



CWIS Chest Wall Injury Summit 2023

Oral Presentation Abstract Submission

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Title of Presentation Sternoclavicular Joint Pathology: Examination of a 17-year Case Series and Recommendation of a Surgical Algorithm

Background

The sternoclavicular joint (SCJ) is an articulation consisting of a capsular-ligamentous complex responsible for stability of the upper extremity during scapulothoracic motion. Traumatic and nontraumatic pathology must be considered in a systematic approach to surgical treatment. Although identification of SCJ pathology is increasing in prevalence, there is currently no agreed upon treatment paradigm. Surgical treatments including allograft reconstruction, local soft tissue repair, suture augmentation, medial clavicle resection and open reduction internal fixation (ORIF) have been proposed with recent attempts to determine outcomes. The aim of this study is to describe a rational approach to surgical treatment of SCJ pathology based on the 17-year operative experience of a single surgeon case series.

Methods

Forty-four patients who presented with SCJ pathology from 2005-2022 to the senior author (P.A.C) were identified via electronic medical record (EMR). Basic demographic information, mechanism of injury, surgical procedure and postoperative data was collected. Pediatric and adult patients were included if they presented with SCJ pathology that required operative management including infection, arthritis, post-traumatic instability, or physeal injury. Patients were then divided into groups based on pathology. The operative management of each group was then reviewed to devise a treatment algorithm based on specific SCJ pathology and timing of presentation.

Results

Thirty-six patients met inclusion criteria. Twenty-eight patients were treated for post-traumatic SCJ dislocation and categorized into acute vs. chronic, followed by direction of dislocation (anterior vs.

posterior). Eleven were treated acutely. Seventeen patients presented as chronic injuries undergoing treatment an average of 50 months post injury.

Based on this experience, for adults with acute anterior SCJ dislocation, the recommendation of an open SCJ repair with suture augmentation reinforcement is preferred. Posterior dislocations were treated effectively with medial clavicle resection and SCJ reconstruction using semitendinosus allograft. In patients with open physes who have experienced a fracture, ORIF and suture augmentation should be utilized regardless of the direction of the dislocation.

Chronic dislocations were also separated by direction with anterior dislocation being further divided into "stiff" vs "unstable". Patients with stiff, chronic anterior SCJ dislocations should undergo medial clavicle resection and clavicular contouring. Unstable, chronic anterior dislocations are amenable to medial clavicle resection and SCJ reconstruction with a semitendinosus allograft.

Seven patients were treated for primary SCJ osteoarthritis with no gross instability, and a medial clavicle resection provided satisfactory resolution of symptoms. Finally, one patient had septic arthritis of the SCJ and underwent incision and drainage with resection of necrotic tissue as necessary, inclusive of medial clavicle resection.

This cohort was followed for an average of 6.9 months. Strength testing, range of motion, and overall pain scores were recorded at clinical visits demonstrating improvements for patients who underwent operative treatment.

Conclusion

SCJ pathology is varied and uncommon. A proposed treatment algorithm has been developed based on surgical experience, which depends on the direction and chronicity of the dislocation or whether it is an idiopathic form of arthritis.