

Atypical Presentation of Nursemaid's Elbow: A Case Report

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ABSTRACT

Background: Nursemaid's elbow is a known orthopedic pediatric emergency that occurs between one and four years of age. Axial traction of the extended arm when the forearm is pronated is the most frequently reported mechanism of infliction. However, other mechanisms are mentioned in the literature.

Cases report: We report a case of pulled elbow in a four-month-old child. The mother reported that the child only rolled over to her side. **Conclusion:** A high index of suspicion for pulled elbow should be kept in younger infants despite the absence of the usual presentation.

Keywords: Nursemaid's elbow, Pulled elbow, Radial head subluxation, Axial traction, Case report.

INTRODUCTION

Nursemaid's elbow (radial head subluxation) is a well-known pediatric orthopedic injury. Temper tantrum elbow and pulled elbow are other names used for this condition ⁽¹⁾. It commonly affects children aged between 1 and 4 years old. The highest incidence of this injury is among children aged two and three years ^(2,3). It is classically caused by axial traction on the extended arm while the forearm is in a pronated position, causing the radial head to be slipped under the annular ligament ^(1,4). The affected child typically presents keeping the injured arm in a semi flexed and/or pronated position ⁽⁵⁾ without evidence of swelling or deformity ⁽⁴⁾.

The typical history for the axial traction mechanism of infliction is when the child is pulled by the outstretched arm to be lifted or to be prevented from falling. As long as there is no clinical symptoms and signs suggesting a fracture, the patient history is often satisfactory to diagnose nursemaid's elbow without the need for radiological imaging. However, non-classical mechanisms other than axial traction were also reported including falls ⁽⁶⁾, playing rough, getting dressed, and accidentally having the hands get stuck in fixtures ^(5,7). Here, we report a case of a pulled elbow in a four-month-old child with atypical history and presentation.

CASE HISTORY

A four-month-old baby girl's mother noticed that after the baby rolled over to her side, she started crying and then she was unable to move her left arm. She held that arm not wanting to move it. The mother did not know what the precise site of the injury was. She thought it might be the shoulder or the wrist. The mother did not give history of trauma, fall, or forced-pulling of the affected arm. There was no delay in seeking medical help, and the child was brought within an hour of the occurrence of the injury. There were no other reported health problems or history of similar injuries in the past.

Based on the history, the suspicion of non-accidental injury was excluded.

On examination, the child was sitting comfortably in her mother's lap. She had her left arm in a partially pronated position with her elbow slightly flexed (15-20 degrees). The child's peripheral forearm circulation, sensation, and motor activity were not affected. When we tried to move her left elbow, the child cried. She also resisted supination, pronation, flexion, and extension of the affected extremity. No visible bruising, deformity, swelling, or discoloration of the arm was seen. No crepitus was detected. Tenderness was only detected over the radio-humeral joint.

Despite the very young age of the child and the lack of typical history, the diagnosis of a pulled elbow was suspected. The manipulation maneuver was discussed with the parents, and a formal consent was taken beforehand. The supination and flexion technique was performed with the baby's elbow at 90° with one hand, and the other hand supinated the wrist and flexed the elbow. We got an audible click during the maneuver. The child was more comfortable, and she started mobilizing her elbow actively within 2 minutes. She was observed for a period of 15 minutes, and she was subsequently discharged from the emergency department with appropriate advice to her mother regarding mobilization. A telephone follow-up was done after 2 weeks.

Ethical Approval

An approval of the study was obtained from King's College Hospital London, Dubai, UAE. The patient's guardians were informed that the case would be published as case report, and this was accepted. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

DISCUSSION

Nursemaid's elbow is a very common orthopedic emergency. The pathology of the injury is the slipping of the head of radius under the annular ligament. Our patient was four-month-old. The peak incidence of pulled elbows is around two years ^(5,7). **Irie et al.** ⁽⁸⁾ studied 2331 cases of nursemaid's elbow and found that the age of the injured children ranged from two months to nine years and five months. Until the age of six years, the increased laxity of the annular ligament and the relatively small radial head in relation to the shaft can both be predisposing factors to this injury ⁽¹⁾. In addition, the possibility of having an arm pulled by an adult is higher in this age range. The left arm is commonly injured. This is probably because most adults (pulling the children) are right-handed ^(2,8).

According to **Rudloe et al.** ⁽⁵⁾, 17% of 2011 patients with pulled elbows did not report a traction mechanism. Other reported mechanisms in this study included pulling the forearms while lifting or swinging the child, even during placing the child into and out of a seat. Likewise, **Schunk** ⁽⁹⁾ stated that less than half his studied population had a history of a traction mechanism.

Imaging is usually not a requirement in radial head subluxation if typical history and presentation exist. Radiographs of nursemaid's elbow patients are typically normal ⁽¹⁰⁾. According to **Genadry et al.** ⁽³⁾, more efforts should be directed to reducing unnecessary radiography in pulled elbow patients. In their study, radiographs were done to more than a quarter of nursemaid elbow patients, and missed fractures were rare. However, imaging should be done if the reported history or clinical presentation is not consistent with pulled elbows, especially if there is evident swelling or bruising and a fracture was suspected ^(1, 11). **Hanes et al.** ⁽¹²⁾ even recommend that all non-ambulatory infants with unclear history should have X-ray done, since manipulation of a missed elbow fracture can be potentially harmful ⁽¹³⁾.

A simple closed reduction maneuver is usually used for pulled elbow cases. Reduction is considered successful when the child is able to move the injured limb typically within ten minutes of the procedure ⁽¹⁾. The two techniques used for reduction are the supination flexion and hyper pronation techniques ⁽⁴⁾.

CONCLUSION

Our four-month-old child developed a pulled elbow by simply rolling over her side. The supination flexion reduction technique was carried out, and the baby was able to move her forearm shortly after. Our report sheds

light on mechanisms other than axial traction that can lead to nursemaid's elbow. A high index of suspicion for pulled elbow should be kept in younger infants despite the absence of the usual presentation.

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