



Pseudotumor Cerebri in a Retired Boxer

CASE REPORT

Ömer Kaynar¹, Ülfet Zehra Erbay², Murat Gültekin²

ABSTRACT

Boxing is a combat sport in which two people throw punches at each other by standing without any extra tool in order to gain advantage over each other in a predetermined area under certain rules. Boxing is a popular sport having millions of athletes and audience all around the world. However, disablement and fatal injuries are very common among boxers. It is even known that such injuries increase intracranial pressure in brain. In this study, a 45-year-old male patient, who had been engaged in boxing sport for 25 years and was later diagnosed with pseudotumor cerebri, applied to our clinic with complaint of long-term headache. No papilledema or hemianopia was detected. But high pressure in cerebrospinal fluid (CSF) had been detected. It can be understood that boxers must regularly consult a physician to reduce neurological injuries caused by head trauma, strikes that may cause permanent injury in the head, and the adverse effects of head injuries on health and sportive performance of the athletes.

Keywords: Boxing, head trauma, pseudotumor cerebri, Sport

INTRODUCTION

Boxers encounter the risk of disablement and injuries any time. Head traumas observed among boxers, particularly due to punches to head during competitions, have a wide spectrum ranging from neurologic injuries such as acute or chronic head traumas, traumatic brain injury (TBI), and subdural hematoma (with 75% rate of incidence among boxers) to deaths. This leads to a significant health problem for many boxers (1, 2).

Idiopathic intracranial hypertension, also called pseudotumor cerebri, is a disorder of unknown cause that results in raised intracranial pressure (ICP) occurring in women of childbearing years. It is characterized by increased ICP, with its attendant signs and symptoms, in an alert and oriented patient but without localizing neurologic findings (3).

In this case report, a 45-year-old retired boxer who was diagnosed with pseudotumor cerebri and had been engaged in boxing for long years was examined in our clinic.

CASE REPORT

Considering the sportive background of the case, it was reported that the patient did boxing exercise for 4 hours a day, all 7 days a week. He had more than 75 punch strikes to his head in a day and he did not use a protective head guard during training. He has taken part in more than 70 official competitions and was engaged in active sport for 25 years.

The patient reported that he had severe strikes to the head during training and competitions and he had been through temporary medical conditions such as behavioral problems, loss of memory, loss of consciousness, aggressiveness, headache, and unconsciousness due to punch strikes during a training and had even been hospitalized for these reasons.

The 45-year-old male patient applied to our clinic with the complaint of long-term headache. Medical history of the patient showed that the headache is in the form of mild and intense aches, which mostly take place in occipital zone and move toward the front from time to time, accompanied with occasional nausea and vomit. The patient had previously applied to various health institutions with these complaints. Systematic and neurologic examination of the patient was normal. Ophthalmology was consulted in terms of papilledema and hemianopia; no papilledema or hemianopia was detected. Routine hematologic and biochemical tests were normal. Vitamin A, vitamin E, cortisol, and parathyroid hormone level were sent toward pseudotumor cerebri etiology. The findings were found

Cite this article as:

Kaynar Ö, Erbay ÜZ, Gültekin M. Pseudotumor Cerebri in a Retired Boxer. Erciyes Med J 2017; 39: 143-5.

¹High school of Physical Education and Sports, Muş Alparslan University, Muş, Turkey

²Department of Neurology, Erciyes University Faculty of Medicine, Kayseri, Turkey

Submitted
06.06.2017

Accepted
07.07.2017

Correspondence

Ömer Kaynar,
High school of Physical Education and Sports, Muş Alparslan University, Muş, Turkey
Phone: +90 436 249 49 49
e.mail:
o.kaynar@alparslan.edu.tr

©Copyright 2017
by Erciyes University Faculty of
Medicine - Available online at
www.erciyesmedj.com

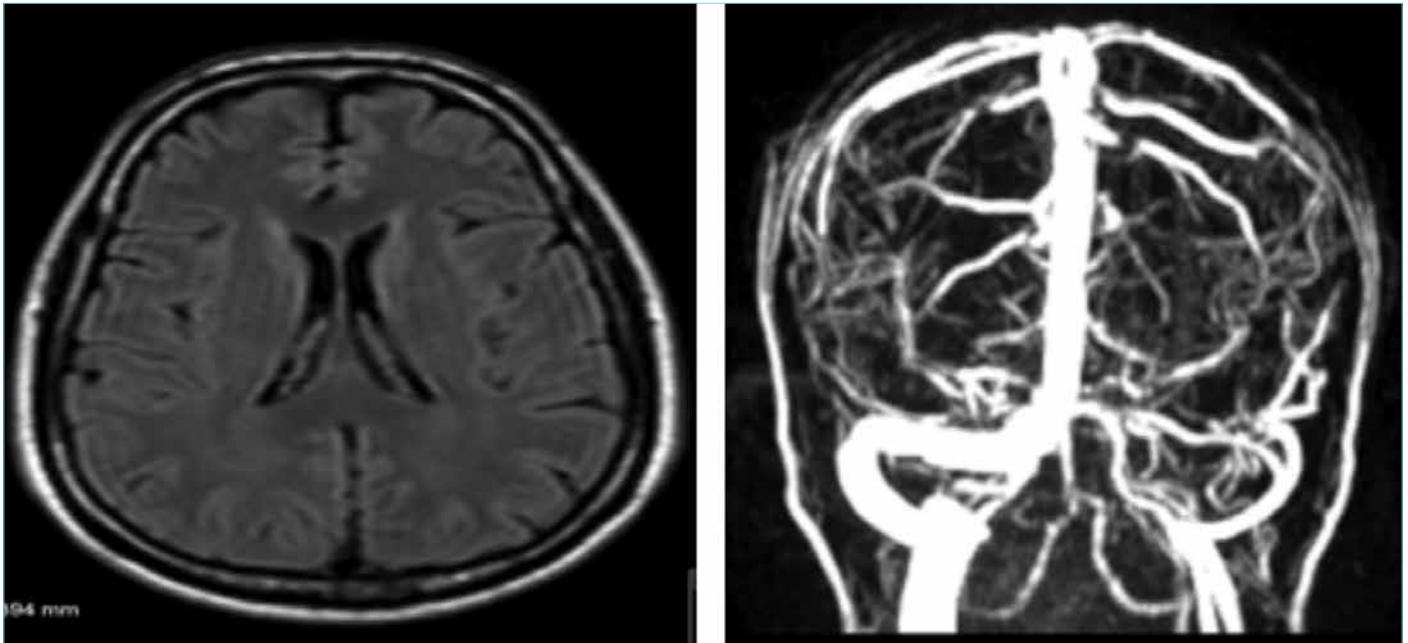


Figure 1. Cranial MR (flair section) and MR venography imaging of the patient. The left transverse sinus was observed to be hypoplastic

within normal limits. Magnetic resonance imaging (MR) and MR venography were reported normal (Figure 1).

The patient, who applied to our clinic, had applied to another health institution 6 years ago, and acetazolamide treatment had been initiated when lumbar puncture (LP), and high pressure in cerebrospinal fluid (CSF) had been detected. However, no regular monitoring or treatment had been followed. In another health institution, tension-type headache was diagnosed and paroxetine treatment was initiated.

LP was applied to the patient under sterilized conditions. CSF pressure was measured to be 250 mmH₂O. Acetazolamide 500 mg/day treatment was applied again. One week later, control LP was applied. CSF pressure was measured 170 mmH₂O. The patient was discharged from the hospital with current treatment providing he would come for the control. Approximately 1 month later, the patient was hospitalized in endocrine clinic for hypophyseal failure and re-evaluated in this clinic. Ophthalmology was consulted for papilledema once again. No papilledema was observed. LP was applied to the patient with ongoing complaints of headache. Now, the CSF pressure was measured to be 270 mmH₂O. The dosage of acetazolamide treatment was increased to 750 mg/day. The retired boxer who applied to our clinic was diagnosed with pseudotumor cerebri. It was found that pseudotumor cerebri was a result of the chronic effect of strikes to the head among boxers.

DISCUSSION

Pseudotumor cerebri is a syndrome characterized with intracranial pressure increase without any intracranial mass, space-occupying lesion, or structural lesion such as venous occlusion. The most common presenting syndrome is headache. Dizziness, nausea and vomit, diplopia, and other vision difficulties are other common symptoms (4, 5).

In the literature, there is no study investigating the relation between pseudotumor cerebri and sport. However, there is a case that reports the relation between pseudotumor cerebri and TBI. In that case, a 29-year-old young man with TBI was reported to develop pseudotumor cerebri 4 years later (3). In recent studies, it has been reported that amateur boxers, national kickboxers (2), and retired American football players developed hypophysis failure due to TBI.

Endocrine problems, being among the causes of pseudotumor cerebri, are related to TBI that is considered as the cause of hypophysis failure among boxers (2, 3, 6). Thereby, it supports the idea that TBI found in boxers could lead to pseudotumor cerebri.

In addition, although there is no study that investigates the relation between pseudotumor cerebri and sport in the literature, there are studies that explain the relation between sport and TBI that could cause pseudotumor cerebri.

As a result of head trauma among the athletes of combat and contact sports (boxing, kickboxing, football, ski, ice hockey, and American football), neurological injuries such as hypothalamic abnormalities, cerebellar transformations, substantia nigra degeneration, atrophic appearance, TBI, and subdural hematoma can be observed in brain. Such injuries can be encountered more commonly particularly among boxers (7). General health condition and sport success of the athletes can be adversely affected. Therefore, it is important to touch upon the issues that could adversely affect health and performance of the athletes. Concussion that can lead to sudden loss of consciousness and permanent brain injury can be observed because of punch strikes among boxers. Subdural hematoma that causes death among boxers is one of the most commonly observed neurologic injuries (75%) (7, 8).

The subdural hematoma generally occurs as a result of the tension and dislocation of the bridge veins in the subdural space through the

rotational acceleration of the head during the punch strike to the head. In clinic, these cases can be encountered in different forms ranging from mild headache to deep coma. Despite mild symptoms observed early on, blood leakage to the subdural space may continue. Therefore, patients generally have clinical symptoms indicating an upcoming increase in intracranial pressure (2, 9, 10).

In our findings, the case of pseudotumor cerebri diagnosed in the retired boxer confirms the results of the studies conducted by Bailes and Cantu.

CONCLUSION

It can be understood that boxers must regularly consult a physician to reduce neurological injuries caused by head trauma, strikes that may cause permanent injury in the head, and the adverse effects of head injuries on health and sportive performance of the athletes.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Conceived and designed the experiments or case: ÖK., MG., ÜZE. Performed the experiments or case: ÖK., MG., Analyzed the data: ÖK., MG., ÜZE. Wrote the paper: ÖK. All authors have read and approved the final manuscript.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Ryan AJ. Intracranial injuries resulting from boxing. *Clin Sports Med* 1998; 17(1): 155-68. [\[CrossRef\]](#)
2. Tanriverdi F, Unluhizarci K, Kocyiğit I, Ozdamar Karaca ZC, Durak AC, Selcuklu A, et al. Brief Communication: Pituitary Volume And Function In Competing And Retired Male Boxers. *Ann Intern Med* 2008; 148(11): 827-31. [\[CrossRef\]](#)
3. Wall M. Update on Idiopathic Intracranial Hypertension. *Neurol Clin* 2017; 35(1): 45-57. [\[CrossRef\]](#)
4. Banik R, Lin D, Miller NR. Prevalence of Chiari I malformation and cerebellar ectopia in patients with pseudotumor cerebri. *J Neurol Sci* 2006; 247(1): 71-5. [\[CrossRef\]](#)
5. Mc Kiernan SP, Di Fazio MP. Index of suspicion. Case 3. Diagnosis: Infantile pseudotumor cerebri. *Pediatr Rev* 2001; 22(6): 211-15.
6. Sümer M, Öztekin MF, Öztekin N, Özbakır Ş. Pseudotumor Cerebri: Clinical Signs, Treatment And Prognosis. *Türkiye Klinikleri J Med Sci* 1996; 16(6): 427-9.
7. Chappell AM, Ulug L, Zhang M, Heitger B, Jordan BM, Hentel RD, et al. Distribution of Microstructural Damage in the Brains of Professional Boxers: A Diffusion MRI Study. *J Magn Reson Imaging* 2006; 24(3): 537-42. [\[CrossRef\]](#)
8. Miele VJ, Carson L, Carr A, Bailes JE. Acute on Chronic Subdural Hematoma in a Female Boxer: A Case Report. *Med Sci Sports Exerc* 2004; 36(11): 1852-5. [\[CrossRef\]](#)
9. Bailes JE, Cantu RC. Head injury in athletes. *Neuro surgery* 2001; 48(1): 26-45. [\[CrossRef\]](#)
10. Cantu RC, Mueller FO. Brain injury-related fatalities in American football, 1945-1999. *Neurosurgery* 2003; 52(4): 846-52. [\[CrossRef\]](#)