

TRAUMA SERVICE GUIDELINES

TITLE: HALOTHORACIC BRACE

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See also: [Halo Thoracic Manual Handling Guideline](#)

The halo thoracic brace is a device that is used to immobilise the head and neck following a cervical fracture, high thoracic fracture, or postoperatively to allow bone healing.

The brace consists of a ring that is attached to the outer table of the skull with four pins and supporting rods attached to a vest. A patient may require a halo thoracic brace for treatment of unstable spinal injuries for up to 12 weeks.

Application of a halo thoracic brace is conducted by a surgeon with an Orthotist, and can be completed under a local or general anaesthetic.

Application

The pins are positioned anteriorly, approximately 1 cm above the lateral 1/3 of eyebrows, and posteriorly below the equator of the skull, ensuring the crown is not touching the ears. The pins are inserted using the torque limiting caps which limit the amount of torque to 8lbs/in. Once the pins are all tensioned correctly the locking nuts are tightened on all four pins against the crown, ensuring the pins are not advanced while locking the nuts.

All pins are re-torqued back to 8lbs/in 24-48/24 post initial fit by the orthotists. The pin torques are checked fortnightly by the orthotists but are only re-torqued if the patient believes that they have moved, feel loose or if the patient can hear an audible 'clicking.'

Care of the patient with a Halo Thoracic brace

Patient Assessment¹

- Neurological observations; 4/24 for 24 hrs, as halo application can affect sensory and motor function (*monitoring, GCS, Airway, breathing and circulation*)

Medical staff should be notified immediately if there is any change.

- Bowel and bladder.
- Swallow: If the patient is experiencing dysphagia contact the medical staff, submit an Orthotist and Speech Pathology referral and keep the patient nil oral.
- Skin surrounding the vest needs to have regular assessment. If the patient complains of pain or irritation under the vest, contact the Orthotist for further assessment
- Pin site: observe pin sites for infection and signs of loosening



Halo Vest Care^{2,3}

- The halo has been applied to manage an unstable spinal injury and should remain on at all times. It must not be removed for general care, dressing or sleeping
- The vest must remain dry at all times to avoid skin irritation and breakdown. The Orthotist will arrange an appointment with the patient to change the liner of the vest, assess skin and assist with washing and drying skin under the vest every 2 weeks
- Do not use lotions or powders underneath the vest as this can also cause skin irritation and skin breakdown
- Baby wipes can be used as long as sheep skin liner does not get wet
- Patient can continue to shower- focusing on lower body, this is best achieved by using a hand held shower
- The vest comes with a spanner attached to the front; it must remain there at all times. This is for use in emergency situations to remove the front of the vest to allow for CPR. If the spanner becomes misplaced, please contact the Orthotist immediately for replacement. Please see below for further detail on removal in an emergency.

Manual Handling- Read in conjunction with the Halo Thoracic Manual Handling guideline^{2,3}

- Patients can lie on their side or back
- A rolled up towel can be placed under the head for comfort if required. Do not use pillows
- A folded slide sheet must be used under the patient whilst in bed or sitting out in a chair
- For patients who are mobile, encourage them to roll on their side and push up with one hand on the bed when sitting up
- Do not push or pull or use the halo to move the patient into an upright position
- Please refer to the [Halo Thoracic Manual Handling guideline](#)



Pin Site Care¹⁻⁶

- Should be provided once per shift whilst in hospital
- Assess pin sites for any signs of infection- redness, drainage, pain, swelling, pin tracking, audible "clicking" sound
- Cleanse with normal saline and sterile cotton tip or gauze
- Use one gauze or cotton tip per pin site
- If crusting occurs, wrap the pin site with normal saline soaked gauze for 15-20 mins and then remove
- Avoid ointments and solutions such as peroxide and chlorhexidine as they can be irritating to the skin and potentially cause skin breakdown
- Increase frequency of care if crusting or drainage occurs.

Activity²

Patients may feel initially very top heavy and unbalanced, therefore, when mobilising, the patient should be supervised until they are confident on their own ². If the patient is having trouble with mobility refer them to physiotherapy.

Patient Education

Education should be given to the patient after application, throughout hospital admission and on discharge. Key aspects of education should include halo vest care, pin site care, manual handling techniques and mobility, clothing and potential complications. Key health care personnel and contact numbers should be given to patients on discharge.

Potential Complications

Pin site infections, pin site loosening or dislodgement, skin breakdown, swallowing problems and dural tears are rare but potential complications that should be monitored in patients with a halo thoracic brace.

Pin loosening

Pin loosening is one of the most common complications. The reason for pin loosening is thought to be resorption of the bone at the tip of the pin. This may cause instability and possible infection^{1,4,7}.

Indicators of a loose pin are; observed loosening, patient complaints of hearing a "clicking" sound or local infection. If any of these indications are present, please call the Orthotist to assess the patient and if required tighten the affected pin.

Pin site infections

Diligent pin site care should be maintained to prevent infection. If redness, swelling, drainage or pain occurs at the pin site, consult with the Orthopaedic team to assess and provide treatment and continue pin site care as required. The frequency of dressings may need to be increased, however, if infection continues, placement of the pin to a new site may be required^{1,4-6}.

Skin breakdown and Pressure Sores

Skin breakdown and pressure sores can be a result of insufficient padding, inappropriate vest size or poor application of the vest. The scapula and spine are the common places for skin breakdown which can be prevented by adequate padding, turning, vest repositioning and hygiene¹.

Dysphagia

Swallowing difficulties can occur due to exaggerated extension positioning of the head and neck. If the patient is showing signs of dysphagia, contact the Orthotist and Speech Pathology for further assessment^{1,7}.

Cardiopulmonary Resuscitation (CPR)

- Should the need arise to perform chest compressions; the patient must be laid flat
- The front portion of the halo vest will need to be removed using the halo spanner
- Loosen the two bolts on the anterior portion of the vest and release the two straps on either side of the vest
- Lift the anterior (front) piece of the vest forward to expose the sternum
- In the event of the patient requiring CPR, inline stabilisation (head holding) will be required whilst the CPR is in progress and the front of the vest is removed.



References

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2. Professional O. *Your Halo Guide*. n.d:1-13, Melbourne, Victoria.
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4. Bell A. Care of pin sites. *Nursing Standard*. 2008; 22(33): 44-48.
5. Holmes S, Brown, S. Skeletal Pin site Care- National Association of Orthopaedic Nurses Guidelines for Orthopaedic Nursing. *Orthopaedic Nursing*. 2005; 24(2): 99-107.
6. Timms A, Vincent, M, Santy-tomlinson, J & Hertz, K. *Guidance of pin site care- Report and recommendations from the 2010 Consensus Project on pin site care*. London November 2011.
7. Bransford R, Stevens, D, Uyeji, S., Bellabarba, C & Chapman, J. Halo Vest treatment of cervical spin injuries. *Spine*. 2009; 34(15): 1561-1566.

Associated Melbourne Health Procedures:

Manual Handling MH Policy: MH15.08

<http://ipolicy.mh.org.au/iPolicyV2/ViewPolicyDocument.aspx?policyCode=MH15.08>