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Letter to the Editor
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A neglected closed elbow dislocation with complete brachial artery injury

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Dear Sir,

While brachial artery injury frequently accompanies penetrating injuries of the elbow, open fractures, and open dislocations of the elbow, the injury is rarely seen with closed elbow dislocations (0.5 %) [1,2]. The rich collateral circulation at the elbow may mask the brachial artery injury symptoms during the early period [3]. We treated a patient with bracial artery injury who required treatment because of elbow dislocation a week ago.

Case

A 64-year-old man was admitted to a medical center after falling on his left arm in an extended position. Closed reduction and plaster splint were applied because of elbow dislocation. One week later, he was admitted to our clinic because of pain, swelling, coldness, pallor, and pulselessness of the arm. He had an ecchymosis in the antecubital region of the elbow. Neurological examination of the arm was normal and there was no evidence of compartment syndrome. After posterior elbow dislocation and brachial artery injury was detected following radiological evaluation, the patient was operated on urgently. With an S-shaped incision in the anterior of the elbow, complete brachial artery injury was observed in the extensive hematoma mass. There was no identifiable damage in the other anatomical structures. After the elbow was reduced, the arterial damage was repaired with a saphenous vein graft. The humeroulnar joint was fixed with Kirschner wire (K-wire). At the postoperative fourth week, physcial treatment was begun after the K-wire was removed. The elbow range of motion (ROM) was found 10°-150° in the postoperative third year control and there was no cold intolerance.

In the literature, delayed brachial artery injury after closed elbow dislocation is very rare. In the historical process, it is thought that the rich vascular collateral circulation of the elbow can provide adequate circulation after brachial artery injury, detecting cold intolerance and claudication in many of these cases has shown that collateral circulation is not sufficient or can also be damaged. The presence of distal pulse does not exclude vascular injury alone as occult injuries are reported in up to 10% of cases in the literature [4]. Although it is

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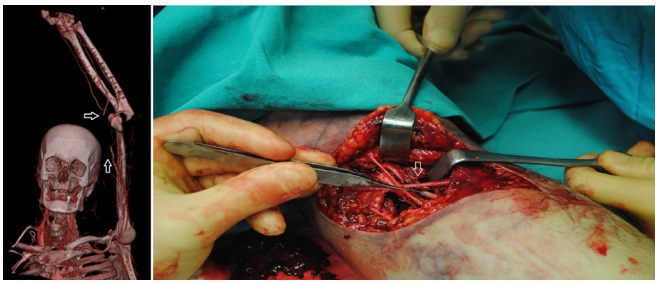

Figure 1. (A) Posterior dislocation of the elbow and brachial artery complete injury (arrows); distal vascular circulation continues through collateral circulation. **(B)** Thrombosed and damaged brachial artery ends (white arrow).

known that vascular injury risk is higher in patients with positive neurological examination (median nerve injury), excessive edema in the elbow or vascular injury examination, there is always the possibility of observing brachial artery injury clinical findings in a patient with closed elbow dislocation and normal neurovascular examination subsequently [5]. Just as in our case, even though early period vascular examination findings were normal in elbow dislocations with minor trauma, the close monitoring of these patients is best continued and potential suspicious vascular injury should be identified with angiography and treated.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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