

Management of Neonatal Brachial Plexus Injury - Full Clinical Guideline (Joint Derby and Burton Guideline)

Reference no.: WC/NP/42N

1. Introduction

The brachial plexus is a network of nerves near the neck that give rise to all the nerves of the arm. These nerves provide movement and feeling to the arm, hand, and fingers.

The overall incidence of brachial plexus birth palsy is estimated to be 1.74 per 1000 live births. Most infants with brachial plexus birth palsy will recover both movement and feeling in the affected arm. Parents must be watchful and active participants in the treatment process to ensure maximum functional recovery.

Erb's palsy is a type of brachial plexus birth palsy (a paralysis of the upper extremity due to an injury to the nerves that control movement and sensation to the upper extremity occurring at the time of birth). It typically involves the C5 and C6 nerve roots and leads to a weakness of a newborn baby's arm. It is caused by a stretch injury to the brachial plexus.

Erb's palsy affects the upper brachial plexus, while Klumpke's palsy affects the lower brachial plexus. More specifically, Erb's palsy affects the shoulder and upper arm, compared to the forearm and hand muscles with Klumpke's palsy.

Brachial plexus palsy sustained due to injury to brachial plexus and stretching of nerves during delivery, can be either unilateral or bilateral and may be associated with fractures of the ipsilateral or contralateral clavicle or humerus. Isolated fractures to humerus or clavicle. Isolated radial nerve palsy of the newborn.

It is important to note that not all brachial plexus palsies in neonates are due to birth injury. Unilateral or bilateral palsies can be due to other reasons e.g., transverse myelitis, osteomyelitis spine, spinal stroke, spinal abscess.

2. Aim and Purpose

The guideline aims to highlight the importance of early recognition and severity of the palsy followed by appropriate referrals and timely interventions.

3. Risk Factors

Shoulder dystocia Maternal Diabetes Cephalopelvic disproportion Birth weight > 3.5 kg	Prolonged second stage with difficult delivery Instrumental delivery Breech presentation
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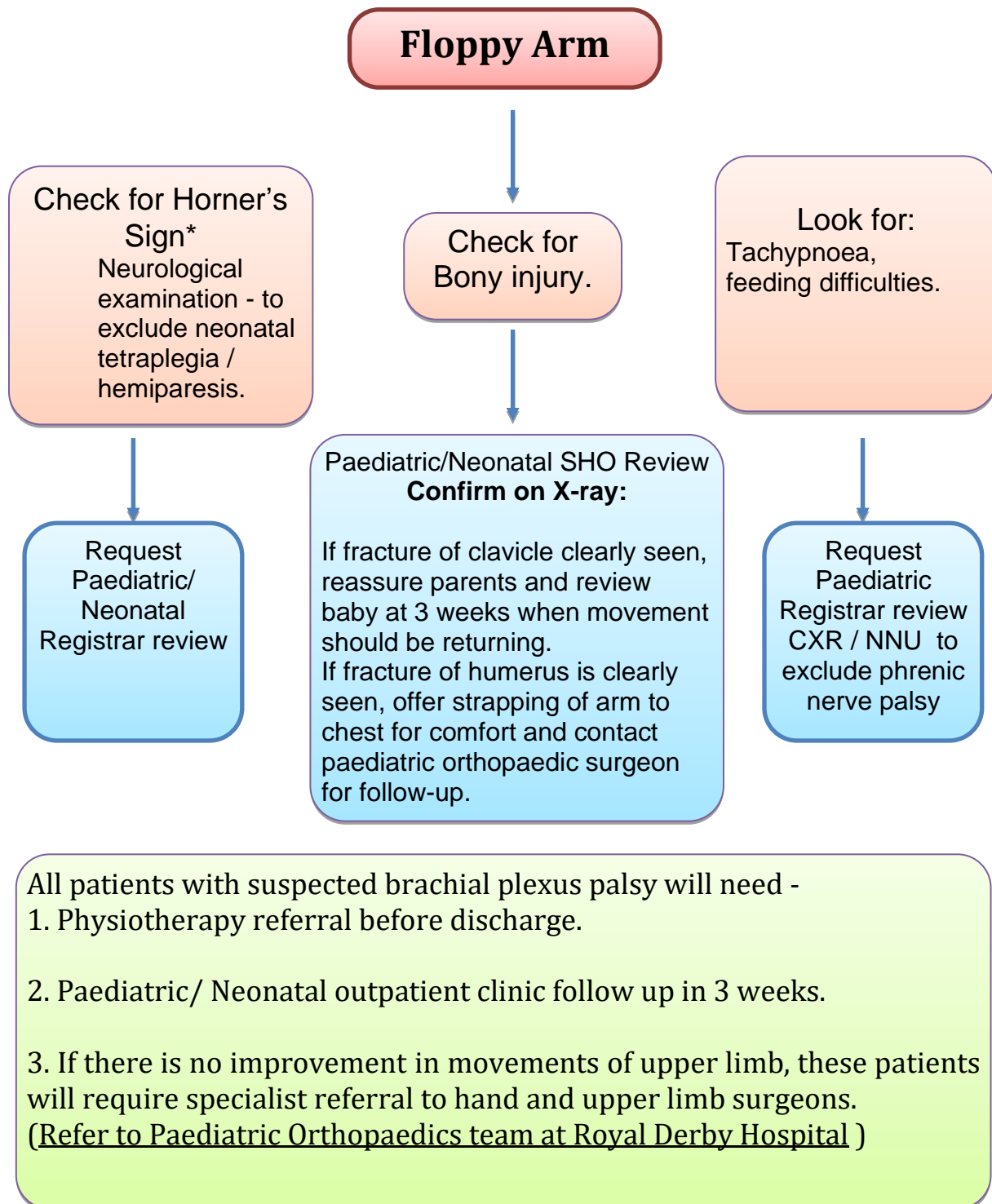
4. Assessment

Assessment of all babies noticed to have reduced upper limb movement should be examined formally as below:

- Examine the arm and neck for swelling, bruising, tone, posture, and degree of movement.
- Assess for breathing difficulties and Horner's sign (decreased pupil size, a drooping eyelid and decreased sweating on the affected side of the face or dryness of eye).
- Document findings clearly in case notes.
- Explain to parents that recovery is probable but may not be complete. Provide an information leaflet. [obpp_parent_leaflet.pdf \(csp.org.uk\)](#)
- Inform middle grade neonatal doctor /consultant obstetrician/ paediatrician (in charge clinician as appropriate)

* **Horner's sign** includes the following:

- A persistently small pupil (miosis)
- A notable difference in pupil size between the two eyes (anisocoria)
- Drooping of the upper eyelid (ptosis)
- Dryness of the eye (anhidrosis)



5. Summary

These birth palsies typically recover over the course of the first 6 to 12 months of life. Recovery may be incomplete in some cases.

Early referral to a brachial plexus birth palsy clinic is imperative for oversight of the infant's care. This facilitates serial examination and timely surgical intervention if recovery is inadequate.

Physiotherapy or occupational therapy is used in children with brachial plexus birth palsies in order to maintain motion and prevent contracture while the nerves reinnervate muscles affected by the initial injury.

Nerve reconstruction or muscle transfer surgery may be needed to improve function in children with incomplete recovery.

6. References (including any links to NICE Guidance etc.)

BMJ Best practice : Erb's palsy . Point of care update . July 2022

West Midlands Neonatal Operational Delivery Network Guidelines 2022-2024

Van der Looven R, Le Roy L, Tanghe E, et al. Risk factors for neonatal brachial plexus palsy: a systematic review and meta-analysis. *Dev Med Child Neurol.* 2020 Jun;62(6):673-83.

Shenaq SM, Bullocks JM, Dhillon G, et al. Management of infant brachial plexus injuries. *Clin Plast Surg.* 2005 Jan;32(1):79-98

Waters PM. Update on management of pediatric brachial plexus palsy. *J Pediatr Orthop B.* 2005 Jul;14(4):233-44

7. Documentation Controls

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Linked Documents: State the name(s) of any other relevant documents				
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8. Appendices

[obpp_parent_leaflet.pdf \(csp.org.uk\)](#)