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An Atypical Craniocervical Firearm Injury Without Neurological Deficit: A Case Report

Nörolojik Defekt Olmayan Atipik Bir Baş-Boyun Ateşli Silahla Yaralanma Vakası: Vaka Sunumu

Umut Yücel ÇAVUŞ¹, Fatih KIRAR², Mehtap Kaynakçı BAYRAM¹, İmam EREN¹, Sinem Burul ALP¹

¹ Diskapı Yıldırım Beyazıt Education and Research Hospital, Emergency Medicine Clinical, Ankara, Turkey.

² Dr. Lutfi Kırdar Kartal Education and Research Hospital, Emergency Medicine Clinical, Istanbul, Turkey.

Özet

Baş ve boyun bölgesi, yaşamsal öneme sahip çok sayıda anatomik yapıyı barındırmaktadır. Bu nedenle diğer anatomik bölgelere göre, baş ve boyunun ateşli silah yaralanmalarında, yaşamı tehdit eden klinik durumlar daha sık meydana gelmektedir. Bu makalede, mermi çekirdeğinin vücuda girdikten sonra, izlediği seyir göz önüne alındığında, servikal vertebralara doğru yönelmiş iken, sonrasında sıradışı bir yol izleyen bir baş-boyun kurşunlanma vakası sunulmuştur. Ateşli silah yaralanmalarında, kurşun beklenmedik bir yolu takip edebilir. Baş ve boyun bölgesi önemli nörovasküler yapılara sahip olduğu için bu bölgenin yaralanmaları hayatı tehdit edebilmektedir. Dolayısıyla hastanın ilk değerlendirilmesi dikkatli yapılmalıdır.

Anahtar sözcük: ateşli silah yaralanması, atipik yol, kraniyoservikal yaralanma

Abstract

Head and neck regions include many vital anatomical structures; therefore, firearm injuries of these regions threaten life more commonly than the other anatomical regions. In spite of the bullet's heading towards the cervical vertebrae after a gunshot, this case-report has been presented as a head and neck firearm injury taking the unusual path into account after the bullet had entered the body.

In the firearm injuries, the bullet may follow an unexpected path. Head and neck injuries are life threatening causes including major neurovascular structures; therefore, demonstrative assessment is important after the first careful evaluation.

Key Words: Firearm injury, atypical way, craniocervical injury

INTRODUCTION

Head and neck region includes many vital anatomical structures; therefore, firearm injuries of these regions are more commonly life-threatening than the other anatomical regions. According to 2009 data of National Vital Statistics Report [NVSr] in the United States, the fifth leading cause of death in 2009 was accidents

[unintentional injuries] and ten percent of accidents were reported as firearm injuries¹. In this article, we presented an unusual firearm injury in which the bullet has entered the cervical region and has interestingly penetrated on the lateral wall of the left orbit without neurological deficit.

Case Report

23-year-old female patient was admitted to the emergency department due to firearm injury. The injury zones were head and neck of the patient. On arrival, the patient was conscious, but then she got confused. The Glasgow Coma Score of the patient was 14. Clinical examination revealed a ragged 1 cm laceration of the posterior occipital area with fresh Gunpowder tattooing and a 1 cm split laceration of the skin overlying the occipital area. There was no blood in the external auditory meatus and no obvious cerebrospinal fluid leak. The patient's other physical examinations were normal. There was no neurological deficit. In her vital signs, tension arterial was 120/80 mm/Hg, pulse rate was 78/min. The patient's cervical x-ray was normal. Foreign body which was a lead seed was detected in the lateral wall of the left orbit was. In the Cranial Computed Tomography [CCT] and radiography, there was a metallic density in the left temporal fossa and soft tissue [Fig 1]. In the cervical CT and radiography; fracture was detected on the left posterior arch and transverse process of the atlas bone [Fig 2-3]. The patient was hospitalized in the neurosurgical service. The bullet was removed with left zygomal incision under fluoroscopic guidance. The patient was immobilized with a cervical collar. After the surgery, neurological deficit was not observed and the patient was discharged.



Fig 1. The cranial posterior-anterior radiography showing a metallic density in the left temporal fossa and soft tissue



Fig 2. The lateral radiography of craniocervical region demonstrating metallic density and damage of the left posterior arch and transverse process of the atlas

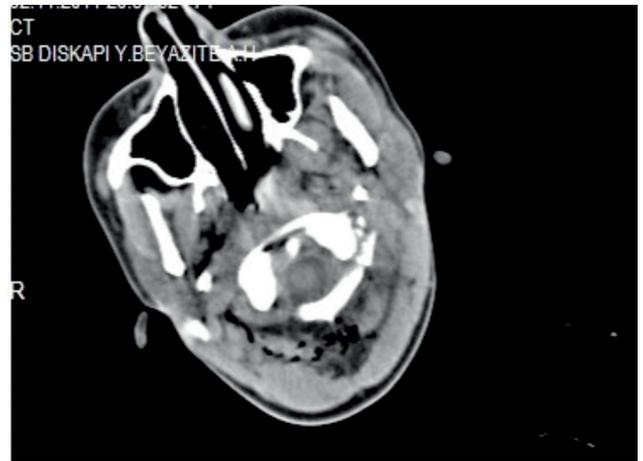


Fig 3. The servical CT ; fracture was detected on the left posterior arch and transverse process of the atlas bone

Discussion

Firearm injuries have been the second most common cause of death in the accidents, due to the moving of the use of guns from military grounds to the urban areas. Head and neck injuries account for 30% of all firearms injuries. In the literature it is reported that the

extent of wound damage is associated with multiple factors such as the type of firearm, composition of the projectile, velocity of projectile and composition of the soft tissue target². The kinetic energy of the projectile was foremost the major factor in determining the type and severity of the soft tissue wound³. In the studies it was reported that carefully and rapidly performed first intervention was important for better clinical outcome of patients⁴. Central nerve system and vascular system are threatened in the firearm injuries. In the central nerve system, the clinical symptoms change according to the place the bullet affects⁶. The incidence of blunt arterial injuries in blunt trauma populations is approximately identified with the rate of 2%⁵. Bleeding of major vascular structures cause hypoxemia in the brain, so neurological symptoms are observed. In the firearm injuries, mortality of the patients is associated with arterial and brain injury which was very high⁶. In the head and neck gunshot wounds, after primarily airway safety and local bleeding are taken into consideration, radiographs of thorax and cervical spine and localization of lead and bone fragments were important in determining the possible hemopneumothorax. In our case, there was no hemopneumothorax. The CT angiography was the best demonstrative study in the firearm injuries for the evaluation of the head, face or neck wounds. In the fracture of the bones and wounds of soft tissue, especially vascular structures are determined with CT angiography⁷. In this patient, craniocervical CT has shown the fracture on the atlas and the bullet has entered the left posterior cervical spine region and was located in the left temporal fossa, interestingly without a damage of neurovascular structures. In the treatment of firearm injuries, a surgery is usually required even if the patient is asymptomatic. Our asymptomatic patient was operated.

Conclusion

In the firearm injuries, the bullet may follow an unexpected path. It is obvious that head and neck injuries targeting major neurovascular structures are life-threatening causes, so demonstrative assessment is important after the first careful evaluation.

References

1. Jiaquan Xu MD, Kenneth D. Kochanek, MA, Betzaida Tejada-Vera BS Division of Vital Statistics: Deaths: Preliminary Data for 2007. National Vital Statistics Reports. 2009; Volume 58, number 1. August 19,
2. Wilson AJ. Gunshot injuries: what does a radiologist need to know? Radiographics. 1999 Sep-Oct;19[5]:1358-68.
3. Hollerman JJ, Fackler ML, Coldwell DM, Ben-Menachem Y. Gunshot wounds: 1. Bullets, ballistics, and mechanisms of injury. AJR Am J Roentgenol. 1990 Oct;155[4]:685-90.
4. Ziyal İM, Kılınçoğlu BF, Şahin Y, Aydın Y. Delici kranioserebral ateşli silah yaralanmaları, Ulusal Travma Dergisi, 1999; 5[4]:238-241.
5. Hollier L, Grantcharova EP, Kattash M. Facial gunshot wounds: a 4-year experience. J Oral Maxillofac Surg. 2001 Mar;59[3]:277-82.
6. Schneiderei NP, Simons R, Nicolaou S, Graeb D, Brown DR, Kirkpatrick A et al. Utility of screening for blunt vascular neck injuries with computed tomographic angiography. J Trauma. 2006 Jan;60[1]:209-15; for discussion 215-6.
7. Steenburg SD, Sliker CW, Shanmuganathan K, Siegel EL. Imaging evaluation of penetrating neck injuries. Radiographics. 2010 Jul-Aug;30[4]:869-86.

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Yazışma Adresi / Correspondence:

Umut Yücel ÇAVUŞ

Dışkapı Yıldırım Beyazıt Eğitim ve Araştırma Hastanesi
Acil Tıp Anabilim dalı, Ankara

e-posta: acildrumut@yahoo.com