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1 - INTRODUCTION

Scapulothoracic dissociation (STD) is a rare but potentially catastrophic upper extremity injury caused by high-energy traction injuries. Originally described in 1984 as a laterally displaced scapula with ipsilateral acromioclavicular joint separation, subclavian vessel and brachial plexus disruption, with intact overlying skin. We reported a case of polytrauma with challenging diagnosis and management of STD in Emergency Department.

2 - CASE REPORT



FIGURE 1 :
SWELLING OF LEFT SHOULDER
WITH DEFORMITY OF LEFT FOREARM

A case of 14-year-old boy was brought to emergency department following a motorcycle skidded. Upon arrival, he was agitated, tachycardic and, hypertensive with GCS of 14. On examination, there was a deformity over left thigh and forearm, as well as abrasion wound over left shoulder. Initial primary survey was clear. Subsequently, further deterioration of GCS level which required airway protection. Post intubation, the patient became hypotensive with tachycardia. However, serial E-FAST was negative. The patient was resuscitated as per ATLS protocol and MTP was activated after his haemoglobin level dropped by 2g/dL. During resuscitation, noted progressive swelling over the left shoulder, with no pulse palpable over the left brachial and radial artery. Emergency CT thorax and CT Angiography were ordered and revealed a left sternoclavicular dislocation with neck of scapula fracture, scapula thoracic dissociation with left subclavian artery and vein injury, and anterior mediasternum haematoma. He also suffered a severe traumatic brain injury and multiple long bone fractures. Eventually, patient was scheduled for emergency forequarter amputation with Video Assisted Thoracotomy (VAT), however few hours post-injury he succumbed to his illness despite multidisciplinary effort.



FIGURE 2 :
SWELLING OF LEFT SHOULDER
IN COMPARING WITH RIGHT SHOULDER

FIGURE 3 :
CHEST RADIOGRAPH WITH
SCAPULA FRACTURE AND
LEFT STERNOCLAVICULAR
JOINT DISLOCATION



3 - DISCUSSION AND CONCLUSION

A scapulothoracic dissociation is similar to a closed forequarter amputation and is associated with a variety of injuries. Osseous and ligamentous shoulder girdle injuries, such as acromioclavicular joint separation, clavicle fractures, and sternoclavicular joint separation, may occur in conjunction with vascular injuries to the subclavian, or axillary, vessels. The injury mechanism is defined by the application of high traction forces to the shoulder girdle. A polytraumatized patient's severe concurrent injuries may distract the treating physician from subtle clinical symptoms of scapulothoracic dissociation, making this a frequently missed. Massive soft tissue swelling caused by haematoma and oedema may be the only visible sign like in this patient. Imaging will undoubtedly aid in the diagnosis of STDs, characterised by lateral scapula displacement on chest radiographs. The scapula-index measures the degree of lateralization; the distance between the thoracic spinous process and the medial border of the scapula and divided by the non-injured side measurement. Alternatively, scapula-index can also be determined by measuring the distance between the coracoid and the sternal notch, or the glenoid fossa margin to the sternal notch. Although displacement of the medial border of the left scapula was not visible on this patient's chest radiograph, the distance between the coracoid and sternal notch was clearly displaced. Primary management is determined by any concomitant injuries and the patient's neurological and haemodynamic status as per ATLS protocol. Controlling active bleeding and ischaemic complications is critical in the acute setting. Damschen et al. recommended a vascular repair within 4–6 h after injury. Subclavian vessel injuries, in particular, are uncommon but highly lethal. Regardless of the mechanism, such injuries can result in significant morbidity and mortality. As in this case, the failure to achieve definitive bleeding control in conjunction with other concomitant severe injuries resulted in the patient's death despite the fact that he was receiving continuous resuscitation. In conclusion, the early recognition of STD and a multidisciplinary approach were key determinants in the patient's better prognosis.

4 - REFERENCES

1. Brucker, P. U., Gruen, G. S., & Kaufmann, R. A. (2005). Scapulothoracic dissociation: Evaluation and management. *Injury*, 36(10), 1147–1155. <https://doi.org/10.1016/j.injury.2004.12.053>
2. Jangir, rajat, & Misra, D. (2014). Scapulothoracic Dissociation: A rare Variant: A Case report. *Malaysian Orthopaedic Journal*, 8(2), 46–48. <https://doi.org/10.5704/moj.1407.003>
3. Kuroiwa, T., Kawano, Y., Maeda, A., Funahashi, T., Shizu, K., Suzuki, K., & Fujita, N. (2021). A case of open scapulothoracic dissociation with forequarter amputation. *JSES International*, 2–5. <https://doi.org/10.1016/j.jseint.2021.05.002>
4. Lavelle, W. F., & Uhl, R. (2010). Scapulothoracic dissociation. *Orthopedics*, 33(6), 417–421. <https://doi.org/10.3928/01477447-20100429-23>
5. Sampson, L. N., Britton, J. C., Eldrup-Jorgensen, J., Clark, D. E., Rosenberg, J. M., & Bredenberg, C. E. (1993). The neurovascular outcome of scapulothoracic dissociation *Journal of Vascular Surgery*, 17(6), 1083–1089. [https://doi.org/10.1016/0741-5214\(93\)90679-G](https://doi.org/10.1016/0741-5214(93)90679-G)

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6 - DECLARATION OF CONFLICT

No conflict of interest