

## Unusual Presentation of Meningitis following Stab Neck.

**N.S. Motsitsi**

Department of Orthopaedic Surgery, Kalafong Hospital, University of Pretoria, S.Africa. Email; [silas.motsitsi@up.ac.za](mailto:silas.motsitsi@up.ac.za).

**Background:** A case report of stab neck presenting at Kalafong Hospital, Pretoria, South Africa with atypical meningitis. The objective was to illustrate the challenge of diagnosing this unusual and late presentation of meningitis.

**Case Report:** A 48 year-old male patient presented to us two days after a stab neck. He was restless and inebriated. The neurological picture was that of Brown – Sequard syndrome. He was managed conservatively. He had two episodes of confusion and aggression. He only had one episode of temperature spike. There were no localizing signs. Brain scans were normal on both occasions. Cerebrospinal fluid analysis showed high neutrophils and lymphocytes. No bacteria were demonstrated by microscopy, culture or agglutinin tests. Tests and all investigations for tuberculosis were negative. HIV test was not done but the CD4 count was normal.

He was started empirically on intravenous ceftriaxone. He regained consciousness within 24 hours. He improved dramatically and is undergoing rehabilitation at our centre.

**Conclusion:** Meningitis must always be borne in mind as a serious complication in a patient with stab neck. The clinical presentation may be unusual; the typical clinical features may be absent.

### Introduction

Penetrating injuries to the neck are fairly common. Stab wounds account for 8% - 11% of all penetrating spinal injuries in most North American series<sup>1</sup> Posterior cervical stab wounds account for 27% - 30% of stab wounds<sup>2</sup>. The incidence of complete neurology is less than one quarter. About a third of these injuries do not have neurological complications.

Early deaths account for 50% of all deaths, and are due to meningitis or pulmonary embolism.<sup>3</sup> Meningitis occurs in 25% of patients with penetrating neck injuries involving a tear in the dura<sup>4</sup> We present a case of an adult male who presented with an unusual clinical picture of meningitis following a stab neck.

### Case report

The patient was a 48 year-old male who presented to the hospital two days after an assault. He had multiple body and facial abrasions plus a stab wound at the back of the neck at the level of C4-C6. There was a history of heavy alcohol abuse plus previous assault that led to depressed skull fractures. He recovered fully from the previous injury. On admission, he was restless and he was heavily inebriated. All vital data including temperature were normal. The clinical picture was that of Brown – Sequard syndrome. Cervical radiographs were normal. Computed tomography scan (CT scan) showed a fracture of the right lamina of C5. The fragment was displaced into the spinal canal. He was managed with supportive treatment. On the fourth day, he suddenly became disoriented, aggressive and restless. There were no localizing signs. Full blood count, differential white cell count, inflammatory markers, urea and electrolytes were all normal. The temperature was 37°C and he had no neck stiffness. Urgent brain scan showed old resolving subdural haematoma. The neck wound was healing well and there were no signs of inflammation. He had one episode of temperature spike (39.5°C) the following day. The confusion and aggression lasted for two days. He improved clinically on supportive treatment for the next four days. He was clinically lucid.

He suddenly deteriorated on the fifth day. The Glasgow Coma Scale decreased to 6/15 over seven days. Clinically he had no localizing signs and the basic blood investigations were normal. He did not have any temperature spikes or increase. There were no features of meningitis except that he held his neck in hyperextension.

Physicians were consulted to evaluate the patient for possible meningitis. Lumbar puncture was done and cerebrospinal fluid was sent for analysis. The relevant findings were; polymorphs = 25 cells/ mm<sup>3</sup>, lymphocytes = 25 cells/mm<sup>3</sup>, high proteins, low glucose and normal chlorides. Bacterial antigen tests were negative, cryptococcus tests were negative, and all tests plus cultures for tuberculosis were also negative. Cytomegalovirus was not isolated, adenosine deaminase was less than 4.34U/l and the DC4 count was 844x10<sup>6</sup> cells/l. No organisms were isolated or cultured. The stab wound healed without any complication.

He was started on intravenous ceftriaxone therapy. The patient made a dramatic recovery: he regained consciousness within 24 hours of commencement of therapy. The treatment was continued for two weeks. He is making very good recovery and he is undergoing rehabilitation.

### Discussion

Meningitis accounts for the majority of early deaths in patient with penetrating neck injuries. The bacteria are introduced into the spinal canal by a contaminated assault instrument. Patients who have CSF leak for more than 96 hours following a stab neck are at a higher risk for meningitis<sup>2</sup>.

The patient may not have the usual clinical features, especially if the GCS is low. The physician must always have a high index of suspicion.

### Conclusion

Patients with penetrating stab neck are at risk for meningitis. The infection may manifest day or weeks following injury. The clinical presentation may not be typical.

### References

1. Kulkarni A. V., Bhandari M., Stiver S., and Reddy K. Delayed presentation of spinal stab wound: case report and review of the literature. *J Emerg Med.* 2000; 18: 209 – 213.
2. Bhatoe H. S. Stabbed in the back? *Indian Journal of Neurotrauma* 2007; 4 (1): 9 - 10.
3. Cabezudo J. M., Carrillo R., Areitio E., Garcia de Sola R., and Vaquero J. Accidental stab wound of the cervical spinal cord from in front. *Acta Neurochirurgica* 1980; 53: 175 - 180
4. Smallfield A., Evans T., and Bhimani M., Neck injury at a rural emergency department; perils, pitfalls and management considerations. *Can. J. Rural Med* 2010; 15(3): 120