

The De-roofing of Burns Blisters



A 'how to' guide for health professionals

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Following a burns consensus statement on the management of burns blisters, this leaflet aims to guide health professionals working within emergency departments, minor injuries units and community practice settings to:

- Understand how burns blisters are formed.
- Provide a step-by-step guide on when and how to de-roof burns blisters.

How are burns blisters formed?

A 'burn' blister may form when the skin has been damaged through heat, cold or chemical injuries. The top layer of the skin (epidermis) separates from the skin layers beneath and a small pocket of fluid forms between these skin layers. The blister fluid cushions the tissue underneath, protecting it from further damage. This blister fluid contains water, protein, the remains of blood cells and chemical clotting agents that have been expelled from the burn injured area. There has been much debate regarding the management of burn blisters. Several studies support that the burns blister fluid can provide a good medium for bacterial growth and suppress wound healing cells. Therefore, the burn consensus statement recommended that burns blisters are removed to reduce any risk of infection and to enable an accurate assessment of the burn injury depth. Knowing the burn injury depth can help to guide subsequent management decisions.

Skin blisters can be caused by:

- Friction
- Skin reactions to agents that trigger the immune system
- Medical conditions eg 'hand, foot and mouth disease'
- Extremes of heat or cold
- Chemicals

Clinical Practice Guidelines

The British Burns Association recommends that burns blisters greater than the size of the patient's little finger should be 'de-roofed.'

Consideration should be given to:

- The minimal benefit of 'de-roofing' small non-tense blisters.
- The limited benefit of 'de-roofing' blisters on the palmar surface of the hand or plantar aspect of the foot due to the thicker blister wall being more difficult to breach and occasionally being more painful. These areas are classified as specialist and will need to be discussed with the local burns team
- The risk of deroofing blood-filled blisters as these may indicate underlying open structures such as open joints, with a risk of infection. A surgical review is required.

If your facility does not have the resources to 'de-roof' blisters then you should contact your local burns service.

What is de-roofing and why do we de-roof burns blisters?

De-roofing is the process whereby the 'roof' of the blister is removed under clean (aseptic) conditions to expose the viable tissue beneath.

The benefits of de-roofing include:

- It allows the assessment of the wound bed
- Non-viable tissue is removed
- The pain of tense blisters resolves
- There is less likelihood of restriction of range of motion
- It prevents later rupture of the blister with inevitable contamination
- With a clean wound bed, the risk of infection is reduced

How to de-roof burns blisters

The de-roofing of burns blisters should be under strict aseptic technique:

Sterile equipment required:

- 1x Dressing pack containing gauze
- 1x Scissors
- 1x Forceps
- Normal Saline 0.9%



Select a non-adherent silicone-based or paraffin-impregnated gauze dressings as the primary (contact) dressing.



The picture shown above demonstrates why it is necessary to de-roof this blister. If this blister was left intact, then the patient's hand movements would be restricted and prone to early blister rupture which could in turn lead to an increased risk of wound infection. If the burns blister is removed through de-roofing and the underlying wound bed is cleansed aseptically, this reduces the risk of uncontrolled blister rupture and the risk of infection. The wound bed is kept clean with de-roofing and subsequent dressing changes.

Step by step guide to de-roofing burns blisters:

Step 1

Ensure the patient has appropriate pain relief prior to commencing this procedure. It is advisable to position the patient in a lying position on a bed, patient trolley or couch due to the risk of the patient feeling faint and also to keep the blistered area on a stable surface.

Step 2

Prepare sterile equipment as listed above on a clean dressing trolley.



Step 3

Place a sterile drape under the blistered area of the body. Wash hands and wear sterile gloves.

Take the forceps and gently hold the damaged epidermis that makes up the roof of the blister. Using the sterile scissors, create a small cut within this damaged, blistered skin layer. This facilitates the release of serous blister fluid. Soak up any serous fluid with sterile gauze.



Step 4

Using the small access hole created by the incision of the scissor blades, lift the epidermis with your forceps and peel it back. Trim around the edge of the blister using your sterile scissors. Try to avoid touching the base of the blister which can be painful.

Remove all of the damaged epidermal top layer of skin. Ensure you have sterile gauze available to mop up any blister serous fluid and devitalised skin. Discard any removed skin tissue into a sharps bin as contaminated human waste.



Step 5

After the burns blisters have been completely de-roofed, clean the exposed wound bed with normal saline. Most superficial burns have a wound bed that is moist, red and blanches to pressure. If you have any concerns regarding the wound depth, this will require a medical review.



Step 6

Next, apply a primary, non-adherent silicone based dressing to the exposed wound bed. Then apply sterile gauze for absorbency and secure dressings with an outer crepe bandage. Dress individual fingers with 'finger bobs' (circumferential, loose, tubular bandages).



Please ensure that the secondary dressings are not secured too tightly as burn injured areas are at risk of swelling over the next 24-48 hours post injury. Elevate injured upper limbs/hands in a sling or collar and cuff as appropriate.

Burns wounds are dynamic in that they can change in depth within the first 48 hours post injury. Additionally, wound fluid leakage is maximal during this period and can heavily soil dressings. This in turn can increase the risk of infection as organisms track from the outer surface of the dressing through this fluid. For these reasons, ensure a further wound assessment and change of dressings is carried out within 24-48 hours if not referring immediately on to your local burns service.

Follow-up and referral support


If you require any further burns wound support, please see our contact details on the back page.

References:

London & South East of England Burn Network (2011) Consensus on Burn Blister Management.

Sargent R L (2006) Management of Blisters in the Partial Thickness Burn: An Integrative Research Review. Journal of Burns Care & Research Vol 27 (1) p66-80.

How to contact us:

 **Adult Burns Unit**
Gate 33a
Level 2
Brunel Building
Southmead Hospital
Bristol
BS105NB

 **Adult Burns 24-hour Helpline**
0117 414 3100 / 3102

 **Acute Burns Clinic**
0117 414 4005

 **Burns referrals please contact Burns SHO on-call**
via switchboard 01179 505050 bleep 1311

 **Karen Highway CNS Adult Burns via switchboard**
01179 505050 bleep 1380 or ext. 41257

 **Burns@nbt.nhs.uk**

 **www.nbt.nhs.uk**

If you or the individual you are caring for need support reading this leaflet please ask a member of staff for advice.

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