

Comment on “Medial epicondyle avulsion after elbow dislocation in an adolescent non-professional soccer player treated with a cannulated screw: a case report.”

Andreas Rehm, Azeem Thahir, Albert Ngu

Department of Paediatric Orthopaedics, Cambridge University Hospitals NHS Trust, Cambridge, UK

To the Editor,

We read with interest the recent publication by Pedrazzini and colleagues, “Medial epicondyle avulsion after elbow dislocation in an adolescent non-professional soccer player treated with a cannulated screw: a case report.” Based on one patient Pedrazzini et al (1) concluded that open reduction and fixation is indicated for all medial epicondyle fractures which are displaced ≥ 5 mm with or without dislocation and stated that there is consensus for surgical treatment. In contrary to this, the literature supports that there is only universal agreement for surgical management for medial epicondyle fractures incarcerated within the elbow joint, with the agreement not being based on the amount of displacement (2,3). Hughes et al (4) identified in a choice experiment including 13 pediatric orthopaedic surgeons, that the choice to operate was only ubiquitous at >18 mm displacement of the medial epicondyle.

Pedrazzini et al (1) claim that the patient had complete recovery of strength and functionality at 90 days, without providing evidence for the strength testing (e.g. grip strength), without having used a validated outcome questionnaire and without having tested the elbow stability, which raises doubts about the validity of the outcome assessment. The reader is also not told if the patient had returned to his pre-injury activity level. The former authors (1) claim that operative treatment and internal fixation (ORIF) has a crucial role in avoiding the painful non-union and

minimizing the risk of symptomatic valgus instability. This is contradicted by the systematic reviews by Kamath et al (3) and Pezzutti et al (2) which did not identify a difference in pain or elbow stability between non-operative and operative groups and highlighted that there is disagreement on how much displacement was acceptable, with both operative and non-operative management resulting in good outcomes, despite non-unions being common in the non-operative group.

Pedrazzini et al (1) claim that the reports by Josefsson et al (5) and Lee et al (6) suggest that painful valgus instability and elbow stiffness are common with non-operative treatment. However, Josefsson et al (5) reported that 56 patients treated non-operatively had good function and good range of elbow motion with only one case of elbow instability during stress testing at a mean of 35 years after injury, despite medial epicondyle pseudoarthrosis in 31 cases. The study by Lee et al (6) is misquoted as suggesting that $>60\%$ of non-operatively treated fractures result in non-union or valgus instability and elbow stiffness but the study included only 25 patients managed operatively and none treated non-operatively.

We are unclear if Pedrazzini et al (1) also promote to fix even undisplaced fractures, listing the risk that undisplaced or minimally displaced fractures may mask a high degree of instability, as one reason why the surgeons decided to operate.

Pedrazzini et al (1) did not explain why the surgeons subjected the patient to two anaesthetics, instead of conducting a reduction and fixation during one anaesthetic,

since the first CT already showed an intra-articular medial epicondyle and the surgeons having identified elbow instability and impingement during the first anaesthetic. One anaesthetic would have been more patient and family friendly and more cost effective.

In conclusion, we do not think that it is valid to promote surgery for all medial epicondyle fractures displaced ≥ 5 mm based on one patient and using displacement as the sole criterium. More evidence is needed to identify fracture patterns which do well with non-operative management and those which might be better treated operatively such as higher energy trauma with instability or fractures with associated ulnar nerve symptoms, based on structured validated assessments.

Conflicts of interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Authors contribution: AR: literature review, manuscript preparation; AT: literature review, manuscript preparation; AN: literature review, manuscript preparation.

References

1. Pedrazzini A, Visigalli A, Valenti P, et al. Medial epicondyle avulsion after elbow dislocation in an adolescent non

-professional soccer player treated with a cannulated screw: a case report. *Acta Biomed.* 2020;91:Suppl 4:271-175.

2. Pezzutti D, Lin JS, Singh S, Rowan M, Samora JB. Pediatric Medial Epicondyle Fracture Management: A Systematic Review. *J Pediatr Orthop.* 2020 Feb 14. doi:10.1097/BPO.0000000000001532. Online ahead of print.
3. Kamath AF, Baldwin K, Horneff J, Hosalkar HS. Operative versus non-operative management of pediatric medial epicondyle fractures: a systematic review. *J Child Orthop* 2009;3:345-357.
4. Hughes M, Dua K, O'Hara NN, et al. Variation Among Pediatric Orthopaedic Surgeons When Treating Medial Epicondyle Fractures. *J Pediatr Orthop* 2019;39:e592-e596.
5. Josefsson PO, Danielsson LG. Epicondylar elbow fractures in children. *Acta Orthop Scand.* 1986;57:313-315.
6. Lee HH, Shen HC, Chang JH, Lee CH, Wu SS. Operative treatment of displaced medial epicondyle fractures in children and adolescents. *J Shoulder Elbow Surg* 2005;14:178-185.

Correspondence:

Received: 11 January 2021

Accepted: 6 February 2021

Mr Andreas Rehm

Consultant Paediatric Orthopaedic Surgeon
Addenbrooke's Hospital

Cambridge University Hospitals NHS Trust
Hills Road, Cambridge, CB2 0QQ

United Kingdom

Tel: 0044-7872051121

Fax: 00441223596367

E-mail: leoreporting@yahoo.co.uk