

Case Report

Bipolar Clavicle Dislocation: Anterior Dislocation of the Sternoclavicular Joint with Lateral Dislocation of the Acomioclavicular Joint: Case Report

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Introduction

Clavicle dislocation is rare and difficult in treating among clavicle injuries. We report a patient with a bipolar clavicle dislocation, including anterior dislocation of the sternoclavicular joint with lateral dislocation of the acromioclavicular joint. Treatment remains controversial because of the rarity of this kind of injury, here we report open reduction and internal fixation using LARS artificial ligament stabilization method in a man (aged 53), with good results.

Presentation of Case

The patient is a 53 years old porter, in January 2019, he sustained an injury on his left shoulder, he fell down from a truck during work. The subsequent X-ray showed a clavicle dislocation and ribbon fracture. In an attempt to avoid surgery, this patient pursued nonoperative measures including shoulder-elbow sling and physical therapy without relief. One month later, he came to the out-patient department in our hospital. The X-ray and CT scans showed that the dislocation remained. He still felt pain during shoulder motions in all directions (both active and passive). There were no history of alcohol and any drug consumption.

A review of the radiographic imaging was performed. There was a widening of the left AC joint, comparing with the opposite side. A coronal and horizontal dislocation was found in the left SC joint. He had difficulties moving the shoulder, he couldn't raise his arm at all. We also found a rotation of the clavicle in the sagittal plane.

In the preoperative discussion, we made the therapy project that we would reconstruct both joint of the clavicle. After necessary preoperative preparation, we proceeded with reconstructive surgery. The SC joint reconstruction was performed first. We made a horizontal incision over the SC joint. The SC joint capsule were found torn and generous scar tissue. The sternal end of clavicle was easily found beneath the scar tissue, forward and upward dislocation. We made further exposure of the first rib. A coronal hole was drilled in the sternal end of clavicle, about 1 cm to the sternal end of clavicle, then the artificial ligament was pass through the hole and the base of

the first rib. the was reduction by crushing the sternal end of clavicle backward and downward, then the artificial ligament was knotted. Unabsorbable suture were used to reinforce the artificial ligament knot. The ruptured SC joint capsule was sutured at last. The SC joint reconstruction ended. Intraoperative radiographic examination showed that the AC joint reductioned automatically after the SC joint reconstruction. So the AC joint reconstruction was canceled.

Discussion

Bipolar dislocations of clavicle are rare. We can't find the definitive incidence of this kind injury in previous literatures [1]. As the rarity of this kind of injury, there is no much evidence-based literature on the best method. Non-operative methods include figure of eight harness, and arm slings. Surgical treatment includes hooked plates, screws, K-wires, and ligamentous reconstruction. Subluxation, deformity and persistent pain may occur in nonoperative method. Risk of re-dislocation or loss of reduction and post-operative implant failure were reported in several publications [2-5].

In the case of our patient, surgery was initially programmed to deal with both AC and SC joints. After the SC joint was reduced, the AC joint was found reduced automatically. Therefore we inferred that the coracoclavicular ligaments were partial torn. The SC and AC joints should be considered as a whole. They interact each other. The SC joint plays an important part at the motion of shoulder joint, that was authenticated in the past decades. Anatomic reconstruction is the key to achieve good functional outcome in bipolar clavicle dislocation.

In our patient, we reconstructed the SC joint by tying the sternal end of clavicle and the first rib together with LARS artificial ligament. In contrast to tying and manubrium sternum and sternal end of clavicle together, better reduction can be obtained in horizontal plane.

Conclusion

To the best of our knowledge, bipolar clavicle dislocation are rare and difficult to treat. Nevertheless, we believe that individualized therapy should depend on the different injury types, and we should put more attention on SC joint reconstruction.

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