

# HAEMATOMA: ASSESSMENT, TREATMENT AND MANAGEMENT

Haematoma and other dermal injuries are becoming more common due to the rising older population. The skin is an organ and as it ages it becomes more fragile and liable to damage. Painful injuries resulting in haematoma formation can take several weeks to resolve and may require surgery.

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A haematoma is defined as a bruise or collection of blood in the tissues (Collins et al, 2002). Haematomas appear as a dark red/black collection of blood standing proud of the skin (Figure 1).

## Causes of haematoma

Haematomas are usually caused by a blunt force trauma, which may be severe and cause other injuries, such as a fracture. It may appear to be a minor injury, but a haematoma indicates trauma to an underlying blood vessel. If the patient takes anti-coagulant therapy, such as warfarin or aspirin, a minor injury may still cause a



*Figure 1. Haematoma following a severe knock to the patient's leg.*

large haematoma due to a raised International Normalised Ratio (INR) (this is a measurement of how long it takes an individual's blood to clot compared to the average).

Before treating a haematoma, clinicians should take bloods from his/her patient to determine their INR. The average time the blood should need to clot is between 0.8-1.2 seconds in an individual not receiving anti-coagulant therapy. If the INR is extended to five seconds, then the patient will have a high chance of bleeding, whereas if the INR is 0.5 (abnormally low), there is a high chance of the individual having a blood clot within a vein (deep vein thrombosis [DVT]).

## Predisposing factors for haematoma formation

Due to the nature of ageing skin, older people become more vulnerable to minor injuries, which may involve haematoma formation. The epidermis is attached to the underlying dermis with papillae (finger-like projections). Papillae become flattened with age and consequently the epidermis can be easily sheared away from



*Figure 2. A particularly large haematoma.*

the dermis causing trauma and often bleeding. This may lead to haematoma formation, which can be no more than a large bruise that will be easily reabsorbed by the body, or result in a larger injury, depending on how great the force of the injury (Figure 2).

## Management of haematoma wounds

How a wound containing a haematoma is managed depends firstly on individual patients and whether they are otherwise medically well, independently mobile, continent and able to make decisions, or if they are suffering from comorbidities, which might make invasive (surgical) intervention dangerous or impede their ability to care for themselves.

In other words, any decision on how to proceed with managing this type of wound must be taken in accord with the patient's best interests to the fore. If individual patients are able to make decisions for themselves, they can, therefore, be presented with treatment options. If patients are not able to make their own decisions, then their clinicians



Figure 3. Minor haematoma, which has mainly reabsorbed, leaving the patient with a small wound.



Figure 4. Large haematoma requiring surgical intervention.

along with their relatives/ advocate must make decisions for them. This should be based on comprehensive physical assessment as well as their potential for rehabilitation.

If the haematoma is minor and/ or slightly bigger than a large bruise (Figure 3), then it may well be reabsorbed by the body and only requires that the wound area is protected with a

Table 1 Appropriate dressings to remove haematoma

Wound dressing	Mode of action	Appropriate for	Cautions
<b>Hydrogels</b> Examples: Granugel® (ConvaTec UK), Intrasite® (Smith&Nephew)	Main constituent is water, approximately 70%, used to rehydrate the coagulated haematoma and to gently facilitate its removal from wound bed  More effective with a hydrocolloid as secondary (outer), dressing	Haematoma with overlying necrotic (dead) skin, will begin the gentle process of debridement by autolysis <i>NB Only a thin layer of hydrogel is required</i>	Over-application of hydrogel may cause skin maceration  If the patient has very fragile skin then use of an adhesive dressing is not recommended
<b>Hydrogel sheet</b> Examples: Actiform Cool® (Activa Healthcare), Clearsite® (ConMed Patient Care), GeliPerm® (Geistlich Pharma AG)	Contain approximately 30% water, will gently debride the haematoma from the wound bed	Patients with very fragile skin, for which an adhesive dressing is not recommended. For best effect, the dressing should be removed every three days Once the haematoma has been removed, the hydrogel sheet will aid promotion of granulating tissue	Patients/users should be cautioned to expect a messy dressing on removal after three days as the dressing begins to work
<b>Hydrocolloids</b> Examples: Duoderm Signal® (ConvaTec UK), Tegaderm® (3M™), Hydrocoll® (Hartmann)	Inhibit the insensible loss of moisture at skin surface by preventing evaporation	As a secondary dressing over a hydrogel on patients with robust skin	If patient has fragile skin, use of hydrocolloid dressing may endanger the skin further on removal if not soaked away

suitable dressing. The dressing should provide the correct environment for that wound at its particular stage of healing and allow for infrequent dressing changes (*Table 1*).

If the haematoma is larger (*Figure 4*), and the possibilities of reabsorption are limited, then a decision must be made whether to continue to conservatively manage the area with the use of wound dressings to gradually remove the haematoma and enable the wound to heal by secondary intention (by itself), or whether surgical intervention is required.

However, if the haematoma is very large, it is likely to require surgical debridement and possibly a skin graft to cover the resulting wound. In this case, the patient will have two wounds: the traumatic wound site with a skin graft applied (*Figure 5*) and the donor site from which the skin graft was harvested (*Figure 6*).



*Figure 6. Donor site, from which the skin graft is harvested, may take up to three weeks to heal in an older person.*

The clinician should also consider where the haematoma lies under the skin. If it has formed within the dermal tissue and is removed either by wound dressings or by surgical intervention then, provided the base layer of the dermal tissue remains, this wound will re-epithelialise (grow new skin) (*Figure 7*). However, if the haematoma has formed under

the skin and either between the dermal tissue and the subcutaneous layer, or simply under the subcutaneous layer, then it should be removed surgically and a skin graft may be required — provided it is in the patient's best interest.

### Case report

Ms T is an 87-year-old who had been admitted to hospital following a fall during which she suffered a neck of femur fracture and sustained a large haematoma to her right lateral tibia (*Figure 8*). Ms T underwent an operation to repair her hip, but post-operatively was very ill necessitating admission to a high dependency unit. The anaesthetists were concerned that another anaesthetic would be dangerous for Ms T. In addition, she was struggling to regain the little mobility she had before her fall and was also incontinent of urine.

Consequently, following a discussion of the various



*Figure 5. Debrided Haematoma with skin graft applied.*





Figure 7. This wound is almost healed and in the last stages of epithelialisation (new skin).

wound dressing and surgical intervention options with Ms T (who was able to make decisions for herself) she decided that despite understanding that her wound would take several weeks to heal she would prefer to go ahead with wound dressings. This decision would allow Ms T to continue her physiotherapy and hopefully regain some mobility, whereas surgery would significantly delay or even prevent this.

Actiform Cool® (Activa Healthcare) hydrogel sheet dressings were used to gently debride the haematoma away from the underlying wound bed. This dressing was continued to encourage granulation of the clean wound bed and epithelialisation at the wound edges. This necessitated dressings changes every three days. Ms T's leg was also supported by used of a double layer of tubular bandage during this time. She was discharged from hospital into the care of her community nursing team.

### Complications of haematoma

If a large haematoma is not promptly removed, the wound may become infected. The implications of this such as delayed wound healing and further pain and discomfort must always be discussed with the patient.

Any open wound invites the possibility of infection, therefore, the clinicians changing the dressings must be scrupulous in their universal precautions such as hand washing and wearing gloves and aprons, to reduce the risk to the patient. Regular observation of the patient's temperature, pulse and blood pressure are also required as any elevation may indicate infection.

If the haematoma affects the lower limbs, the patient's mobility may be affected. This may be partly due to the patient's anxiety that they may suffer further harm, and can be partly due to a loss of confidence, which is entirely natural. Having sustained one injury, which has resulted in a haematoma, the patient is often shaken by this and is fearful of knocking his or her leg or falling. There may also

be physical causes for a lack in mobility, such as pain and discomfort.

It is vital that the patient has a pain assessment and that it is repeated regularly to determine that the analgesia they receive is adequate (Taylor, 2010).

### Conclusion

To provide the best care for an individual patient requires assessment, not only of the wound but also of any underlying medical problems, the patient's skin integrity and any mobility or continence issues they may have.

While it might be considered best practice for a patient with a large haematoma to have it surgically debrided and a skin graft applied, it might not be in the patient's best interest. **WE**

Collins F, Hampton S, White R. (2002) *A-Z Dictionary of Wound Care*. Mark Allen Publishing; 9

Taylor A. (2010) *Principles of pain assessment*. *Wound Essentials* 5: 104–10



Figure 8. Ms T sustained a large haematoma to her right lateral tibia.