

Scapular Fractures and Concomitant Injuries

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Abstract

Original Research Article

Objective: The association of scapular fractures with other life-threatening injuries is widely recognized. However, few studies have studied this suspected association. In this study, we studied the incidence of injuries associated with scapular fracture and their severity. **Materials and methods:** A prospective study was conducted from June 2017 to June 2018 in the resuscitation department of the Moulay Ismail Military Hospital in Meknes. All traumatized patients have been identified. Patient demographics, mechanism of injuries, associated injuries, ISS and survival scores were recorded, the data were generated by SPSS 10 software. **Results:** During the study period, 30 traumatized patients were admitted to the intensive care unit of the Moulay Ismail Military Hospital in Meknes. Of these patients, 05 (16.6%) had fractured the scapula. The most common cause of injury was motor vehicle crashes, which occurred in 27 cases (90%), followed by falls (3 cases, 10%). There were 01 (20%) patients presenting scapular fracture with SSI <15.01, (20%) with SSI = 15-25 and 03 (60%) with SSI > 25. All of our patients had associated injuries, mainly chest injuries consisting of pneumothorax and lung contusion. Cranial and cervical trauma was the second most common concomitant lesions. There was no blunt thoracic aortic injury in all these patients with scapular fracture. **Conclusion:** The scapular fracture is a rare injury and has received little attention in medical literature. Although this study had only 2 deaths and the patients did not die directly from a scapular fracture, the associated injuries resulted in death. In this study, three factors are identified to determine the probability of mortality: thoracic or cerebral lesions and high ISS score. Therefore, scapular fractures should alert health personnel to the presence of other injuries, such as thoracic, nerve, and vascular injuries, and should be seen as a marker of a critical injury.

Keywords: scapular fracture, marker of serious injuries, associated injuries, severe trauma.

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INTRODUCTION

The scapula is surrounded by a thick envelope of muscles that protect it during an impact. The anatomical position of the scapula on the posterolateral part of the upper body is also considered a protective feature. These two factors combine to make shoulder blade fractures rare and require high energy trauma for injuries. The presence of a fracture of the scapula therefore seems to indicate serious underlying lesions. It is not surprising that thoracic injury is the most common associated lesion with scapula fractures and may worsen the prognosis in these patients. The association of scapular fractures with other life-threatening injuries is widely recognized. However, few studies have studied this suspected association. In this

study, we studied the incidence of injuries associated with scapular fracture and their severity.

MATERIALS AND METHODS

A prospective study was conducted from June 2017 to June 2018 in the resuscitation department of the Moulay Ismail Military Hospital in Meknes. All traumatized patients have been identified. Patient demographics, mechanism of injuries, associated injuries, ISS and survival scores were recorded. The management of injuries associated with a scapular fracture has been reviewed and risk factors for mortality have been identified. The data were generated by SPSS 10 software. Quantitative values were expressed as mean, standard deviation or median with quartiles as a function of the distribution of each variable. Qualitative

values were expressed in percent strength. A p less than or equal to 0.05 was considered significant for these values. The graphics as well as the database were made by the Microsoft Office Excel 2007 software.

RESULTS

During the study period, 30 traumatized patients were admitted to the intensive care unit of the Moulay Ismail Military Hospital in Meknes. Of these patients, 05 (16.6%) had fractured the scapula. All were diagnosed by an ordinary film. One hundred percent of the patients were men. The average age was 34.96 years old. The most common cause of injury was motor vehicle crashes, which occurred in 27 cases (90%), followed by falls (3 cases, 10%). There were 01 (20%) patients presenting scapular fracture with SSI <15.01, (20%) with SSI = 15-25 and 03 (60%) with SSI > 25.

All of our patients had associated injuries, mainly chest injuries consisting of pneumothorax and lung contusion. Cranial and cervical trauma were the second most common concomitant lesions. There was no blunt thoracic aortic injury in all these patients with scapular fracture. The details of the associated injuries are shown in the table below.

Table: Associated lesions of patients with scapular fracture

Associated lesions	Numbers (%)	P value
Pneumothorax	3 (60%)	N/S
Hemothorax	1 (20%)	N/S
Lung contusion	1 (20%)	N/S
Pneumonectomy	1 (20%)	N/S
Traumatic brain injury	1 (20%)	N/S
Fracture cervical dislocation	1 (20%)	N/S
Rupture of the subclavian vein	1 (20%)	N/S

DISCUSSION

Fractures of the scapula are observed in high-energy, life-threatening trauma [1,2]. The reported incidence of a blunt scapular fracture was 0.48% to 3.70%, [3-4] and in our study it was 16.6%, which confirms the rarity of this lesion. In addition, our study, like the previous ones [5,6,7], determined that road accidents were the most common cause of blunt scapular fractures.

Previous studies have shown that scapular fracture is strongly associated with other organ injuries, e.g. Brown et al [3] and Stephens et al [6] reported that scapular fracture is most commonly associated with thoracic injury (43% and 49% respectively). According to the study by Weening et al [4], the relative risk of rib fracture and haemopneumothorax in patients with scapular fractures is 3.1 and 3.7, respectively. Our study has similar data: thoracic traumas accounted for the most common concomitant lesion (80%). In our study, no patient with a blunt scapular fracture had a lesion of the thoracic aorta. Only a few studies have presented data on the associated thoracic aortic lesions. Weening

et al [4] reported no aortic lesions in 94 patients with a blunt scapular fracture and Brown et al [3] reported an incidence of 1% of the associated thoracic aortic lesion. The mortality rate for scapular fracture ranges from 0% to 9.6%, [8, 5, 6] and in our study, it was 40%. The mortality of our patients was related to the severity of the concomitant lesions to other organs such as the chest and skull, as well as to a score ISS high. After statistical adjustment, there was no statistically significant difference in injury rates among patients with different types of shoulder blade fractures.

CONCLUSION

The scapular fracture is a rare injury and has received little attention in medical literature. Although there is no lesion of the associated blunt thoracic aorta, other associated lesions are still common. Although this study had only 2 deaths and the patients did not die directly from a scapular fracture, the associated injuries resulted in death. In this study, three factors are identified to determine the probability of mortality: thoracic or cerebral lesions and high ISS score.

Therefore, scapular fractures should alert health personnel to the presence of other injuries, such as thoracic, nerve, and vascular injuries, and should be seen as a marker of a critical injury.

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