Debridement is the medical removal of a patient’s dead, damaged, or infected tissue to improve the healing potential of the remaining healthy tissue. Removal may be surgical, mechanical, chemical, autolytic (self-digestion), and by maggot therapy, where certain species of live maggots selectively eat only necrotic tissue.

In oral hygiene and dentistry, debridement refers to the removal of plaque and calculus that have accumulated on the teeth. Debridement in this case may be performed using ultrasonic instruments, which fracture the calculus, thereby facilitating its removal, as well as hand tools, including periodontal scaler and curettes, or through the use of chemicals such as hydrogen peroxide.

In podiatry practitioners such as chiropodists, podiatrists and foot health practitioners remove callus, corns, verrucas etc.

Debridement is an important part of the healing process for burns and other serious wounds; it is also used for treating some kinds of snake bites.

Sometimes the boundaries of the problem tissue may not be clearly defined. For example, when excising a tumor, there may be micrometastases along the edges of the tumor that are too small to be detected, and if not removed, could cause a relapse. In such circumstances, a surgeon may opt to debride a portion of the surrounding healthy tissue — as little as possible — to ensure that the tumor is completely removed.

Types of wound debridement

Autolytic debridement

Autolysis uses the body's own enzymes and moisture to re-hydrate, soften and finally liquefy hard eschar and slough. Autolytic debridement is selective; only necrotic tissue is liquefied. It is also virtually painless for the patient. Autolytic debridement can be achieved with the use of occlusive or semi-occlusive dressings which maintain wound fluid in contact with the necrotic tissue. Autolytic debridement can be achieved with hydrocolloids, hydrogels and transparent films.

Best Uses

- In stage III or IV wounds with light to moderate exudate.

Advantages

- Very selective, with no damage to surrounding skin.
- The process is safe, using the body's own defense mechanisms to clean the wound of necrotic debris.
- Effective, versatile and easy to perform
- Little to no pain for the patient
Disadvantages

- Not as rapid as surgical debridement
- Wound must be monitored closely for signs of infection
- May promote growth of anaerobic organisms if an occlusive hydrocolloid is used

Enzymatic Debridement

Chemical enzymes are fast acting products that produce slough of necrotic tissue. Some enzymatic debriders are selective, while some are not.

Best Uses

- On any wound with a large amount of necrotic debris.
- Eschar formation

Advantages

- Fast acting
- Minimal or no damage to healthy tissue with proper application.

Disadvantages

- Expensive
- Requires a prescription
- Application must be performed carefully only to the necrotic tissue.
- May require a specific secondary dressing
- Inflammation or discomfort may occur

Mechanical Debridement

This technique has been used for decades in wound care. Allowing a dressing to proceed from moist to wet, then manually removing the dressing causes a form of non-selective debridement.

Hydrotherapy is also a type of mechanical debridement. Its benefits versus risks are of issue.

Best Uses

- Wounds with moderate amounts of necrotic debris

Advantages

- Cost of the actual material (ie. gauze) is low
Disadvantages

- Non-selective and may traumatize healthy or healing tissue
- Time consuming
- Can be painful to patient
- Hydrotherapy can cause tissue maceration. Also, waterborne pathogens may cause contamination or infection. Disinfecting additives may be cytotoxic.

Surgical Debridement

Sharp surgical debridement and laser debridement under anesthesia are the fastest methods of debridement. They are very selective, meaning that the person performing the debridement has complete control over which tissue is removed and which is left behind. Surgical debridement can be performed in the operating room or at bedside, depending on the extent of the necrotic material.

Best Uses

- Wounds with a large amount of necrotic tissue.
- In conjunction with infected tissue.

Advantages

- Fast and selective
- Can be extremely effective

Disadvantages

- Painful to patient
- Requires anaesthesia, if the wound is large
- Costly, especially if an operating room is required
- Requires transport of patient if operating room is required