

# BMJ Case Reports

## Entrapment of the brachial artery following supracondylar fracture reduction

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<b>TITLE OF CASE</b>
Entrapment of the brachial artery following supracondylar fracture reduction
<b>DESCRIPTION</b> <i>Up to 250 words summarising the importance of the image(s)</i>
<p>A 4-year-old girl presented to the emergency department after falling from a climbing frame onto her left arm. She was diagnosed as having a supracondylar fracture both clinically and radiologically. The fracture was treated with closed reduction and crossed K wire fixation. Subsequent to the reduction clinical examination could not identify a palpable radial pulse. At that point she transferred to a tertiary vascular centre. Upon arrival, repeat neurovascular examination demonstrated an anterior interosseous nerve palsy, a non-palpable radial pulse and a capillary refill time of less than 2 seconds in the digits of the left hand. Doppler assessment identified a weak monophasic ulnar signal and an absent radial signal. Duplex ultrasound showed an abrupt termination of arterial flow within the left antecubital fossa. She proceeded to CT angiography, which appeared to demonstrate a transection of the brachial artery in the antecubital fossa (Image A).</p> <p>She underwent open exploration of the distal brachial artery in the antecubital fossa which identified that the brachial artery was trapped within the fracture site (Image B). The crossed K wires were removed, the fracture distracted and the artery released. A small defect in the brachial artery required repair with interrupted sutures. The procedure resulted in immediate restoration of the radial pulse. The fracture was then re-reduced and re-fixed with K wires under direct visualisation and fluoroscopic control. She made a good post-operative recovery and follow up duplex assessment confirmed restoration of biphasic flow in the radial and ulnar arteries.</p>
<b>LEARNING POINTS/TAKE HOME MESSAGE</b> <i>2 to 3 bullet points – this is a required field</i>
<ul style="list-style-type: none"> <li>- <b>Reduction of a supracondylar fracture can cause entrapment of the brachial artery within the fracture site; this can have occurred in the context of a pink and pulseless limb.</b></li> <li>- <b>The clinical and imaging findings in this case mimic those of arterial transection.</b></li> <li>- <b>A thorough neurovascular assessment must be conducted both prior to and following any fracture reduction.</b></li> </ul>
<b>REFERENCES</b> <i>Vancouver style (max 3)</i>

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**FIGURE/VIDEO CAPTIONS** *figures should NOT be embedded in this document*

**A. Sagittal reconstruction of left upper limb CT angiogram showing termination of contrast opacification of the brachial artery (white arrow) proximal to the humeral supracondylar fracture site (blue arrow). B. Intra-operative photograph demonstrating the distal left brachial artery diving into the humeral fracture site, under tension (indicated by the tip of the forceps).**

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