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Case Report

Recurrent Elbow Pain in an Adolescent: An Atypical Presentation of Missed Radial Head Subluxation in Outpatient Practice

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Abstract: ***Background*:** Radial head subluxation, also known as "nursemaid's elbow," is a common injury in children under the age of six, typically caused by axial traction on the forearm. Its occurrence in adolescents is exceedingly rare, often leading to misdiagnosis. This case highlights an unusual presentation of recurrent elbow pain in an adolescent patient, ultimately confirmed as a missed radial head subluxation. ***Case Presentation*:** A 13-year-old adolescent presented to an outpatient clinic with recurrent episodes of right elbow pain and functional limitation after minor traction injuries, such as being pulled by the arm during play. The pain was described as acute, sharp, and associated with limited supination, but without swelling, bruising, or deformity. Initial evaluations elsewhere had diagnosed the condition as a soft tissue strain, and the patient had been treated with analgesics and rest without significant improvement. On examination, the elbow showed tenderness over the lateral aspect and restricted supination, but radiographs revealed no evidence of fracture or dislocation. A clinical diagnosis of radial head subluxation was considered despite the patient's atypical age. Closed reduction was performed using the supination-flexion technique, producing an audible "click" and immediate pain relief. At follow-up, the patient remained asymptomatic, with no recurrence after initiation of a physiotherapy program focusing on strengthening and ergonomic education. ***Conclusion*:** This case emphasizes that radial head subluxation, although rare in adolescents, should remain a differential diagnosis for recurrent elbow pain following minor traction injuries. Awareness of this atypical presentation in outpatient practice can prevent unnecessary imaging, inappropriate management, and prolonged morbidity. Prompt recognition and simple reduction techniques remain highly effective, while physiotherapy plays a key role in preventing recurrence.

Keywords: Radial Head Subluxation, Nursemaid's Elbow, Adolescent, Outpatient, Recurrent Elbow Pain.

INTRODUCTION

Radial head subluxation, commonly referred to as *nursemaid's elbow*, is a frequent upper limb injury in early childhood, particularly between the ages of one and six years. It occurs when the annular ligament slips over the radial head following an axial traction force applied to the extended and pronated forearm [1]. This condition is well recognized in pediatric practice and can often be diagnosed clinically without the need for imaging. Reduction is typically straightforward, and recurrence is not uncommon in young children due to ligamentous laxity [2].

However, the diagnosis of radial head subluxation in adolescents is exceedingly rare. By this age, the annular ligament is usually thicker and stronger, making subluxation of the radial head uncommon. Consequently, when older children or teenagers present with elbow pain, clinicians may be more inclined to suspect alternative conditions such as ligamentous sprain, tendinitis, occult fracture, or overuse syndromes. This predisposes to misdiagnosis and delays in appropriate management [2, 3].

The outpatient setting provides unique challenges, as clinicians often must make rapid decisions

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with limited resources. Awareness of atypical presentations of otherwise common pediatric injuries is therefore essential. In this report, we present the case of a 13-year-old adolescent with recurrent elbow pain initially misdiagnosed as a soft tissue strain, later confirmed to be radial head subluxation. This case highlights the importance of maintaining a high index of suspicion for radial head subluxation even in patients beyond the typical age range, particularly when the history suggests a traction-type injury and radiographs fail to reveal any abnormality.

CASE PRESENTATION

A 13-year-old right-handed adolescent boy presented to the outpatient clinic with complaints of recurrent pain in his right elbow. The symptoms had first appeared three months earlier, following a minor traction injury when his arm was pulled suddenly by a friend during play. Since then, he had experienced several similar episodes, each triggered by trivial pulling forces such as being assisted to stand or carrying a light object.

The pain was described as sudden in onset, sharp, and localized to the lateral aspect of the elbow. Each episode was associated with restricted forearm movements, particularly supination. There was no associated swelling, bruising, or visible deformity. The patient denied any history of significant trauma, fall, or sports-related overuse injury. He reported no numbness, tingling, or weakness in the affected limb.

Prior to presenting to our clinic, the patient had been evaluated elsewhere and was diagnosed with a "soft tissue strain." He was prescribed rest, oral analgesics, and advised to avoid strenuous activity. However, the symptoms persisted and recurred with minimal provocation, leading to functional limitations in daily activities and prompting further consultation.

On physical examination, the patient appeared well and was in no acute distress. Inspection of the right elbow revealed no swelling, erythema, or deformity. Palpation elicited tenderness over the radial head region. Range of motion testing demonstrated restricted supination, with the patient keeping the forearm in a pronated position to minimize discomfort. Flexion and extension of the elbow were relatively preserved. Neurovascular examination of the upper limb was unremarkable.

Plain radiographs of the right elbow were obtained and showed no evidence of fracture, dislocation, or joint effusion. Based on the characteristic mechanism of injury and clinical findings, a diagnosis of radial head subluxation was suspected despite the atypical age. A closed reduction was performed using the supination-flexion technique. During the maneuver, an audible "click" was felt, immediately followed by resolution of pain and restoration of full range of motion.

The patient was re-examined 15 minutes later and demonstrated pain-free use of the right arm. He was discharged with ergonomic advice and referred for outpatient physiotherapy focusing on strengthening exercises and education to prevent recurrence. At follow-up visits after two weeks and again at six weeks, the patient remained asymptomatic, with no further episodes of elbow pain or functional limitation.

DISCUSSION

Radial head subluxation, or *nursemaid's elbow*, is among the most common elbow injuries in children under the age of six, accounting for up to 20–30% of pediatric upper limb injuries in some series. The typical mechanism involves sudden axial traction applied to the extended and pronated forearm, leading to slippage of the annular ligament over the radial head [1, 2]. Patients usually present with the arm held in pronation, refusal to use the affected limb, and pain localized to the elbow. Reduction is straightforward, and recurrence is relatively common in younger children due to ligamentous laxity [2, 3].

In contrast, the occurrence of radial head subluxation in adolescents is exceedingly rare. By the second decade of life, the annular ligament has become thicker and stronger, significantly reducing the likelihood of subluxation. As a result, most clinicians do not consider nursemaid's elbow as a differential diagnosis in patients beyond early childhood [1, 2]. When adolescents present with elbow pain, alternative diagnoses such as ligamentous strain, occult fracture, lateral epicondylitis, or overuse syndromes are more frequently entertained. This diagnostic bias can result in unnecessary imaging, delayed recognition, and inappropriate management [4].

Our case underscores the importance of clinical vigilance in atypical presentations. The patient experienced recurrent elbow pain triggered by minor traction injuries, a mechanism that should prompt suspicion for radial head subluxation even in older children. Normal radiographs further complicated the diagnosis, but they served to exclude fracture and dislocation. Ultimately, the combination of clinical history, examination findings (tenderness over the radial head, restricted supination), and dramatic resolution of symptoms following reduction confirmed the diagnosis.

Previous case reports have documented rare instances of radial head subluxation in older children and even young adults, often associated with ligamentous laxity or repeated minor trauma. Physiological variations in ligament structure, joint hypermobility, or delayed maturation of periarticular tissues may contribute to persistence of susceptibility beyond the typical age [5, 6]. In our case, repeated traction-type injuries likely exacerbated the problem, leading to multiple episodes before correct recognition.

Management of radial head subluxation remains simple and effective, relying on closed reduction techniques such as supination–flexion or hyperpronation. In adolescents, physiotherapy has an additional role, both in reinforcing periarticular strength and in educating patients to avoid provocative maneuvers. Preventive strategies are important, as delayed recognition can contribute to unnecessary investigations, patient anxiety, and functional impairment [1-3].

This case adds to the limited literature documenting radial head subluxation in older children and highlights the need for clinicians in outpatient settings, particularly general practitioners, family physicians, and physiotherapists, to maintain awareness of this possibility. Atypical presentations should not exclude the diagnosis when the clinical scenario and mechanism of injury are suggestive.

CONCLUSION

Radial head subluxation is classically considered a pediatric injury, yet this case demonstrates that it can occasionally present in adolescents. Recurrent elbow pain following trivial traction injuries should prompt consideration of this diagnosis, even beyond the typical age range. Recognition in the outpatient setting is crucial, as timely closed reduction provides immediate relief and prevents unnecessary investigations or mismanagement. Physiotherapy and ergonomic education further support recovery and reduce the risk of recurrence.

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