Migrating Intraventricular Gunshot Pellet: A Case Report

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Abstract

Intraventricular migration of a pellet is an unusual complication of a gunshot missile injury to the brain. Herein, we report the case of a 58-year-old man with a gunshot pellet that migrated by its mere tiny size, weight and cerebrospinal fluid pulsation from the lateral ventricle through the third ventricle, aqueduct of Sylvius to the fourth ventricle without accompanying clinical nor radiological manifestations.

The pellet was thus managed expectantly. The patient was closely followed-up for short term complications such as hydrocephalus, infection and in the long run will be monitored for syrinx. He remained symptom-free and serial CT brain till 6 months after injury revealed the pellet still lodged in the fourth ventricle.

Instances of similar phenomena reported in the literature are also reviewed and discussed.

Keywords: Brain trauma; Shotgun; Head injury; Intraventricular; Missile injury; Migrating; Pellet

Introduction

Since 1916 when the phenomenon of missile migration was first described [1], sporadic cases of spontaneous migration of intracranial extraventricular missiles have been reported [2-6]. However, only very few cases of intraventricular migration have been reported [7-12]. Herein, we present a rare case of an intraventricular pellet (size: less than 10 ± 5 mm) that migrated through an intact ventricular drainage system of the brain essentially an anterograde embolization of a pellet from the anterior horn of the lateral ventricle to the fourth ventricle without accompanying clinical manifestations.

Case Presentation

Fifty-eight-year-old right-handed male patient with no rewarding past medical or surgical history was brought to our emergency room 12 hours after a cranial gunshot injury. The circumstances of the incident were unclear and nature of weapon/ammunition used unknown but most probably a home-made gun in a context of civilian injury. On examination, the patient had a Glasgow coma score of 15 and oriented in time, place and person. Multiple left fronto-temporo-parietal cutaneous entry wounds of variable sizes were identified with facial oedema but no exit wounds. There wasn’t any neurologic deficit. An initial CT Scan of the head revealed a left frontal horn intraventricular gunshot pellet. There weren’t any associated intracerebral nor intraventricular lesions. The patient was managed expectantly with close clinical and radiological follow-up and remained symptom-free. The patient was discharged after 10 days and CT brain on discharge revealed a sudden relocation of the pellet into the fourth ventricle, but no hydrocephalus nor other clinical symptoms. One, three and six months CT brains showed the pellet in same location (4th ventricle) and the patient didn’t develop any new clinical manifestations (Figure 1).

Discussion

Foreign body migration in the cranial axis is a rare but established clinical entity. Retained intracranial metallic fragments may alter their position over a period of time. These fragments may be intraventricular, intraparenchymal or subarachnoid in position [13]. Post-injury hematomas, infections, seizures, and Cerebro Spinal Fluid Fistulas (CSFFs) are counted among the early complications, whereas foreign bodies migrating intracranially, seizures, infections, and posttraumatic hydrocephalus represent late complications [13]. Since 1916 when Wilvandre and Norgan first described the phenomenon of missile migration [1], a number of cases of the extraventricular moving bullet syndrome in the cerebrum have been reported in the literature [2,4,6,14]. Nonetheless, only very few rare cases of migration involving the cerebrospinal fluid system have been reported [7-12].

In 1942, Campbell et al., reported the movement of an intraventricular bullet within the left lateral ventricle of a 29-year-old woman [10]. In 1967, Lang reported a patient in whom an intraventricular bullet had migrated to the level of the aqueduct of Sylvius (length 15-18 mm and diameter 1-2 mm), producing acute hydrocephalus [9]. Young Jr, et al. [8] in 1983 described the spontaneous migration of an intracranial bullet into the cervical canal over a course of approximately 4 years with the patient remaining asymptomatic [8]. Castillo-Rangel et al. in 2010 presented a case of...
Intraventricular migration of a gunshot missile is rare especially with pellets migrating atramatically and asymptotically from the lateral to fourth ventricles. With such cases, management could be expectant and the patient monitored for complications such as hydrocephalus, infection and in the long run syrinx.

**References**