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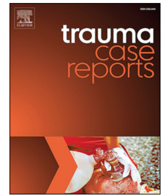

Case Report

Closed reduction of a posterior sternoclavicular joint dislocation: A case report

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ABSTRACT

Sternoclavicular joint dislocation (SCJD) is a rare injury; there are only two reported cases of SCJD that have occurred during judo practice. We present a case of an 18-year-old male athlete who fell while practicing judo and experienced upper left chest pain. He was diagnosed with posterior SCJD at another institute before being transferred to our hospital. Closed reduction was initially not possible using traditional methods. Reduction was eventually accomplished by clamping the proximal end of the clavicle using bone forceps and rotating it while pulling it upward. Many authors have reported that closed reduction is difficult if not performed within 48 h after SCJD injury. However, we were able to achieve closed reduction approximately 72 h after injury. We found that reduction might be easily accomplished by pulling the proximal end of the clavicle up and rotating it when other closed reduction methods are unsuccessful.

Introduction

Sternoclavicular joint dislocation (SCJD) is very rare, representing less than 1% of all dislocations and 3% of shoulder dislocations [1]. SCJD may be anterior or posterior, with the latter representing only 5% of cases [2]. Posterior SCJD is potentially fatal and is a true emergency due to the vital structures that lie posterior to the medial clavicle.

There are only two reported cases of SCJD occurring in judo [3,4], and only one was a case of posterior SCJD [4].

We herein report a case of posterior SCJD that occurred during judo practice.

Case history

The patient was an 18-year-old male with no past medical history who had been thrown by his opponent during judo practice. He presented at another hospital with good general health status and consciousness. However, the left shoulder had decreased range of motion. Radiographs and CT revealed posterior SCJD (Fig. 1).

The patient presented at the orthopaedic department of our hospital for a second opinion. On physical examination, there was marked tenderness localised over the left SCJ, as well as an obvious deformity with less prominence of the joint on the left compared with the right. The patient was neurovascularly intact. Radiographs demonstrated SCJ asymmetry between left and right sides. The patient was scheduled for urgent closed reduction within 24 h.

Closed reduction of the left posterior SCJD was performed under fluoroscopic guidance approximately 72 h after the initial injury.

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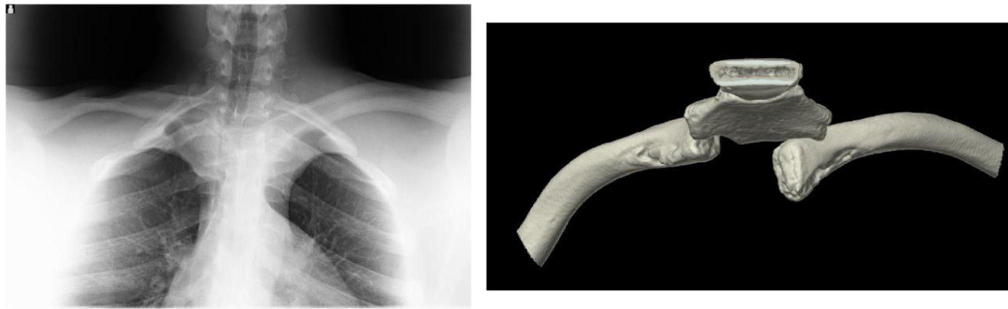

Fig. 1. Pre-reduction X-ray and CT scan.

The patient was placed in a supine position with a towel bolster between his scapulae, and gentle traction was applied to the left arm while it was extended and in 90° abduction [5]. A percutaneously placed towel clip was used to hold the proximal end of the clavicle and pull it upwards [5]; we also retracted the left shoulder with caudal traction on the adducted arm [6]. At first, reduction was not achieved. However, reduction was eventually accomplished by clamping the proximal end of the clavicle using bone forceps and pulling it upwards with rotation (Fig. 2). The sternum and the distal end of the clavicle were used as anatomical landmarks. Reduction resulted in stability of the SCJ. CT demonstrated that the SCJ was correctly positioned (Fig. 3). Vital signs, including blood pressure fluctuation, were measured for 24 h post-reduction. There were no complications after the reduction.

The patient was placed in a figure-of-eight clavicle brace and left shoulder sling and admitted for monitoring of potential damage to the surrounding vital structures. The patient remained in the brace for 8 weeks and the sling for 3 weeks following reduction. Chest CT was performed to verify not only the position of the clavicle but also the neurovascular bundle of the upper chest area. Two weeks after reduction, the patient was allowed to internally and externally rotate the adducted arm. Activity was limited until 3 weeks after reduction, when the sling was discontinued. The patient returned to sports 3 months post-injury without difficulty. Fourteen months after reduction, radiography and 3D CT showed complete reduction of the SCJ without any instability or shoulder disability.

Discussion

Posterior SCJD occurs secondary to an indirect force to the posterolateral shoulder, forcing the lateral clavicle anteriorly and levering the medial clavicle posteriorly. Such an indirect force can be caused during contact sports such as football, wrestling, and judo [7]. Less commonly, posterior SCJD can occur when a posterior force is transmitted directly to the surface of the medial clavicle, which typically occurs during athletic events or motor vehicle accidents [8,9]. The mechanism in the present case was likely to be indirect force. However, there are only two previously reported cases of posterior SCJD occurring in judo (Table 1). Although posterior SCJD may be very rare in judo, it should be suspected after trauma during highly competitive sports.

In cases of recent and isolated posterior SCJD, attempting closed reduction under general anaesthesia within 48 h maximises the chance of success [7]. The reduction technique comprises placing the patient in supine position with a sandbag between the shoulder

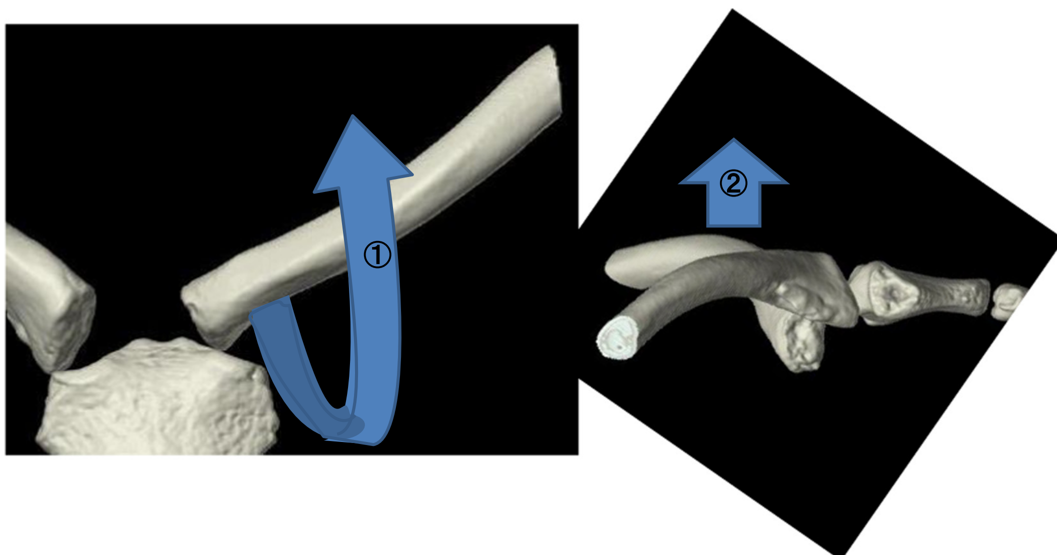

Fig. 2. Our technique for the reduction of a posterior sternoclavicular joint dislocation.

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