Case Report: Sternoclavicular Traumatic Dislocation, Treated Orthopaelically in Hospital Manuel Ygnacio Monteros Loja

Pablo Mauricio Enríquez Romo^{1*}, Ana Belén Mendoza², Cinthya Thalía Mendoza Vicente² and Loida Maribel rosemary Guanuchi²

¹Docente of the External Technical University of Loja, Ecuador

²Rotating External of the Private Technical University of Loja, Ecuador

***Corresponding Author:** Pablo Mauricio Enríquez Romo, Docente of the External Technical University of Loja, Ecuador.

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Abstract

Objectives: To demonstrate clinical experience gained through a non-surgical method in the treatment of an acute sternoclavicular dislocation case.

Materials and Methods: 28-year-old male patient, who was in a traffic accident while being transported as a motorcycle crewmember, causing indirect chest trauma directed at the top of his left shoulder, causing pain, deformity and limitation collarbone level, located in the medial area of the collarbone. The physical examination shows fixed deformity at the level of its anterior chest with elevation of the sternoclavicular joint

Closed reduction was attempt, achieving unstable clinical reduction which spontaneously returned to its initial position. No new injury manipulation was performed, only immobilized with a clavicular splint for 3 weeks in order to limit the movement of the joint, after the fourth week begins with pendulum exercises and gradual strengthening for regain joint mobility.

Results: At 6 weeks the patient was already asymptomatic and with adequate ranges of functionality (similar to those on the contralateral side). The DASH scale at 1 and 6 months was 25.8/100 and 5/100 respectively [9].

Conclusions: Sternoclavicular dislocations do not all require surgical intervention as they can be treated orthopaelically being this a safe method with good functional results.

Keywords: Sternoclavicular; Dislocation; Hospital

Introduction

Sternoclavicular dislocation is the disruption of the joint between the sternum and collarbone resulting from a traumatic rupture of the ligament complex that supports it, is a rare pathology. The most common etiology is of traumatic origin either by direct or indirect mechanisms, if the force is direct the joint moves below the sternum and towards the mediastinum, while the mechanism was an indirect force, i.e. the force was applied in the super anterolateral and posterolateral shoulder physique results in a dislocation to the anterior. The above dislocation is reported as more common in relation to the subsequent one. The diagnosis is performed by a detailed physical examination, you can notice obvious deformity in the anterior face of the chest and is corroborated by imaging stud-

ies, within these: the simple x-ray and more usefully the axial tomography that we allows for axial cuts and reconstructions in a third dimension. All this accompanied by a good medical history. There is little information in the literature about its optimal treatment as there are only reports of cases and small series. This clinical case is presented in order to provide the experience gained in the management of the same [1-7].

Clinical Case

28-year-old male patient, who was in a traffic accident while being transported as a motorcycle crewmember, causing indirect chest trauma directed at the top of his left shoulder, causing pain, deformity and functional limitation at the level of the collarbone, located in the medial area of the collarbone.

The physical examination shows fixed deformity at the level of its anterior chest with elevation of the sternoclavicular joint (Figure 1). Mobile, painful injury, which causes functional limitation to active and passive left shoulder mobility.

Figure 1: Traumatization of left sternoclavicular joint.
Source: Manuel Ignacio Monteros Hospital Traumatology Service, 2018.

Imaging studies were performed: chest anteroposterior x-ray and supplemented with chest tomography which assessed that there is no mediastinal injury or pleuropulmonary lesion, at musculoskeletal level it is possible to show dislocation acute towards the anterior sternoclavicular (Figure 2 and 3).

Figure 2: Acute sternoclavicular dislocation to anterior.
Source: Manuel Ignacio Monteros Hospital Traumatology Service, 2018.

Figure 3: Multiplanar reconstruction of acute sternoclavicular dislocation to anterior.

Source: Manuel Ignacio Monteros Hospital Traumatology Service, 2018.

Treatment

After radiological analysis of the case and review of the existing literature, an attempt at closed reduction was made with the patient in supine decubitus, a sandbag was applied between the two scapulae, then traction was applied to the arm and reduction in a slightly extended position and in abduction as well as a pre- to post-pressure movement on the medial collarbone achieving clinical reduction (Figure 4). After the procedure, joint instability was noted, which was relocated to its initial position. No new injury manipulation was performed, only immobilized with a clavicular splint for 3 weeks in order to limit the movement of the joint, after the fourth week begins with pendulum exercises and gradual strengthening for regain the mobility of the joint, and thus get the patient back to perform their activities. During the convalescence period the patient had initial pain measured on the EVA scale of 4/10 with gradual reduction, up to 1 at four weeks. At 6 weeks the patient was already asymptomatic and with adequate ranges of functionality (similar to those on the contralateral side) presented as a sequel a fixed non-painful mass on the anterior face of sternoclavicular joint for which no discomfort (Figure 5). The DASH scale at 1 and 6 months was 25.8/100 and 5/100 respectively [8,9].

Figure 4: Reduced closed.
Source: [10].

Figure 5: Acute sternoclavicular dislocation to anterior.
Source: Manuel Ignacio Monteros Hospital Traumatology Service, 2018.

Results

- At 6 weeks the patient was asymptomatic and had adequate mobility ranges, DASH 25,8/100. These results are more effective at 6 months, with a DASH 5/100.
- The patient manages to rejoin his or her usual activities (strenuous activities) after 3 months.
- In this case the patient did not require surgical intervention, because with the conservative treatment applied adequate ranges of functionality were obtained and presented no complications such as: joint instability or pain.

Results of non-operative treatment		
	Sixth week	Sixth month.
Score DASH	28.5	5
Complications	No	No
Mobility Ranges	Limited by pain Mainly abduction (limited to 90 degrees)	Complete recovery of mobility ranges.
Deformity	Yes, tolerable	Yes, tolerable

Discussion

Mehta and colleagues described that three of the four subsequent sternoclavicular dislocations were caused by an indirect force, and Heinig mentioned that this mechanism was responsible for eight of the nine cases of sternoclavicular dislocations Further [11].

The orthopedic treatment applied in this case, after compared to studies carried out it could be denoted that patients did not have

instability after the closed reduction. Overall, 93% of them presented a good to excellent result [12].

Groh., *et al.* He mentions that early recognition (<10 days) of subsequent dislocations improves the likelihood of achieving a closed reduction [13].

If an open reduction is needed instead of orthopaedic treatment, a stable fixation should be attempted without the use of transarticular pins. Several deaths have resulted from steinmann pin migration or Kirschner cables to the heart, pulmonary artery, unnamed artery or aorta, occasionally a full pin migrates, or the pin breaks and part of it may migrate. Reports suggest that the incidence of significant complications may approach 25% after sternoclavicular procedures. Such considerations imply that surgical treatment should be reserved for irreducible posterior sternoclavicular dislocations and for significant symptoms such as chronic pain, movement arch limitations and instability [13-15].

Conclusions

- Clinical evaluation of a patient with dislocation should include a thorough search for fractures or other serious injuries, especially if the mechanism involved high energy.
- Confirmation of the diagnosis of sternoclavicular dislocation is performed with chest computed tomography as it has greater sensitivity and specificity to determine the type, degree of displacement and anatomical relationship with structures Mediastinal.
- Sternoclavicular dislocations do not all require surgical intervention as they can be treated orthopaelically being this a safe method with good functional results.

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