

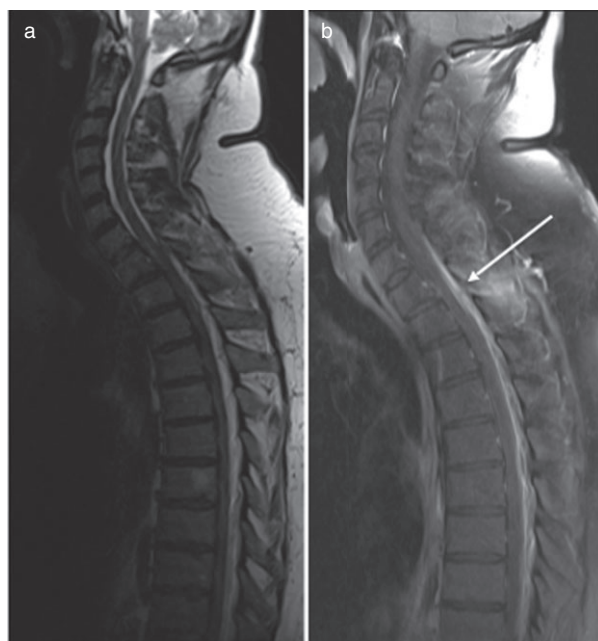


Figure 1. (a) Sagittal section from the initial spinal MRI where contrast and STIR sequences were limited to the lumbar region and, as a result, the SEA was missed. (b) Post contrast image from the MRI taken 5 days later, showing SEA (arrow) and associated musculoskeletal changes.

Overall, the clinical presentation of SEA is notoriously variable resulting in diagnostic difficulties. However, prompt diagnosis is paramount, as the severity of neurological signs prior to definitive surgery is the best predictor of neurological recovery.^{1,4} Unfortunately, misdiagnosis and delayed treatment is the rule resulting in substantial morbidity and mortality.^{4,5}

Papers abound recommending early Gd-MRI for suspected SEA, a study

with >90% sensitivity and specificity.^{1,2,4} However, emergency MRI often presents logistical difficulties, with poor patient tolerance, the need for monitored sedation, poor staffing after hours and the dependence on targeted sequences with axial contrast enhanced views.² We reiterate that spinal MRI should never be considered in isolation to rule out SEA. According to expert consensus, if MRI is inconclusive, but high suspicion remains, repeat

imaging and regular neurological review are essential.⁶ Clinicians should avoid excessive reliance on a single investigation and remain mindful of the pitfalls of diagnosis of this eminently treatable condition.

Competing interests

None declared.

References

1. Tompkins M, Panuncialman I, Lucas P, Palumbo M. Spinal epidural abscess. *J. Emerg. Med.* 2010; **39**: 384–90.
2. El Sayed M, Witting MD. Low yield of ED magnetic resonance imaging for suspected epidural abscess. *Am. J. Emerg. Med.* 2011; **29**: 978–82.
3. Darouiche RO. Spinal epidural abscess. *N. Engl. J. Med.* 2006; **355**: 2012–20.
4. Joshi SM, Hatfield RH, Martin J, Taylor W. Spinal epidural abscess: a diagnostic challenge. *Br. J. Neurosurg.* 2003; **17**: 160–3.
5. Pilkington SA, Jackson SA, Gillett GR. Spinal epidural empyema. *Br. J. Neurosurg.* 2003; **17**: 196–200.
6. Sendi P, Bregenzer T, Zimmerli W. Spinal epidural abscess in clinical practice. *QJM* 2008; **101**: 1–12.

Kate JOHNSON,
Shyamini GUNARATNE
and Mohamed SHAFFI
Neurology Department,
Nepean Hospital, Sydney,
New South Wales, Australia
doi: 10.1111/1742-6723.12205

TASERed during training: An unusual scapular fracture

Dear Editor,

A 40-year-old policeman presented with acute-onset, severe left chest and shoulder pain following a training exercise at work during which he was voluntarily TASERed in the left shoulder while lying on the ground. He im-

mediately experienced severe shooting pain radiating down his left arm and left chest discomfort. He was brought to the ED for further investigation.

His medical history included an excised melanoma *in situ* on his left shoulder. He had no regular medica-

tions or known drug allergies. He was a heavily muscled man with an endomorphic body type. On examination he had a small 50 cent-sized area of erythema on his left shoulder blade where the TASER had discharged, but no evidence of deeper skin burn. There



Figure 1. CT reconstruction of left shoulder and scapula.

was no neurovascular compromise to his upper limbs. He was sensitive to touch across the superior and lateral borders of his left scapular but had no bony spinal tenderness. His finger, wrist and elbow flexion and extension showed 5/5 power bilaterally. Left arm abduction and forward flexion was limited to 45° despite good analgesia. He was unable to externally rotate nor circumduct the left shoulder. He was haemodynamically stable, saturating at 99%, with an unremarkable ECG.

A left shoulder X-ray radiograph showed an enlocated glenohumeral joint with a fracture of the scapular. A CT scan of the left shoulder and scapular was arranged, and he was admitted for observation and pain relief. The CT scan reported a moderately displaced comminuted fracture of the infra- and supraspinatus scapular fossae involving the spine (Fig. 1). An old fracture of the left distal clavicle was also noted. He was reviewed in the orthopaedics outpatient clinic and followed up with physiotherapy. He returned to normal duties after 12 weeks.

Jack Cover, a NASA researcher, began developing the TASER in 1969,

naming it after his childhood hero, a fictional character called Thomas Swift – hence Thomas-A-Swift Electronic Rifle (TASER). TASERs were gradually introduced to police forces around the world as an alternative way to physically restrain violent or dangerous people. TASERs deliver 50 000 V of electricity to a subject in a series of pulses over 5 s, resulting in temporary incapacitation due to involuntary muscular contraction. The TASER has been in use in the Queensland police service since 2009. The Crime and Misconduct Commission report for Queensland in November 2012 suggested that less than 10% of people exposed to TASER deployment sustained an injury or medical complication, excluding minor abrasions, bruises or lacerations.¹

Most TASER-associated injuries are usually the result of a fall from height.² They include soft tissue injuries, head injuries and bony fractures resulting from muscular contraction after electric shock.³ We reviewed the literature available on scapular injuries and, although fractures post-electric shock have been well documented, to our knowledge there are no TASER-related

scapular fractures in the literature. Sloane *et al.* described a TASER injury in a police officer not due to a fall, in which T6 and T8 fractures and a L2 wedge fracture were sustained. It was hypothesised that forceful contraction of his paraspinal muscles resulted in his injuries.⁴

TASER deployment in a controlled environment can cause significant injury due to the force of muscle contraction. It is the opinion of the authors that continued TASERing of officers in training would appear draconian, hazardous and unnecessary.

Competing interests

None declared.

References

1. The Crime and Misconduct Commission (CMC). Queensland government. CMC report, November 2012 [Cited Sep 2013.] Available from URL: <http://www.cmc.qld.gov.au/topics/police-and-the-cmc/police-powers-and-practice/use-of-force/taser-use>
2. Robb M, Close B, Furyk J, Aitken P. Review article: emergency department implications of the TASER. *Emerg. Med. Australas.* 2009; 21: 250–8.
3. Winslow JE, Bozeman WP, Fortner MC, Alson RL. Thoracic compression fractures as a result of shock from a conducted energy weapon: a case report. *Ann. Emerg. Med.* 2007; 50: 584–6.
4. Sloane CM, Chan TC, Vilke GM. Thoracic spine fracture after Taser activation. *J. Emerg. Med.* 2008; 34: 283–5.

Felicity COAD and Graeme MAW
Emergency Department,
Townsville Hospital, Townsville,
Queensland, Australia
doi: 10.1111/1742-6723.12206