

TIME

Moisture imbalance

Managing highly exudating
wounds



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AWMA(SA) Seminar August 2011

Overview

- History of moisture and wound healing
 - What is exudate?
 - Effects of too much
- Factors influencing exudate production
 - Managing the exudate and the skin

History of moist wound healing

- George D Winter 1962
 - Studied multiple small partial thickness wounds on the backs of pigs
 - Studied and compared healing in the wounds that dried out and formed scabs vs. those covered with a plastic film
- The covered epithelialized twice as fast as air exposed
- Natural environment of a cell is moist; a dry cell is a dead cell



An era of modern wound care

- Following Winter's work, many moist healing dressings were developed
 - 70's: films and hydrocolloids
 - 90's hydrogels
 - Now, a plethora of wound care products
- Are we using them correctly and managing exudate ??



What is exudate?



- Exudate is mainly water!
- Normal part of wound healing
- During inflammatory response: blood vessel walls dilate and allow leakage of protein and cell rich fluid to the wounded area
- Neutrophils and macrophages destroy and engulf bacteria
- Macrophages are a source of cytokines, GF and MMP's necessary for healing
 - At the end of the inflammatory phase, MMP's decrease
 - As healing occurs, exudate usually decreases

What is exudate?

- Paracelsus (1491-1541) described exudate as "nature's balsam"
 - In the acute wound, exudate promotes healing
- The same can not always be said for



the
chronic wound



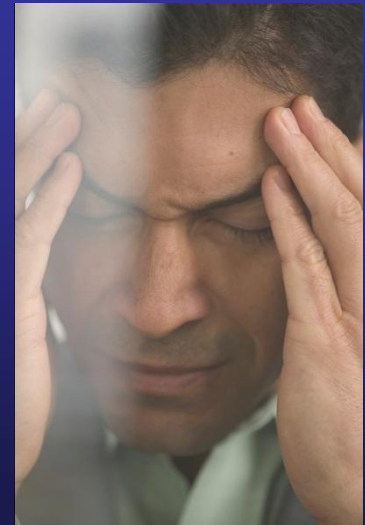
Chronic wound exudate

- Delayed wound healing, >3 months
- Higher levels of MMP's that degrade the wound matrix necessary for healing and inhibit GF
- Prolonged inflammation due to high levels of pro-inflammatory cytokines
 - = increased exudate
- Exudate can become a wounding agent in it's own right



Evidence of too much?

- Assess the patient, wound, skin and observe the dressing removed
 - Leakage/strikethrough
 - Wound requires > than daily dressings
 - The amount of exudate does not match the wound size
 - Peri-wound skin changes
 - Odour
 - Discomfort/pain
 - Distress and misery!



Effects of too much

- Increased proteolytic activity perpetuates wounds
- Damages the wound bed; slows down/ prevents cell proliferation
 - Promotes further inflammation
- Damages the peri-wound; maceration, excoriation, denudement



Winter stated a dry cell is a dead cell;
what is a wet cell?
Dysfunctional

Effects of too much

- Can be interpreted as product allergies
 - Promotes hypergranulation
- Increases bacterial burden and infection
 - Delays healing



But wait, there's more.....

- May contribute to malnutrition (2° to malodour and loss of appetite)
- Protein deficiency
- Impaired quality of life
- Social isolation
- Labour intensive
- Cost expensive





Etiology

- Exudate is a symptom
- Essential to diagnose the wound etiology
 - Treat the underlying cause
 - Then manage the exudate with the appropriate dressing

Factors affecting exudate production

- Stage of healing
 - Deep wounds
- Wounds with large surface area
 - Heavily colonized or infected
 - Osteomyelitis



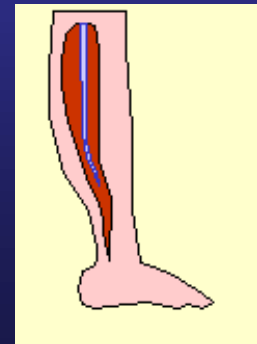
Factors affecting exudate production

- Venous ulcers
- Lymphoedema + wound
- Stage 3, 4 Pressure ulcers
- Chronic wound



Factors affecting exudate production

- Congestive cardiac, renal or hepatic failure
 - Malignancy
 - Obesity
- Limb dependency or immobility (lack of calf muscle pump)



Factors affecting exudate production

Locally related

- Failure to address etiology
- Inappropriate dressing choice
- Inappropriate frequency of dressing
 - Patient non compliance with Tx

Exudate quality

Serous



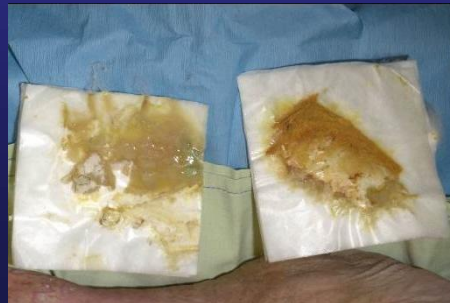
Haemoserous



Sanguinous



Purulent

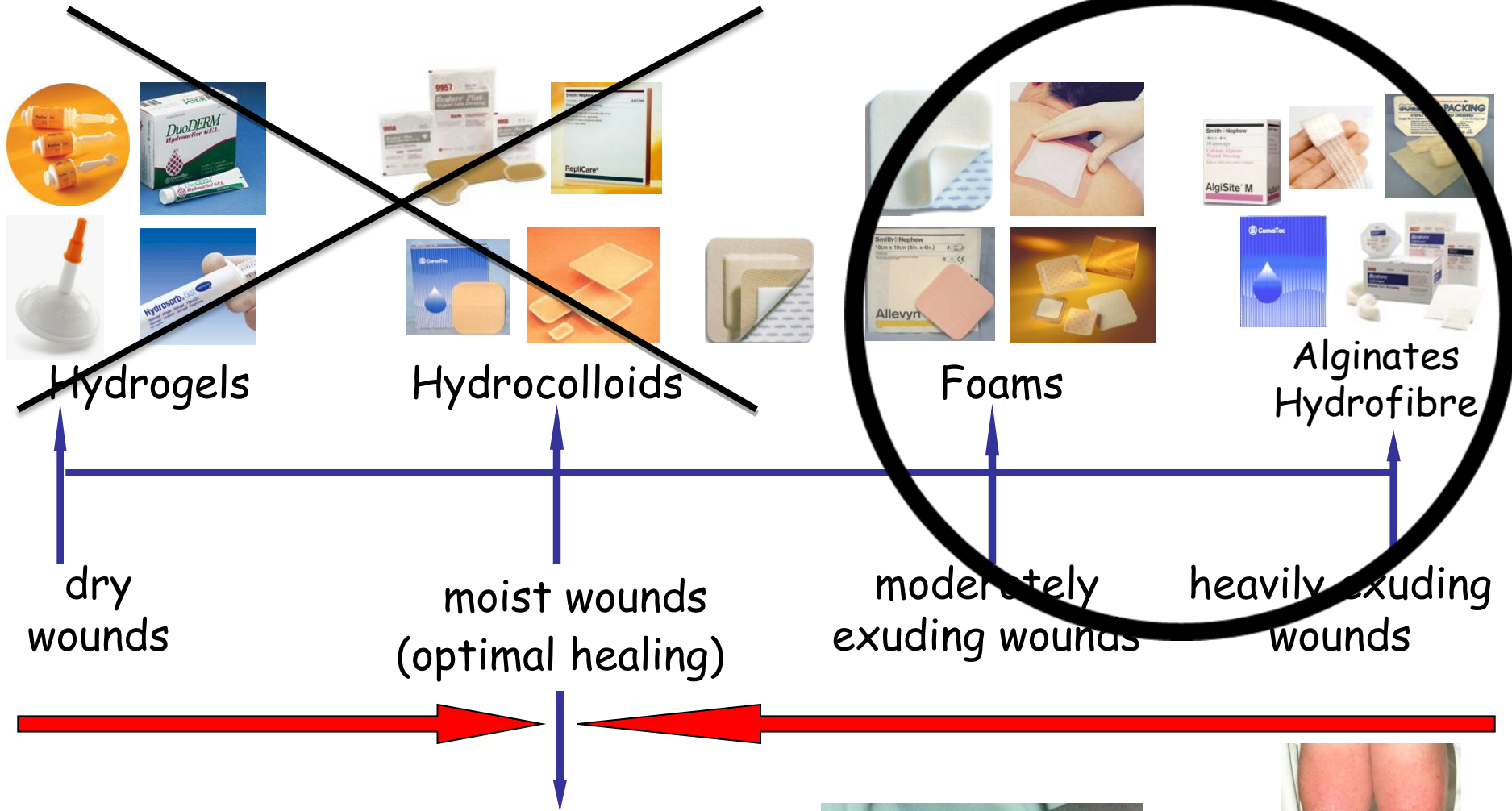


Managing excess exudate

- Address the underlying etiology (this may include compression bandaging)
 - Daily dressing until local wound environment stabilizes
 - Absorbent dressings
 - Tx of bacterial burden/infection
 - TNP therapy
 - Skin protection



Dressings and wound moisture balance



dry wounds

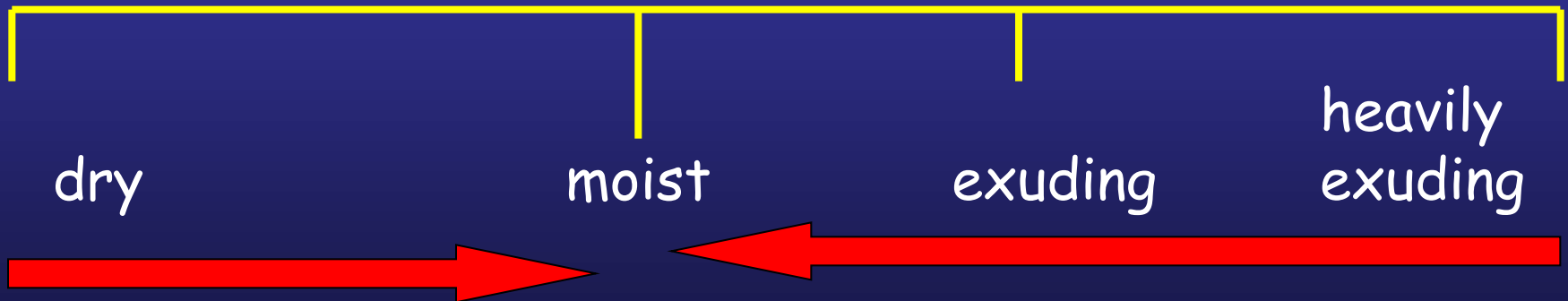
moist wounds
(optimal healing)

moderately
exuding wounds

heavily exuding
wounds



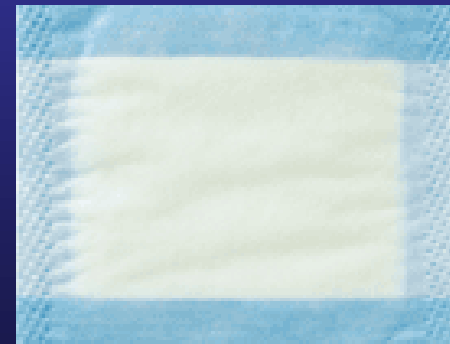
Exudate management and antibacterials



Secondary dressings

- Use gauze as secondary dressing
- Combines/pads as "thirdry" dressing
- Avoid secondary dressings such as

Mellolite



Surrounding skin





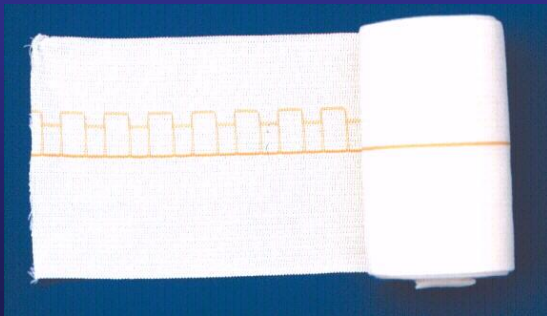
Skin protection

- Barrier creams i.e. zinc
- Zinc based limb products
- Paraffin based products

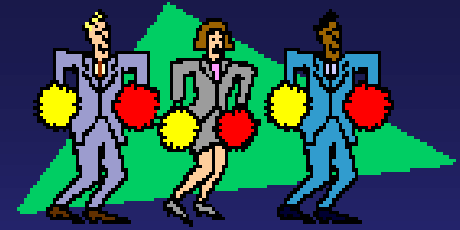


Oedema management

Assess that it is safe to manage oedema;
vascular Ax



Conclusion



- Respect that exudate can be both healing and harmful
 - Manage the harmful
- Follow the first line principles of treatment of etiology and accurate wound assessment
 - Don't skimp on absorbent dressings
 - If it needs daily, do it
- Once stable, then frequency may be reduced
 - If this pathway is followed, healing will be enhanced