

SOUVENIR BULLET IN THE BRAIN OF A CONVICT- A CASE REPORT

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ABSTRACT

Firearm weapons, on account of their fatalities, are more commonly used in these days during assault. Forensic Pathologists receive cases of firearm injuries very frequently as in most of the cases, death of the victim occur instantaneously especially when the injury(ies) involved the vital parts/organs of the body. However, in some cases, it may not lead to death and the survivor carries the bullet embedded in some body part for long periods of time without having any clinical symptoms, disability or discomfort. In the present case the author received dead body of a 32 years male prisoner alleged to have died to status epilepticus. Being a body of prisoner, autopsy was requested by the police. There were no apparent external and internal injury over the body. On autopsy, a souvenir bullet was found in the most vital part of the body i.e. brain. In some cases, in which no previous investigation is available and the person died due to different clinical symptoms which are not present previously then the presence of foreign body should be kept in mind because foreign bodies embedded in tissues do not necessarily result in clinical presentation. The interesting findings of this case would be discussed in detail in this paper.

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INTRODUCTION

A case in which bullet remains embedded in the body for a long time, it is termed as a Souvenir bullet.¹ The bullet can be embedded in the soft tissues and bones for long period of time without causing serious damage. Sometimes the survivor neglects the presence of bullet if it is present in superficial areas and sometimes surgeons do not remove the bullet because its removal may prove fatal and where it is advisable to leave the bullet as such if it is too dangerous to manipulate or if it is lodged in an innocuous area without any potential risk or complications especially in the brain. A foreign object such as bullet in the body may cause infection and toxicity. In the case of souvenir bullet, there would be no fresh bleeding in the surrounding area. A dense fibrous tissue capsule usually surrounds it. A small scar may indicate the original entrance of wound.² In the developing countries like India, country made firearms (deshikatta) are used more commonly as compared to the modern day rifled firearm & due to poor wounding capacity of the projectile (bullet) fired from such country-made weapons, it may get lodged in the body parts with or without affecting the vital regions. We came across an unusual case in which the projectile (bullet) remained lodged in a vital organ for unknown period of time before developing clinical symptoms.

Case report and Autopsy findings

A dead body of 32 years male was brought to our department for autopsy. Before his death patient had been referred to our hospital with the complaints of sudden onset of fits. The deceased was a prisoner and he was convicted in a case of murder since 2 years while lodged in jail he had repeated episodes of seizures for which he was investigated and was under treatment in medical ward. The CT Head of deceased showed a radiopaque shadow of a foreign body of metallic density in the region of the third ventricle which was suspected to be a bullet. Neither the I.O. of the case nor relatives of deceased knew how and he sustained firearm injury as a result of which he was having a bullet in his brain though most of the time he was involved in criminal activities. Before conducting the autopsy X-rays of the head region taken which revealed radiopaque shadow of metallic density. [Figure 1]



Figure 1 X-ray skull showing presence of foreign body

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The site of entry of bullet was searched carefully and it was found that there was an old healed pale scar mark of size 0.7 x 0.5 cm over the right temporal region, situated 8 cm away from midline, 2 cm above the right pinna and 8 cm posterior to the right supraorbital margin [Figure 2].



Figure 2 Showing old healed scar mark on right temporal region of scalp.



Figure 3 Showing healed bony defect.

On dissection, an old healed bony defect [Figure 3] of size 1 x 0.3 cm was noticed over the right temporal bone corresponding to the scar mark with bevelling of the inner table of skull [Figure 4].



Figure 4 Showing bevelled underlying inner table.

On further dissection, circular defect was noticed over the underlying duramater and underlying brain matter was found lacerated in the corresponding area of the right temporal region [Figure 5].



Figure 5 Lacerated duramater and right temporal lobe with gliosis.

Further, track of the wound was found to be directed upwards, posteriorly and right to left and had entered into left parietal region to end near the left lateral ventricle. On further dissection, a greyish bullet was recovered from the hypothalamic area which was found adhered to surrounding tissues i.e. encapsulated with one end of the bullet found attached to the tag of tissues along with blood vessels coming out from the left lateral ventricle [Figure 6].



Figure 6 Encapsulated bullet with one end of it found attached with tissues tag along with blood vessels.

Whole track of the wound showed healed margins i.e. gliosis. The bullet measured 3 x 0.5 cm with vertical lines along its length, indicative of being fired from a country made/improvised firearm. The bullet was handed over to police for its onward transmission to ballistic expert for further examination and expert opinion in this regard. The recovery of this souvenir bullet is suggestive of the fact that the weapon used must have had a very low wounding capacity as it merely had entered the head lodging in the brain matter.

DISCUSSION

Presence of foreign body in the human body is not uncommon. Different body parts react differently to the foreign body and it also depend on the type of foreign body whether it is copper, lead, wood etc. Compact and insoluble foreign body is shut in by new-formed tissues, which is slowly transformed into a fibrillar connective-tissue capsule, gradually shutting the foreign body off from contiguity. In bone, bullets and other foreign substances heal readily. There is usually a connective-tissue capsule immediately about the foreign body, and then a layer, more or less marked, of sclerotic bone.³ Foreign body in the brain is acquired mainly through penetrating injury, which can occur with or without fracture of skull vault i.e. through orbital penetrating injuries. Different types of accidental intracerebral foreign bodies have been reported viz. metallic pieces, splinters of missiles, pieces of grenade and bomb, wooden pieces and different other articles.^{4,5}

The location of foreign body in brain is very important in the management and prognosis. Patients may die immediately or soon after such major penetration and some patients may remain symptom free for many years with foreign body in the brain.⁶ In cases of embedded bullets, Lead poisoning may occur. Lewin (1911) has advanced the view that lead, which has remained for years undissolved in the tissue, may undergo chemical change into soluble lead salts, be absorbed, and produce toxemia.³

There is abundant evidence that bullets, needles, in fact, all matters of foreign bodies, can remain for years in the tissues, encapsulated, shut off from the organism and causing no

irritations, or, in very rare instances, perhaps giving evidence by a general toxæmia of their slow dissolution; but all these facts are based on the supposition that no pathogenic micro-organisms have been introduced at the same time, or, if they have been introduced, that they have been either destroyed or made innocuous by the body cells.³

Late onset seizures can be induced secondary to gradual gliosis, and in cases of a retained foreign body, secondary to progressive granulosomatous change and delayed abscess formation.⁷ In this case, late onset of seizure secondary to gliosis due to retained foreign body in brain matter was evident.

CONCLUSION

Much attention needs to be drawn towards the presence of retained bullets. Forensic pathologists may have confusion in ascertaining the presence of bullet in the body whether it is recent or old. On careful examination, the forensic expert may find encapsulation around the old bullet. In some cases, in which no previous investigation is available and the person died due to different clinical symptoms which were not present previously, then the presence of foreign body should be kept in mind because foreign bodies embedded in tissues do not necessarily result in clinical presentation until it is present in the vital areas.

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