



Anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus: a case report

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Background: Anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus is a rare and controversial occurrence, with very few cases reported in the literature.

Case presentation: We present a case of a 39-year-old right-handed driver who presented with an anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus following a road traffic accident. The lateral approach to the fracture allowed us to use two forceps to gain a good grip on the proximal fragment and perform the maneuver to reduce the dislocation. The fracture was reduced and fixed with a molded Lecestre-type plate.

Conclusion: In this case, we employed the approach of initially reducing the shoulder dislocation with forceps, followed by osteosynthesis of the humeral fracture. The functional results were excellent after 6 months.

Keywords: dislocation, fracture, humeral, ipsilateral, shoulder

Introduction

Anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus is a rare and controversial occurrence, with very few cases reported in the literature^[1–3]. We report a case of a 39-year-old right-handed driver who presented with an anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus following a road traffic accident. The mechanism of injury and the therapeutic approach were discussed.

This case report has been reported in line with the SCARE (Surgical CAse REport) Criteria^[4].

Case presentation

The patient presented with a deformity of the left shoulder, loss of normal shoulder contour, and abduction of the left arm following

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HIGHLIGHTS

- Shoulder dislocation and ipsilateral fracture of the humeral shaft is rare.
- Resulting from a high-energy accident.
- There is no treatment consensus.
- Initial reduction of the dislocation with forceps can be a good alternative.

a road traffic accident. X-rays confirmed an anterointernal dislocation of the glenohumeral joint associated with a diaphyseal fracture of the humerus (Fig. 1).

The patient was operated on under general anesthesia. The surgical approach involved a lateral approach to the humeral fracture, allowing the use of forceps to reduce the dislocation (Fig. 2A, B). After satisfactory reduction of the dislocation, the fracture was reduced and fixed with a molded Lecestre-type plate. Importantly, there was no loss of bone substance, and no bone fragments were removed during the fixation (Figs 3, 4).

The patient's postoperative recovery was straightforward, and rehabilitation began once the pain subsided. After 6 months, the fractured site had consolidated, and the patient had good shoulder and elbow function.

Discussion

A review of the literature between 1940 and 2020 was performed. The search engines used were PubMed, Google Scholar, and African Journal Online (AJOL). The search terms were 'dislocation', 'shoulder', 'diaphyseal or shaft', 'fracture', 'ipsilateral or homolateral' associated or not with the terms 'simultaneous',



Figure 1. Anterointernal dislocation of the glenohumeral joint associated with a diaphyseal fracture of the humerus.



Figure 3. Shoulder dislocation reduced.

‘associates’, and ‘combined’. Only articles (clinical case, series of cases) written in English or French describing anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus were included.

Anterior dislocation of the shoulder associated with a diaphyseal fracture of the ipsilateral humerus is a rare and

controversial occurrence, with very few cases reported in the literature (Table 1). This type of injury typically results from high-energy accidents, such as road traffic accidents^[3,10]. The mechanism of injury may involve a torsion in the arm’s axis, combined with external rotation and abduction of the shoulder^[3,6,9].

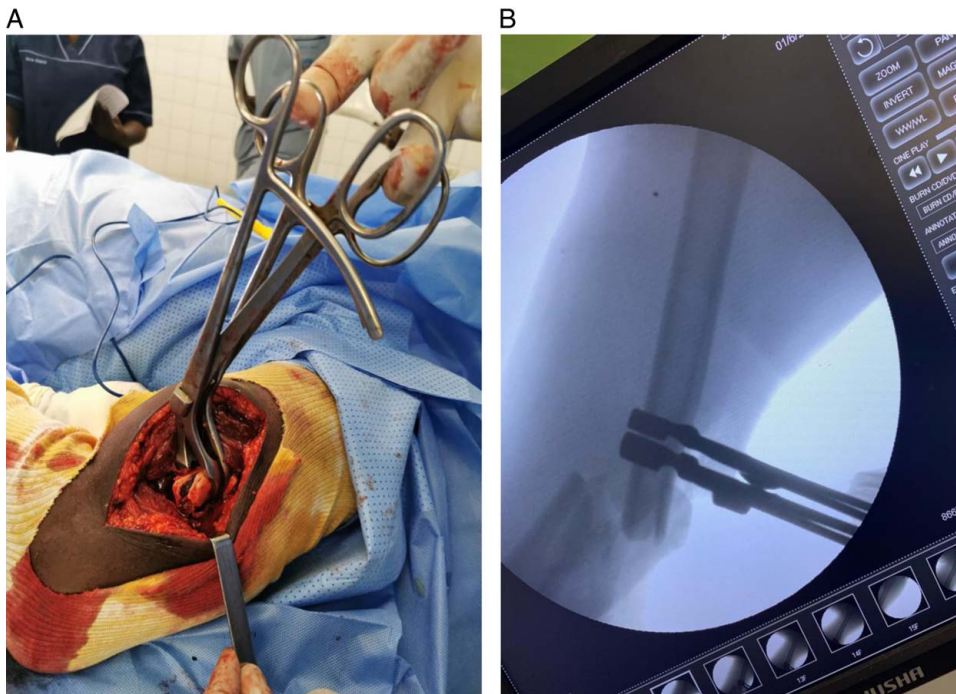


Figure 2. (A) Two forceps on the proximal fragment were used to reduce the shoulder dislocation; (B) radiographic control of the forceps in place.



Figure 4. Radiographic image of the molded Lecestre-type plate in place.

Some authors attribute it to the ‘dashboard injury’, where the impact at the elbow transmits forces along the humerus, causing both the diaphyseal fracture and shoulder dislocation^[3,5]. This description corresponds better to that of our patient.

Various therapeutic methods have been proposed, and the choice between addressing the dislocation or fracture first is a challenging aspect of treatment.

The first reduction of the dislocation by external maneuver may be very difficult with a diaphyseal fracture of the humerus^[3]. The latter may prevent or cancel all attempts of reduction maneuvers due to the mobility of the fracture site and a small proximal humeral shaft, especially in obese or muscular patients. In addition, these maneuvers may cause or aggravate vascular and nerve lesions. Nevertheless, this technique enabled Zizah S. to achieve good results for his two patients.

To overcome these difficulties, we performed a lateral approach to the fracture site, allowing them to reduce the

dislocation without opening the shoulder joint, followed by fixation with a Lecestre-type plate. This approach resulted in good functional outcomes and reduced the risk of complications^[8,9].

Kazakos and Maffulli suggest first fixing the fracture either with a plate or an intramedullary nail to re-establish continuity of the humerus so that the dislocation can be reduced secondarily^[2,7]. But this could lead to torsion of the plate or a new fracture at the screw sites in case of an intramedullary nail. A closed reduction of the dislocation followed by a splint or external fixator was also recommended by some authors^[3].

However, there is no consensus on the different treatment sequences for this association of lesions and appropriate management is essential to avoid functional complications^[3].

Conclusion

In this case, we employed the approach of initially reducing the shoulder dislocation with forceps, followed by osteosynthesis of the humeral fracture. The functional results were excellent after 6 months.

Ethical approval

No ethics approval is required for this manuscript.

Consent

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Author contribution

B.D., O.M., A.F.T.N., A.B.D., M.D., P.A.D., M.S., N.S., I.F., A. Y.N., I.K.: participated in the making and correction of this document. All authors agreed with the publication of the document.

Table 1

Reported cases of a combination of shoulder dislocation with ipsilateral humeral shaft fracture in adults

References	Date	Number of cases	Etiology	Dislocation treatment	Fracture treatment
Winderman ^[1]	1940	1	Fall	Closed reduction assisted by Steinmann pin	Splint
Sankaran-Kutty and Sadat-Ali ^[5]	1989	1	Traffic accident	Closed after external fixation	External fixator
Kontakis <i>et al.</i> ^[6]	1995	1	Traffic accident	Open reduction	Plate
Maffulli <i>et al.</i> ^[7]	1996	1	Traffic accident	Closed after internal fixation	Plate
Bentaleb <i>et al.</i> ^[8]	2003	1	Traffic accident	Closed reduction with forceps	Plate
El Khadime <i>et al.</i> ^[9]	2006	2	Traffic accident	Closed reduction with forceps	Plate
Kazakos <i>et al.</i> ^[2]	2009	1	Fall	Closed after internal fixation	Intramedullary Nail combined with plate
Lahrach <i>et al.</i> ^[10]	2010	1	Cyclocross	External maneuver	Plate
Zizah <i>et al.</i> ^[3]	2017	2		External maneuver	Plate

Conflicts of interest disclosure

All authors declared that there are no conflicts of interest.

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Data availability statement

The data is available for sharing.

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Submission declaration

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