Development of Syringomyelia from Retained Bullet Fragment following Spinal Cord Injury

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Objective

To investigate potential complications of retained bullet fragments in the spinal canal following traumatic spinal cord injury (SCI)

Design/Methods

We present the case of a 29-year old with C6 ASIA A tetraplegia following bullet wound to neck. He was noted to have decreased pinprick sensation along right upper extremity 14 months following injury. This progressed to weakness along the same limb. He denied any recent trauma or illness.

Physical Exam: Bilateral shoulder abduction 0/5, elbow flexion 0/5, absent sensation below C3.

Delayed CT Myelogram revealed large bullet fragment within spinal canal at C6-C7 with extensive syrinx in cervical and thoracic spinal cord. The initial imaging failed to reveal syrinx however contrast found to fill syrinx on acquisition films 5 hours later.

Results

Patient underwent C6-C7 laminectomy for bullet removal, cord de-tethering and drainage of syrinx

He was transferred to acute rehabilitation and experienced an appreciable improvement of neuropathic pain and spasticity, as well as notable recovery in the region of recent sensory and motor loss.

At time of discharge from rehabilitation, Patient remained C1 ASIA A tetraplegia, though there was some return of elbow flexion and wrist extension. Three months after discharge, his neurological status has remained unchanged.

Imaging

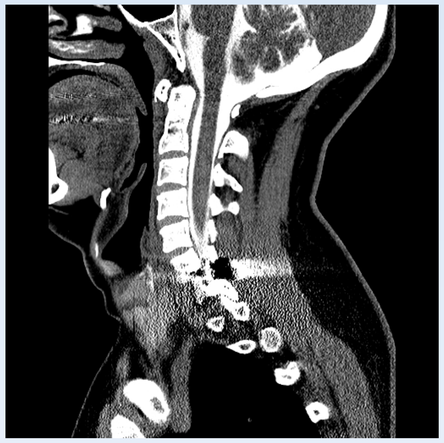

Fig 1: Initial CT Myelogram

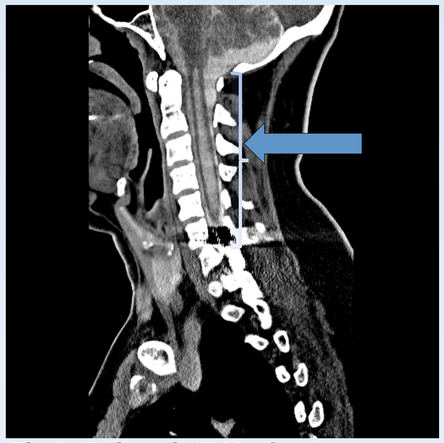

Fig 2: Delayed CT Myelogram

Fig 3: Post-Op CT C-spine

Fig 4: Retained Bullet Fragment

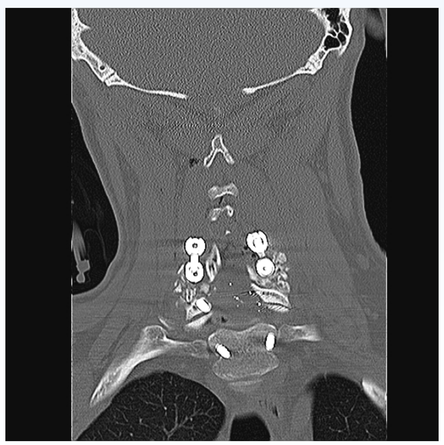

Fig 5: Initial Myelogram

Conclusion

Patients with onset of worsening neuropathic pain with known retained bullet fragments should be evaluated for syringomyelia.

Delayed CT-myelogram is essential in the accurate diagnosis and management of post-traumatic syringomyelia, particularly in this group of patients who are unable to undergo magnetic resonance imaging.

Discussion

Although there have been no published reports of the development of syringomyelia as a result of retained bullet fragments, concern arose for this condition due to acute changes in neuropathic pain, spasticity and ascending sensory loss. Diagnostic work up included imaging, neurosurgical consultation and serial ASIA examinations.

References

1. Carroll AM, Brackenridge P. Post-traumatic syringomyelia: a review of the cases presenting in a regional spinal injuries unit in the north east of England over a 5-year period. *Spine.* 2005 May 15;30(10): 1206-10.
2. Brodbelt AR, Stoodley MA. Post-traumatic syringomyelia: a review. J Clin Neurosci. 2003 Jul;10(4):401-8.