Spontaneous migration of an intracranial bullet to the cervical spinal canal causing Lhermitte’s sign

Case report

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A case is presented of a woman who was shot in the left occipital area with a .32 caliber automatic pistol. She was neurologically intact on admission, and skull x-ray films revealed the bullet in the right suboccipital area. On the 2nd day of her admission she developed Lhermitte’s sign. Repeat films showed that the bullet had migrated to the C-4 vertebral level. The bullet was subsequently removed via a total laminectomy at C3-4.

KEY WORDS • gunshot wound • Lhermitte’s sign • cervical spine • migrating bullet

Spontaneous migration of missile particles within the brain has been recognized since 1916.11 In 1917, Jefferson5 described a boy who had a bullet embedded in the left cerebellar area; the bullet was seen to move about until it was removed. Other cases of migrating foreign bodies, all confined to the cranial cavity and most to the ventricular system, have been described by several authors.1-3,6-10,12

We are reporting a case in which a bullet that was located in the occipital region in an asymptomatic patient migrated to the cervical spinal canal and produced Lhermitte’s sign.

Case Report

This 22-year-old woman was shot with a .32 caliber automatic pistol at an unknown range during a wedding festival. The missile entered the skull at the left suboccipital area a little above and lateral to the foramen magnum.

Examination. On initial examination 20 hours after this incident, she appeared apprehensive but was well oriented. There were no neurological signs except for a slightly stiff neck. Skull x-ray films revealed an intact bullet in the right suboccipital region, probably in the cisterna magna (Fig. 1).

She appeared well and was free of symptoms until 48 hours after the injury, at which time she began to complain of electric-like shocks radiating from her neck to her hands and feet. Although felt bilaterally, the sensations were located mainly in her right hand and foot. They became increased or were triggered by flexion of her neck. Lumbar puncture showed normal cerebrospinal fluid dynamics and chemistry: protein 50 mg/100 ml, glucose 70 mg/100 ml, chlorine 110 mEq/liter, with abundant erythrocytes and 3 to 4 leukocytes per microscopic field.

Lhermitte’s sign was diagnosed. Repeat x-ray films revealed that the bullet was located at C3-4, dorsal to the cord (Fig. 2).

Operation. On the 3rd day after her admission, the patient underwent a total laminectomy at C3-4. The bullet was found in the subarachnoid space on the posterolateral sulcus at the level of the right C-4 root, and was removed. The postoperative course was uneventful. She was discharged on the 7th postoperative day. At her last follow-up examination 4 months later, she was in normal health.

Comment

Infection is accepted as the major potential hazard of retained missiles in the brain.4 However, the migration of missiles to other parts of brain and their...
FIG. 1. Lateral skull x-ray film showing the bullet intact and lying in the posterior fossa in the suboccipital area.

lodging in more vital areas must also be considered as a potential hazard.

In our case, migration of the bullet to the cervical spinal canal and its coming to rest on the dorsal surface of the spinal cord resulted in Lhermitte’s phenomenon. Restricted mobility of the bullet produced traction with flexion of the head, which aggravated or triggered the phenomenon. The bullet was removed before further symptoms of direct pressure developed.

References


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