A bruised dimple on an injured elbow: what does it mean?

CLINICAL INTRODUCTION
An 8-year-old girl was brought to the emergency room complaining of severe pain and a deformity in her left elbow after falling off a trampoline with her hand outstretched. A cursory examination revealed a dimple and subcutaneous haematoma on the anterior portion of the distal arm but no apparent neurovascular defects (figure 1).

QUESTION
What is the most likely diagnosis of the injury?
A. A supracondylar humeral fracture without any displacement
B. A supracondylar humeral fracture with a severe displacement
C. An olecranon fracture
D. A dislocation of the elbow joint
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Figure 1 Photograph of the right elbow on arrival showing puckering skin with subcutaneous haematoma.
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ANSWER: B

Puckering skin with a subcutaneous haematoma in an injured elbow is known as the ‘pucker sign’. In cases of severe supracondylar humeral fractures, the anterior portion of the distal arm frequently presents with subcutaneous haematoma. The pucker sign indicates that the proximal fragment of a fractured and displaced humerus has penetrated the brachialis muscle and dermal layer. In the present case, the patient’s X-ray (figure 2) showed a supracondylar humeral fracture with a completely displaced fragment (Gartland type 3).

Patients with a supracondylar humeral fracture with no displacement do not present skin puckering owing to the absence of fragmentation or a displaced fracture. Patients with olecranon fractures do not present puckering on the anterior portion of the distal arm even if the fractures involve severe displacement. Because of the absence of fractures, patients with only elbow dislocations also do not present puckering.

As soon as the X-ray was taken, orthopaedic surgeons were consulted and the patient underwent an emergency open reduction and internal fixation operation (figure 3).

Emergency physicians should consider the pucker sign as a red flag in assessing paediatric elbow injuries because it constitutes evidence of a ‘near’ open fracture, which may be difficult to reduce by simple manipulation alone and often requires surgical intervention.

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REFERENCES
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