HIP SPICA CAST: INPATIENT CARE

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Definition and use of a spica cast.
- Care of a child in the immediate post-operative period.
- Principles for general care of a child within a spica cast:
  - Regular position changes
  - Supported lifting
  - Protection of the spica cast
  - Post-operative neurovascular assessment
  - Positioning for avoidance of pressure areas
  - Constipation prevention diet
  - Clothing/Hygiene
  - Arrangement of transport and discharge equipment
  - Family education
- Potential complications

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CHANGE SUMMARY

- CHW guideline of the same title has been rescinded and replaced by this SCHN guideline.
- Changes included updating the reference list and revising equipment requirements.

READ ACKNOWLEDGEMENT

- SCHN Orthopaedic Medical and Nursing staff should read and acknowledge this document.
- SCHN Physiotherapists and Occupational Therapists caring for patients with spica casts should read and acknowledge this document.

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1 Definition

A hip spica cast is a plaster cast that extends from the chest down to the feet. The objective of the spica cast is to immobilise the pelvis and femur to correct and maintain hip deformities[1, 2]. Toddlers with femoral fractures may have the cast extending to above the knee on the unaffected limb. There is a peroneal opening for toileting that has water proofing tape applied around the edges.

The cast is applied in theatres under a general anaesthetic.

2 The Use of a Spica Cast

A spica cast is used for stabilisation of a fractured femur, or post reduction/reconstruction for developmental dysplasia of the hip (DDH) [1,2]. The spica cast can also be used for children following spinal surgery to provide lumbar stability following trauma or corrective surgery. The cast can often be left in situ for 6 weeks. Children having a closed/open reduction to correct hip dysplasia may have the cast on for a total of 12 weeks, with a change of cast at the 6 week mark.

3 Care of a Child in the Immediate Post-Operative Period

3.1 Observations

Closed Reduction procedures: Hourly TPR for the first 4 hours, then 4th hourly. If vital signs are abnormal, contact medical officer as soon as possible.

- **Open Reduction procedures/pelvic osteotomies**: Hourly TPR until opioid infusion is ceased.
- Neurovascular observations to be recorded hourly, for 24 hours or until child is discharged; refer to:
  - **CHW** Practice Guidelines **Orthopaedic Patient: Neurovascular Considerations**: http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2006-8038.pdf
  - **SCH Post-Operative Care in SCH Recovery Unit:** http://sch.sesahs.nsw.gov.au/policy/manuals/clinical/3.R.2%20Post%20Operative%20Care%20in%20SCH%20Recovery%20Unit.pdf
- Escalate as per “Between the Flags” guidelines.

3.2 Hydration

- Commence clear fluids as desired. If tolerating oral intake grade to a normal diet.
- Monitor input and output on the fluid balance chart.

- Intravenous Therapy as ordered, as per:
  - **CHW Intravenous Fluid Management Guidelines**: http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2009-8070.pdf
  - **SCH Peripheral IV Policy**: http://sch.sesahs.nsw.gov.au/policy/manuals/clinical/6.02%20peripheral%20iv%20policy.pdf

3.3 Pain Management

- **Closed Reduction procedures** require only oral analgesia.
- **Open Reduction procedures** require an Opiate infusion/epidural, as per:
  - **CHW Pain Management Guidelines**: http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2006-8215.pdf
  - **SCH Pain Management** Section 7 of the SCH Clinical Business Rules: http://sch.sesahs.nsw.gov.au/policy/manuals/clinical/toc.asp?name=Pain Management&sec=7&co=0

4 Care of a Child in a Spica Cast

4.1 Positioning

The child can be placed supine, prone or on their side. The child should be supported to alleviate risk of pressure injury on the heels. The child's feet should be able to move freely at all times. The head of the bed should be slightly elevated and body should be level to prevent undue pressure on the back from the cast [1,3]. The child should have bed rails up at all times. Position changes and pressure shifting should be completed as frequently as possible to avoid pressure injuries. Sitting at a 45 degree angle for meals, should be encouraged.[1, 3] If there is swelling around the groin area the child needs to lie flat on the pillows

4.2 Lifting

When lifting or repositioning the child, 1 to 3 persons may be required (depending on the size of the child). Reassurance is essential. Follow manual handling safe practises at all times and ensure that the cast is supported during the lift. For smaller babies ensure that their head and neck are also supported. An Occupational Therapist will need to assess lifting requirements for older children. A hoist can be used for safe lifting, both within the hospital and home.

4.3 Toileting/Hygiene

Due to the nature of the cast, a daily sponge of exposed areas with mild soap is required. Keep the cast dry. Waterproof tape should have been applied to the nappy area when the cast was applied. Care must be taken to protect the exposed skin as well as the cast from excrement. Inner pads (or newborn nappies) can be tucked under the cast, and are used for added protection, with an outer nappy placed over the top[1,3,5]. Frequent nappy changes are

necessary to prevent skin breakdown. Zinc or nappy rash creams may be applied to affected areas that are exposed, but must not be put under the cast.

Children who have had an open reduction or pelvic osteotomy will have post-operative swelling and bruising to the peroneal area. Cold packs with padding to protect the skin can be used to prevent further swelling. It is important to check that the spica cast is not too tight around this area. Any trimming of the cast must be approved by a medical officer and performed by a physiotherapist or medical officer.

Children that are toilet trained can use a urinal or bed pan where possible. Children with the ability to perform slide board transfers can be taught to transfer to a commode with assistance by an Occupational Therapist.

4.4 Skin and Cast Care

Plaster of Paris may have been used in the fabrication of the cast. In this case, it takes up to 48 hours for the cast to dry completely. Allow the cast to dry naturally in circulating air. Limb checks, such as colour, warmth, movement and sensation in the feet are important, particularly within the first 24 hours.[4,6] Parents can be taught to watch for changes. The child should be examined at least twice a day (front and back), observing for red areas, blisters, objects in the cast, and for sore or wet areas.[4,5,6] The heels need to be viewed to ensure pressure injuries do not develop. Check the cast daily for cracks or soft areas. Ensure the parents and child understand that scratching the skin under the cast may lead to a pressure injury or skin infection. If there is the slightest indication that an object has been trapped inside the cast, report it immediately. [1,4]

4.5 Diet

To prevent aspiration, the child should be placed as upright as possible; 45 degrees is acceptable.[4,6] Small frequent meals are recommended if the child becomes uncomfortable after eating. Owing to the side effects of medications for pain control, and immobility, constipation can be an occurrence. The parents should encourage the child to drink plenty of fluids, and to eat food high in fibre such as fresh fruit, raw vegetables and whole grains.[4,6]

4.6 Clothing

It is strongly recommended that a child always has a t-shirt/dress on at all times to prevent objects from falling or being placed down the top of the cast. The child's needs in relation to modesty and privacy should be addressed. Slightly larger shirts, singlets dresses and/or larger shorts are recommended to protect the child's modesty whilst in the spica cast[4,5,6]. Shorts can be altered with hook and loop tape, snaps or ribbons in order to fit over the cast. Socks or blankets are useful in keeping feet warm. Be cautious not to over heat the child with the cast insitu.

4.7 Transportation

An Occupational Therapist will review and modify a car seat and/or pram to accommodate the spica cast. .[1, 6] Ambulance transport on discharge should be obtained if the child is unable to fit in a car seat.

4.8 Discharge Planning and Assessment of Family Needs

Referral to an Occupational Therapist should be made as soon as the spica cast is applied, for measuring of discharge equipment such as a car seat, and stroller. Parents need to be given information, written and verbal, and instructions of care for their child, beginning at pre-admission assessment[4]. Refer to CHW Homecare Guideline/ SCH Hip Spica Booklet:

- **Hip Spica at Home**:

  http://chw.schn.health.nsw.gov.au/o/documents/policies/homecare/2016-9058.pdf

Ensure the parents understand the importance of monitoring changes in health status and when medical review is required.

The parents need to understand the full implication of care, short and long term, such as the physically draining burden of care, change in employment status, feelings of social isolation, and co morbidity complications[1,3,4]. Contact details for support groups should be given and the family encouraged to draw on their current support network to avoid burnout.[3]

(Australian based support group: www.hiphiphoorayddh.org.) Play therapy and activities to stimulate normal development need to be encouraged along with activities that include other siblings where possible.

5 Potential Complications

Mesenteric Artery Syndrome / Cast Syndrome

The syndrome is a rare complication associated with proximal duodenal obstruction resulting in the external compression of the third portion of the duodenum by the superior mesenteric artery[7]. The pressure of the cast around the abdomen has the potential to cause this complication. Constant monitoring of the cast is essential. Parents and carers need to be aware of this complication before the child is discharged from hospital. If, after the child is at home, the cast is found to be too tight around the abdomen the child needs to attend their closest hospital emergency department as soon as possible. A small round hole can be cut into the cast to relieve the pressure on the child's stomach[7].

6 Key Points

- Frequent pressure shifting, positioning changes and correct positioning is essential to prevent pressure injuries.
- Take care with lifting, use appropriate equipment.
- Check the cast does not have any cracks or weak spots.
- The spica cast is not waterproof.
- Change nappies frequently to avoid leakage and odour.
- Check skin integrity, especially around the edges of the cast for skin breakdown.
- Education and equipment must be provided to the parents/carers before discharge home.

- Car seat and stroller modification and education on caring for a child in a spica cast by an Occupational Therapist is essential for discharge
- Manual handling and care of the cast education will be completed by a health care team member prior to discharge

7 References

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