The Spine Journal 16 (2016) e403–e406

Case Report

Scissors stab wound to the cervical spinal cord at the craniocervical junction

Xiao-Yong Zhang, MD[a], Ying-Ming Yang, MD[b,*]

[a]*Department of Neurosurgery, Shantou University Medical College, NO. 22, Xinling Road, Shantou 515000, Guangdong Province, China*
[b]*Department of Neurosurgery, The First Affiliated Hospital of Shantou University Medical College, No. 57, Changping Road, Shantou 515000, Guangdong Province, China*

Received 10 December 2014; revised 26 November 2015; accepted 22 January 2016

Abstract

BACKGROUND CONTEXT: Stab wounds resulting in spinal cord injury of the craniocervical junction are rare. A scissors stab wound to the cervical spinal cord has been reported only once in the literature.
PURPOSE: This paper aimed to report a case of Brown-Séquard-plus syndrome in an 8-year-old boy secondary to a scissors stab wound at the craniocervical junction.
STUDY DESIGN: Case report and review of the literature.
PATIENT SAMPLE: Case report of an 8-year-old boy accidentally stabbed in the neck by scissors, which were thrown as a dart.
METHODS: The case study of an 8-year-old boy who was hospitalized because of a scissors stab wound at the craniocervical junction. The patient developed Brown-Séquard-plus syndrome on the left side of the body. Magnetic resonance imaging revealed a laceration of the spinal cord at the craniocervical junction with cerebrospinal fluid leakage. Careful cleansing and interrupted sutures of the wounds were performed to prevent cerebrospinal fluid leakage. Rehabilitation therapy was performed 2 days later.
RESULTS: A follow-up examination revealed complete recovery of the neurologic deficit 8 months post-injury.
CONCLUSION: Treatment of scissors stab wounds to the cervical spinal cord, whether conservative management or thorough surgical exploration, should be individualized based on history, examination, and imaging. As shown in this case report, despite conservative management, complete recovery, which was unexpected, was attributed to the initial mild laceration of the spinal cord and ipsilateral spinal cord functional compensation.

Keywords: Brown-Séquard-plus syndrome; Cervical spinal cord; Complete recovery; Conservative management; Craniocervical junction; Scissors stab wound

Introduction

Scissors stab wounds resulting in spinal cord injury at the craniocervical junction are rare [1,2]. There is only one large review of such injuries published from Cape Town by Peacock et al. [2]; most of the remaining data have come from case reports. According to the review conducted by Peacock et al. [2], 25% of spinal cord injuries have been reported to result from sharp injuries, and 84.2% of these sharp injuries resulted from stabbing. The most commonly reported site for a stab wound is the thoracic spine, followed by the cervical and lumbar spines [2–4]. Reports of stab injuries at the craniocervical junction are rare [1,5,6]. Scissors stab wounds to the spinal cord have only been reported once before by Karadag et al. [7], which was a case of penetrating cervical spinal trauma with an ipsilateral vertebral artery injury. We report a unique case of an 8-year-old boy with a scissors stab wound at the craniocervical junction that resulted in Brown-Séquard-plus syndrome.

FDA device/drug status: Not applicable.

Author disclosures: ***XYZ:*** Nothing to disclose. ***YMY:*** Nothing to disclose.

* Corresponding author. Department of Neurosurgery, The First Affiliated Hospital of Shantou University Medical College, No. 57, Changping Road, Shantou 515000, Guangdong Province, China. Tel.: +8613502973738; fax: +86 0754 8259850.

Email address: ymyang@stu.edu.cn, (Y.-M. Yang)

http://dx.doi.org/10.1016/j.spinee.2016.01.189
1529-9430/

Case report

History and examination

An 8-year-old boy was accidentally stabbed in the neck by scissors, which were thrown as a dart by his little brother while playing. The boy immediately fell to the ground and could not stand up. He presented to the emergency department of the local hospital. The wounds were superficially debrided and closed, and then the patient was transferred to our hospital for further treatment. At the time of admission, the blood pressure was 110/65 mmHg, the heart rate was 96 beats/min, the respiratory rate was 20/min, and arterial oxygen saturation was 100%. The physical examination revealed two sutured skin wounds (approximately 0.9 cm on the right and 1.3 cm on the left), with minor seeping of blood and exudate in the occipitocervical region (Fig. 1). A neurologic examination showed motor weakness of the left upper and lower extremities (grade 0/5). Sensory disturbances of vibration and positional sensation were present on the left side below the C1 level. Impaired perception of pain and temperature stimuli were also noted on the right side below the C1 level. The patient had absent abdominal reflexes, brisk limb reflexes, bilateral ankle clonus, and extensor plantar responses. He also developed urinary retention. Together, these findings were consistent with Brown-Séquard-plus syndrome caused by a disturbance to the left side of the high cervical cord plus some disturbance on the right side based on urinary retention, bilateral brisk reflexes, and extensor plantar responses [8].

Imaging

T2-weighted magnetic resonance imaging (MRI) of the craniocervical junction showed a linear, high signal passing obliquely between the basiocciput and the arch of C1 to the spinal canal. Fluid collection in the paravertebral region at the level of C2 was also identified (Fig. 2).

Fig. 1. Image of the patient on hospital admission. Two 1.5-cm sutured skin wounds with minor seeping of blood and exudate on the occipitocervical region were identified. The scissors that caused the spinal cord injury are in the lower left corner of the image.