

CASE REPORT

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# True congenital shoulder dislocation: a case report

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## Abstract

**Background** Congenital shoulder dislocation due to shoulder girdle malformation is called true congenital shoulder dislocation. It is an extremely rare disorder as compared with traumatic dislocation or secondary to brachial plexus injury.

**Case presentation** We report a case of atraumatic true congenital shoulder dislocation, one of the few reported cases across the world. The baby was born of a preterm caesarean section at 30 weeks of gestation, ruling out any perinatal trauma. The baby presented with a lateral shoulder crease and reduced movements of the affected upper limb. The diagnosis was confirmed with radiographs and a sonography that ruled out physal injury. Treatment involved prompt closed reduction and stabilization by swathing in an adducted internally rotated position for two weeks.

**Conclusion** Owing to the rarity of this condition, the case is being reported to be archived with a handful of other such cases.

**Keywords** Congenital, Shoulder dislocation, Atraumatic

## Background

Orthopedic injury to a neonate is rare and usually presents with limited active motion or obvious deformity. Neonatal dislocations can be a result of birth trauma, congenital deformity, or infection [1, 2].

Any infant noticed to have restricted movements of a limb must be treated with great caution. In the absence of obvious birth trauma, in utero maldevelopment of joint capsules must be kept in mind, classifying these joint dislocations in the so-called true congenital dislocations category. Three types of congenital shoulder dislocations are described by Whitman et al., namely (a) true congenital dislocation developing in utero, (b) traumatic birth

directly causing dislocation, and (c) dislocation acquired secondary to a brachial plexus injury [3]. Traumatic dislocations comprise the majority of shoulder dislocations seen at birth. In the absence of discernible trauma like pops or clunks appreciated by the obstetrician, it is difficult to distinguish between true congenital dislocations and those secondary to trauma without supportive evidence from imaging. The third and the most common category comprises brachial plexus injuries secondary to birth trauma leading to dislocation of the shoulder joint.

In this article, we present an infant delivered through a preterm cesarean section in view of absent diastolic flow and maternal preeclampsia at 30 weeks of gestation, without any discernible history of perinatal trauma. We support our diagnosis of a true congenital shoulder dislocation with the help of relevant imaging, and we also discuss the conservative management of such condition to prevent nerve palsies and complications.

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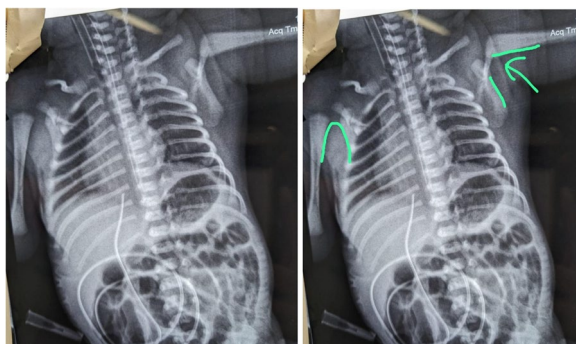
### Case presentation

A 34-year-old G3P1L1A1 with spontaneous conception at 30 weeks of gestation complicated by fetal growth restriction and maternal overt diabetes which was well controlled. She was referred to our center in view of newly found Doppler changes suggestive of absent diastolic flow with brain sparing effect. She was subsequently admitted for urgent cesarean section and underwent primary low transverse cesarean section with delivery of a baby boy weighing 1.1 kg. The delivery was completely atraumatic and no cracks, or pops were appreciated by the obstetricians. The mother recovered from the surgery uneventfully. At the time of delivery, the newborn had Apgar score of 7 at 1 min which improved to 9 at 5 min. He was shifted to the NICU and kept on bubble CPAP and received one dose of surfactant after which he was stable on minimum settings on CPAP.

After delivery, the left arm of the baby was noted to have a lateral crease at the shoulder beyond the axilla with reduced spontaneous movements on the affected side compared to contralateral side. A detailed examination revealed swelling over the left shoulder and arm in hyperextended position with no active flexion of the affected arm. Restriction of movement was present but there was no pain on passive movements. The swelling was thought to be muscular in origin. There was a palpable void in the glenoid fossa. The limb was well perfused and pink, and the palmar reflex was intact. Clinically no generalized ligament laxity or neurological deficit was noted.

X-rays (Fig. 1) were obtained subsequently which confirmed the diagnosis of shoulder dislocation. The orthopedic department was consulted for the reduction of the dislocated shoulder.

As shown in Fig. 1, there is incongruity of scapulothoracic arch in anteroposterior view of shoulder radiograph.



**Fig. 1** Anteroposterior radiograph in the newborn taken after delivery showing dislocated left shoulder (anterosuperior) and Shenton's arc is broken. Also, distance between humeral head and glenoid increased due to superior and anterior dislocation

This arch is disrupted, so there is subluxation/dislocation of shoulder. This is also known as Shenton's line. Normally, it is a sharp inverse U-shaped line formed by medial aspect of the proximal humeral metaphysis and inferolateral border of scapula.

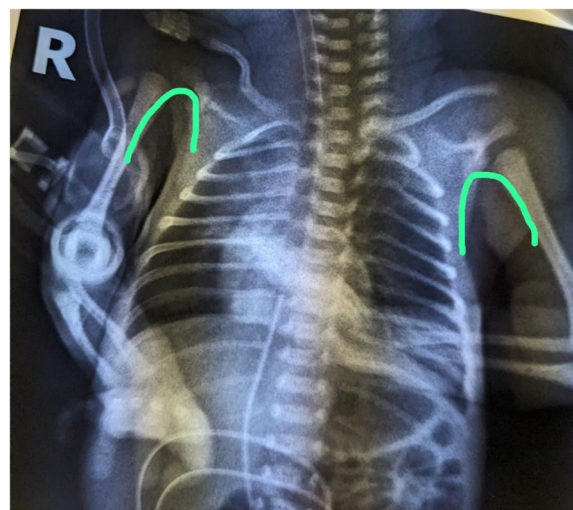
Gentle reduction was attempted by Kocher's maneuver namely elbow flexion to 90°, adduction, external rotation, and forward flexion of the shoulder to lever the humeral head into the glenoid fossa [4]. Though no confirmatory clunk was appreciated, ultrasonography confirmed that the left cartilaginous humeral head was noted to be in the glenoid fossa. There was no physal injury noted. The post-reduction X-Ray (Fig. 2) confirmed the same through restoration of the Shenton's arc, although there was no ossification center noted in the humeral head.

The arm was swathed to the baby's chest in an adducted and internally rotated position, with the elbow in flexion, while avoiding the nipple area while strapping.

Imaging repeated after 2 weeks revealed that there was no repeat dislocation, and no active management was suggested from the orthopedic department. The baby continued to spontaneously move the arm and perfusion of the upper limb remained intact after this maneuver. Biceps, triceps, hand flexor, and/or extensor function remained intact throughout the hospital stay.

After 2 weeks, ultrasonography of the shoulder joint was done which revealed that the humeral head was situated in the glenoid fossa. Subsequent follow-up visits at 6 weeks and 3 months confirmed the same. No new dislocation noticed.

It remains to be seen whether the shoulder might get dislocated again over time. Currently, the baby is discharged from the NICU and doing well.



**Fig. 2** Anteroposterior radiograph after reduction showing Shenton's arc is restored

**Discussion**

True dislocation due to congenital anomalies of the shoulder joint represents a very small percentage of shoulder dislocations of the newborn [5]. Indeed, there are only a handful of documented cases across the world with traumatic dislocation and that secondary of brachial plexus injury forming a major chunk of all shoulder dislocations [6]. It is important to relocate the joint to maintain nerve function in the long run. The structural integrity of the shoulder joint is an important factor in determining whether there is a chance of the relocated joint getting dislocated again. Since our patient did not have any repeat dislocations after relocating the joint and strapping the arm, it may be inferred that the shoulder joint did not have significant physal maldevelopment. In fact, the joint did not dislocate after reduction even with gentle provocative measures. Knowing this, it may be difficult to comment on whether the shoulder dislocation was present antenatally or took place unnoticeably during the delivery process. The child being a preterm with very low birth weight and the mode of delivery being a lower segment Caesarean section render this possibility unlikely but not impossible.

Radiology ruled out the presence of joint effusions, capsular tears, or physal injuries. There have been very few cases demonstrating the same. Our literature review revealed a handful of such cases, and likewise it was difficult to differentiate perinatal dislocations from true congenital dislocations especially in the absence of malformations of the glenoid cavity. Of the 12 documented cases, a majority (10 cases) were normal deliveries [7–9].

True congenital dislocation of the shoulder cases reported [7].

Year	Author	Number of cases	Mode of delivery
1890	Scudder	1	Vaginal delivery
1905	Peckham	2	Vaginal delivery
1929	Kelly	1	Vaginal delivery
1937	Cozen	1	Vaginal delivery
1984	Kuhn et al	1	Vaginal delivery
1990	Heilbronner	1	Cesarean delivery
2005	Schmelzer-Schmied et al.	4	Vaginal delivery

**Conclusion**

True congenital dislocation of the shoulder must be a differential diagnosis in all newborns presenting with a dislocated shoulder in the absence of brachial plexus injury and discernible history of trauma. Prompt diagnosis and reduction of the shoulder joint followed by strapping will help to prevent plexus injuries in the

future. Traumatic cases with physal, glenoid, and capsular injuries may be prone for repeat dislocations and may require surgical management.

Follow-up is as always recommended to look out for recurrent dislocations and subsequent nerve plexus injuries. This article aims at emphasizing the role a simple maneuver like gentle relocation and swathing can play in preventing complications.

**Abbreviations**

- G3P1L1A1 Gravida parity living abortion
- NICU Neonatal Intensive Care Unit
- CPAP Continuous positive airway pressure

**Supplementary Information**

The online version contains supplementary material available at <https://doi.org/10.1186/s43054-024-00327-6>.

Supplementary Material 1.

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**Authors' contributions**

AD contributed in collecting the patient data and writing the manuscript. NN analyzed and interpreted data and contributed in writing the manuscript. RW analyzed data and contributed in writing the manuscript. MD analyzed the data and contributed in writing the manuscript. All authors read and approved manuscript.

	AD	NN	RW	MD
Concepts	√	√	√	√
Design	√	√	√	√
Definition of intellectual content	√	√	√	√
Literature search	√	√	√	√
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**Declarations**

**Ethics approval and consent to participate**

Not applicable.

**Consent for publication**

Consent taken (Written informed consent taken and attached as supplementary file).

**Competing interests**

The authors declare that they have no competing interests.

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## References

1. Sankar WN, Weiss J, Skaggs DL (2009) Orthopaedic conditions in the newborn. *J Am Acad Orthop Surg* 17(2):112–122
2. Slattery C, Kovalenko B, Verma K (2018) Congenital anterior shoulder dislocation in a newborn treated with closed reduction. *Radiol Case Rep* 13(5):920–924. <https://doi.org/10.1016/j.radcr.2018.06.005>. PMID: 30093926; PMCID: PMC6074004
3. Whitman RVIII (1905) The treatment of congenital and acquired luxations at the shoulder in childhood. *Ann Surg* 42(1):110–115
4. Youm T, Takemoto R, Park BKH (2014) Acute management of shoulder dislocations. *J Am Acad Orthop Surg* 22(12):761–71
5. Kuhn D, Rosman M (1984) Traumatic, nonparalytic dislocation of the shoulder in a newborn-infant. *J Pediatr Orthop* 4(1):121–122
6. Heilbronner DM (1990) True congenital dislocation of the shoulder. *J Pediatr Orthop* 10(3):408–410
7. Sudesh P, Rangdal S, Bali K, Kumar V, Gahlot N, Patel S (2010) True congenital dislocation of shoulder: a case report and review of the literature. *Int J Shoulder Surg* 4(4):102–105. <https://doi.org/10.4103/0973-6042.79798>
8. Schmelzer-Schmied N, Ochs BG, Carstens C (2005) Shoulder dislocation in the newborn. Report of 12 cases and review of the literature. *Orthopade* 34(5):454–61. <https://doi.org/10.1007/s00132-005-0775-z>
9. Wessels R, Sleenboom C, de Vries JJP, van Elburg RM (2009) Shoulder dislocation in a very-low-birth-weight infant: case report and review of the literature. *J Pediatr Surg* 44(12):E19–20. <https://doi.org/10.1016/j.jpedsurg.2009.09.012>

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