<td></td>
<td>‘Stringy/clumpy firm’</td>
<td>Firmly adhered</td>
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<tr>
<td>Grey/blue</td>
<td></td>
<td>Fibrinous firm to hard</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>‘Leathery’ hard</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey/blue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>Dry and dehydrated</td>
<td></td>
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</tbody>
</table>

**May be seen with topical application of some silver antimicrobial dressings**

**May be seen in the presence of Pseudomonas aeruginosa – local infection**

**May also be seen in the presence of specific bacterial local infection**

Slough/ Yellow

- Devitalized tissue that can soft and moist tissue
- The colour will vary from cream, yellow and tan depending on hydration
- It can firmly attached or loose
- May be slimy, gelatinous, stringy, clumpy or fibrinous consistency
- Maybe liquefying necrosis
- Contains:
  - Proteinaceous tissue
  - Fibrin
  - Neutrophils
  - More recently associated with the biofilm or bacterial related slough
These are all yellow

But they are not all the same
Black (dark) tissue may represent:

- Necrosis due to pressure damage / hypoxia
- ‘Deep tissue injury’ which has yet to evolve usually related to pressure and shear forces
- Haematoma
- Ischaemia or avascular
- A purple edge such as in Pyoderma Gangrenosum
- Devitalised – detached from its blood supply or traumatised such as a full thickness burn
- Colour will vary depending on hydration
Same colour
different aetiologies
Biofilm? Slough? What is it?

It lifts off easily and comes back by next week?

Photo by R Wolcott and G Schultz
Is Biofilm only on the wound surface?
2016 Updates:

- Biofilm added
- Consensus on terminology
- Change from bacteria to microbial
- R/O critical colonisation

The Wound Infection Continuum diagram shows the progression from contamination to systemic infection, highlighting the importance of vigilance and intervention at different stages. The biofilm is depicted as a critical factor in the continuum.
Wound infection continuum

Local Infection

Covert

• Subtle signs of infection contained within the wound bed. These are commonly known as the secondary signs of infection
• Treatment is proactive
  – Therapeutic cleansing
  – Consider topical antimicrobial
Secondary S&S

- Friable granulation tissue
- Change, abnormal (hypergranulation) or absent granulation tissue
- Epithelial bridging and pocketing in granulation tissue
- Increasing malodour
- Delayed healing, beyond expectations
- Wound breakdown, enlargement

Local Wound infection: Covert
Wound infection continuum

Local Infection

Overt

- The classic sings contained within the wound bed and immediate periwound
- Treatment is proactive
  - Therapeutic cleansing
  - Consider topical antimicrobial

Contamination  Colonisation  Localised Infection  Spreading infection  Systemic infection
Classic S&S

- Oedema
- New or increasing pain
- Purulence
- Advancing erythema
- Local Warmth

Acute wound or Overt Local infection
Assessing and understanding what you are seeing