CASE REPORT

Late neonatal presentation of reduced arm movement due to painful infective lymphadenopathy

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SUMMARY

We report two cases of 21-day-old male infants, Baloo and Bagheera, both admitted with unilateral reduced arm movement secondary to painful lymphadenopathy, which is a presentation previously unreported in the paediatric literature. The only abnormal finding following investigations in both neonates was infective lymphadenopathy; we hypothesise that the inflamed lymph nodes were tender when the surrounding muscles, fascia or skin were moved, so that the infants learnt to reduce arm movement to minimise pain. This report explores the differential diagnoses for reduced arm movement in neonates, and highlights the importance of sepsis with painful lymphadenopathy as a differential diagnosis in neonates presenting with reduced arm movement.

BACKGROUND

Reduced arm movement in neonates is a sign commonly related to birth trauma, but for neonates with a normal birth history, we must think of rarer differential diagnoses. In an older child, pain on movement can be elicited in the history, which can be easily missed in babies. Bagheera's diagnosis of painful infective lymphadenopathy secondary to group B streptococcal (GBS) sepsis had the potential to be devastating if missed, given the high morbidity and mortality associated with GBS sepsis.¹ Both cases highlight the importance of infection with painful lymphadenopathy as a differential diagnosis in neonates presenting with reduced arm movement.

CASE PRESENTATION

Baloo presented with a 24 h history of not using his left arm, holding it limp down by his side and crying whenever he moved it. Birth history was an unremarkable vaginal delivery at term with no shoulder dystocia noted. His parents had a video from shortly after birth showing normal arm movements and no subsequent trauma had been noted. Baloo's older brother was coryzal with a viral illness; no significant family history. On examination, Baloo's left arm was hypotonic with reduction in his palmar grasp and this arm did not flex fully during the Moro reflex. Passive movement of his left arm did not distress him. He had no fever, was otherwise well and examined normally.

Bagheera presented with a 12 h history of crying and not moving his left arm with tenderness on passive movement (the latter information was only gained after initial presentation due to a language

barrier). Bagheera was also born at term via vaginal delivery with no concerns regarding birth injury. Bagheera however, was unwell on presentation with fever, tachycardia and tachypnoea, with a history of vomiting and reduced feeding. Examination revealed a swelling on the left side of his neck with overlying erythema and he became distressed both on palpation of the neck swelling and on passive movement of the left arm.

INVESTIGATIONS

For Baloo, X-rays of his chest and left arm showed no fractures or infection. MRI to investigate for a suspected brachial plexus injury was normal. However, asymmetry with high signal in the left axilla was noted. A subsequent ultrasound confirmed left axilla lymphadenopathy. Blood tests showed mildly raised inflammatory markers with all other blood tests normal, and both blood culture and throat swabs yielded no pathogens.

For Bagheera, he had markedly raised inflammatory markers on blood tests. An ultrasound scan of his neck confirmed cervical lymphadenopathy; no collection. A septic screen was undertaken, including a lumbar puncture, and GBS infection was confirmed on blood culture. All other tests from the septic screen were normal.

DIFFERENTIAL DIAGNOSISMost common²⁻⁵

- Congenital brachial plexus palsy
- Fracture of the clavicle

Rare

- Osteomyelitis of the humerus
- Infection of the glenohumeral joint
- Tumours
- Spinal cord lesions

TREATMENT

Baloo's diagnosis was axillary lymphadenopathy secondary to probable viral infection. As he was otherwise well, no treatment was required.

Bagheera was treated with a total of 10 days of intravenous antibiotics, as per local hospital protocol.

OUTCOME AND FOLLOW-UP

Baloo was seen in clinic 2 weeks later and he was well with normal arm movements bilaterally.

Bagheera clinically improved, and after just 2 days of treatment his neck swelling reduced and he was moving his left arm freely again. He was discharged, to complete the remainder of his course of antibiotics at home with the 'hospital at

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home service'. He was also fit and well in clinic follow-up 2 weeks after discharge, with normal arm movements.

DISCUSSION

We hypothesise that the cause of the lack of arm movement in both neonates was due to painful reactive lymphadenopathy in the neck and in the axilla. The mechanism is not entirely clear, but the simplest explanation is that the inflamed lymph nodes were tender when the surrounding muscles, fascia or skin were moved, so that the infants learnt to reduce arm movement to minimise pain. It is possible that grossly enlarged lymph nodes in the axilla or neck could displace the nerves of the brachial plexus; this would more likely cause paraesthesia rather than pain for the babies, but such fine details of the history are impossible to gain due to the patients' age. Both cases highlight the importance of infection with painful lymphadenopathy as a differential diagnosis in neonates presenting with reduced arm movement, as an addition to the more common diagnoses of clavicular fracture or brachial plexus injury caused by birth injury.² In an older child, pain on movement can be elicited in the history, which can be easily missed in babies.

Congenital brachial plexus palsy is a common cause for reduced arm movements of a newborn and is reported in 1 in 2300 births in Great Britain.³ The paresis of the brachial plexus, of varying degrees and permanency, is caused by stretching, rupture or avulsion of the nerves, which most commonly happens due to birth trauma.³ If the superior brachial plexus nerve roots (C5, C6) are involved it is known as Erb's palsy and a baby will exhibit a classical 'waiter's tip' posture, with extension of the elbow, forearm pronation and wrist flexion.⁴ If only the lower nerve roots (C8–T11) are involved it is called Klumpke's palsy and the palsy affects the hand only.⁴ The whole plexus can also be involved, which has the poorest prognosis.⁴ Congenital brachial palsy is linked to shoulder dystocia, assisted delivery and is more common in high birth weight babies, but can also occur spontaneously or in caesarean section deliveries.³ Pain, however, is not a common presentation in neonatal palsies,⁴ therefore would not fit for Bagheera's presentation.

Differentials for neonatal reduced arm movement other than the obstetric causes are rarer, therefore reported less in the literature. Extensive shoulder injury from trauma after birth, is an important differential and would present with more clinical

signs and passive movement pain or deficit.³ Infection has previously been noted to cause reduced arm movement, with infection of the glenohumeral joint⁴ or osteomyelitis of the humerus from GBS as the underlying pathology.⁵ Other rare diagnoses such as tumours and cervical spinal cord lesions should also be considered.³

In conclusion, reduced movement of an arm has a wide differential, but in older neonates, where late presentation of birth trauma is unlikely, rarer causes such as infection with painful lymphadenopathy are important to consider to allow for effective management.

Learning points

- ▶ Reduced arm movement is most commonly caused by obstetric trauma in neonates.
- ▶ Taking a detailed birth history is vital, even in older neonates.
- ▶ Infection with presumed painful lymphadenopathy is an important differential to consider, especially in older neonates and those with an uneventful birth history.

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