



## Secondary Tracheal Stenosis Due to Clavicular Osteophytosis: A Clinical Case

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### Abstract

The clavicle is a long bone, forming the shoulder, and located in close proximity to vascular elements, nerves, the esophagus and trachea. Bearing in mind the delicate relation to nearby structures, lesions to the clavicle and sternoclavicular joint are a cause of compression and trauma to key anatomical structures. In this paper we will present a case of a clinically evident tracheal compression, as a result of osteophytic deposits around the head of the clavicle and will also share our experience and conclusions regarding the surgical treatment of this pathology.

**Keywords:** Shoulder; Clavicle; Rib

### Introduction

The clavicle, also called the collar bone, is a long, hollow bone with an S-shape. It lies almost horizontally at the base of the neck. The lateral, or acromial part, is flat and articulated to the medial aspect of the acromion of the scapula, while the medial, or sternal part, is larger, forming a head and a joint with the clavicular notch of the manubrium of the sternum and the articular facet of the first rib.

In the upper thoracic aperture, the clavicle is located in close proximity to the subclavian vein and artery, the brachial plexus, the esophagus and trachea, the carotid artery and the internal jugular vein. Because of its key location, lesions, fractures and sternoclavicular dislocations/especially in a posterior direction/, lead to symptoms, which depend on the structures affected.

### Clinical Case

A 82-year old male patient was admitted to the thoracic surgery clinic with complaints of progressive difficulty breathing upon exertion, persistent cough with chronic expectoration of large amounts of purulent and foul-smelling sputum and chest pain. Upon examination there was notable inspiratory stridor. On imaging studies, the computed tomography showed a thickening in the area of the larynx, at the level of the thoracic vertebrae, reaching the upper border of the sternum, located more to the right. Examination of the esophagus with the help of contrast material was unremarkable and showed no pathologies in the upper gastrointestinal tract. A flexible bronchoscopy was performed, which noted external compression of the tracheal lumen. The conducted diagnostic studies lead to the suspicion that enostotic

deposits in the area were the primary cause of the patient's symptoms and a decision was made to perform surgery.

An incision was made along the edge of the right Sternocleidomastoid muscle. The muscle was then carefully dissected and the right sternoclavicular joint was exposed. Upon examination, osteophytic proliferations, compressing the tracheal wall, were found. A partial resection of the clavicle was carried out and the osteophytes were excised. The follow up bronchoscopy revealed no signs of stenosis. The post operative period was unremarkable and the patient was discharged on the sixth day after surgery with a clavicle brace to stabilize the shoulder. A control computed tomography revealed no traces of the previously described pathology and the patient noted a complete resolution of the initial symptoms.



**Figure 1:** Shows the excised osteophytic deposits.

## Discussion

Most common symptoms of compression by the head of the clavicle arise as a result of posterior dislocation of the bone. Such cases have been described with associated lacerations and compression after a traumatic incident. Some papers report disruption of the brachiocephalic vein and artery, the esophagus, trachea, brachial plexus and even the superior vena cava.

Osteophytic deposits are a result of degenerative changes in the connective tissue matrix and most commonly they form without

any symptoms. Any complaints that may occur are because of compression of nearby structures. The diagnosis is formed using imaging studies with computed tomography using contrast enhancement at the forefront.

The tracheal stenosis in the presented case is the main pathology, which leads the patient to seek medical attention. It is important to evaluate the extent of stenosis with regards to planning a course of action in a decompensation of a critical level narrowing.

## Conclusion

Pathologies in the commented area are of key interest because of all the vital structures nearby. Detailed knowledge of the topography of the elements in the upper thoracic aperture is a must in planning the treatment options, most of which involve surgical intervention. The displayed clinical case shows that usually a partial resection of the clavicle is sufficient and adequately enhances the quality of life of the patient.

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