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## Case report

### Rupture of the triceps tendon – A case series

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#### ABSTRACT

Triceps rupture is the least common among all tendon injuries. The usual mechanism of injury is a fall on an outstretched hand, although direct contact injuries have also been reported to cause this injury. The diagnosis of acute triceps tendon rupture may be missed, which can result in prolonged disability and delayed operative management. We presented three cases of acute triceps tendon rupture each at different site showing the spectrum of injury to the muscle and mechanism of injury and management were also discussed.

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#### Introduction

Avulsion or rupture of the triceps tendon is very rare injury and it can be graded as the least common among all tendon injuries thus accounting for usual occurrences of misdiagnosed and neglected cases leading to long term functional disability.<sup>1</sup>

In a large series of 1014 muscle and tendon injury cases at Mayo Clinic, Anzel et al<sup>2</sup> reported its incidence to be 0.78%. The most common site of rupture as stated in the literature is at the osseous insertion of the triceps on olecranon along with a bony chip, whereas rupture at the musculotendinous junction and the intramuscular substance had been found infrequently.<sup>3</sup> This injury most commonly occurs in middle aged males but incidences have been reported in all ages including children before epiphyseal fusion and geriatric age groups.<sup>4,5</sup> We presented three cases of triceps rupture in this case series. The first case was ruptured at the osseous insertion, second at the osseous insertion but the aponeurosis was spared and the third case at the musculotendinous junction. All the 3 cases were treated by primary repair of the triceps and resulted in good functional outcome.

#### Case report

##### Case 1

A 25 years old male patient presented with complaints of sudden pain and swelling in left elbow while doing some extension exercises of the elbow in the gym. On clinical examination, left elbow was tender, there was minimal swelling at the triceps insertion and no appreciable palpable gap, and active extension of the affected elbow was painful. Lateral elbow radiographs revealed the characteristic flake sign suggesting acute triceps tendon rupture (Fig. 1A). Operative repair of the triceps tendon was planned and the patient was shifted to the operating room after routine investigations. Triceps was explored through posterior incision and near complete rupture of the triceps aponeurosis was seen at the insertion (Fig. 1B). A small piece of avulsed bone fragment was also seen at the distal end of the proximal portion of the triceps aponeurosis. Aponeurosis was repaired with No.2 Ethibond suture using Krackow's method, and holes were drilled in olecranon and suture ends were passed through holes in olecranon and tied (Fig. 1C). Direct bone to bone repair of the avulsed bony fragment with olecranon was also done with No.2 Ethibond suture (Fig. 1D). Elbow was immobilised in plaster cast for three weeks, followed by progressive active flexion in a controlled motion brace. Active strengthening of the triceps was started at about three months. At 1 year follow up, patient had full triceps strength but with 10° terminal restriction of elbow flexion and the Disability of Arm, Shoulder and Hand (DASH) score was 5.8 (Fig. 1E).

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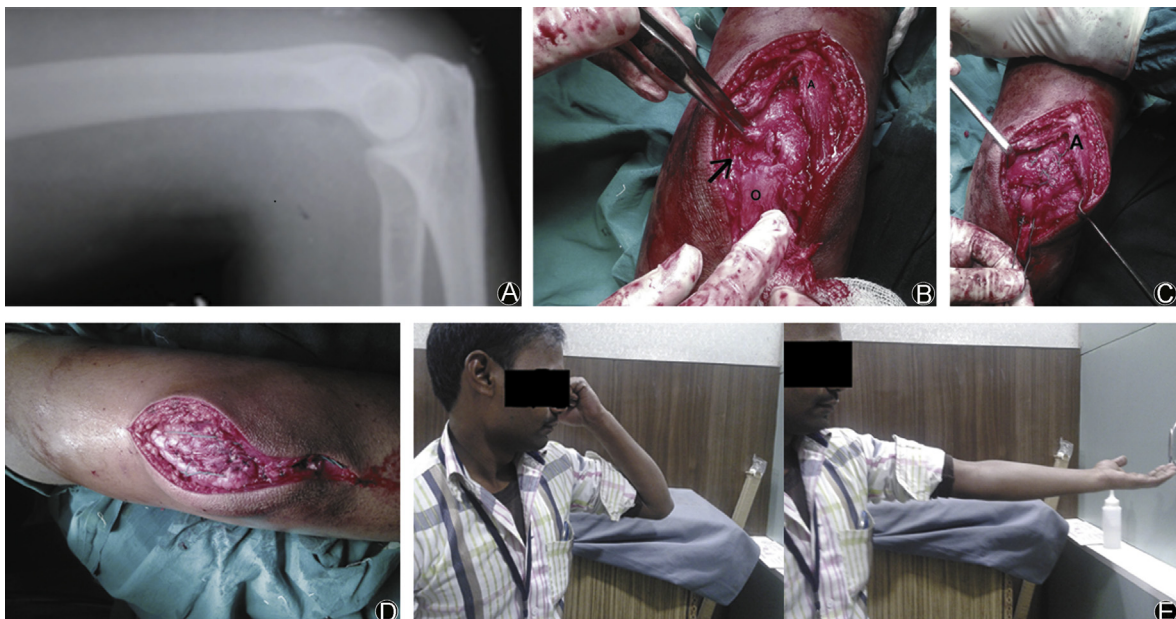


**Fig. 1.** A: Lateral X rays of left elbow showing flake sign. B: Arrow showing site of rupture. C: Krackow suture in the aponeurosis passed through holes in olecranon. D: Final repair. E: Elbow range of motion at one year follow up.

### Case 2

A 35 years old male patient presented to the emergency department with complaints of pain swelling and inability to extend left elbow after a slip from motorbike and landing on outstretched hand. Clinical examination revealed tenderness at left elbow as well as swelling and ecchymoses at the triceps insertion site. Some degree of active extension of the elbow was possible but was extremely painful. X rays of the patient revealed flake sign in lateral radiographs (Fig. 2A). Ultrasonography of the left elbow revealed rupture of the triceps at the insertion. Operative repair

was planned. In the operating room triceps was explored and aponeurosis was found intact, but a bony flake was palpable under the aponeurosis 2 cm proximal to insertion. Aponeurosis was split in the midline and rupture was seen deeper to aponeurosis (Fig. 2B). Repair was done with Krackow's method using No.5 Ethibond suture in the detached deeper portion of triceps, and suture was passed through drill holes in the olecranon and secured with multiple knots (Fig. 2C). Then aponeurosis was again reinforced with Krackow sutures through holes in the olecranon (Fig. 2D). Midline split of the aponeurosis was sutured with interrupted vicryl sutures.



**Fig. 2.** A: Lateral X rays of left elbow showing flake sign. B: Arrow showing site of rupture. C: Krackow suture in the substance of triceps passed through holes in olecranon. D: Figure after closure of triceps aponeurosis. E: Elbow range of motion at one year follow up.

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