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Case report

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PENETRATING HEAD INJURY FROM RECOILED BARREL OF LOCAL GUN: SERIES OF 3 CASES

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ABSTRACT

Penetrating head injury occurs when a projectile object violates the skull but does not exit. The circumstances of the injury, the velocity of impact and characteristics of the projectile defines the severity of penetrating head injury to the head. Most penetrating head injuries are caused by firearm and sharp objects. However we are presenting series of 3 cases of penetrating head injuries from component of locally made gun as a form of malfunction, this type of injury is nearly inexistent in literature. Timely and appropriate management can lead to optimal outcomes and limit complications.

KEYWORD: Penetrating The circumstances of the injury, the velocity of impact and characteristics literature.

INTRODUCTION

Penetrating gunshot injury to the brain is an injury in which a projectile violates the skull but does not exit.[1] Although less prevalent than closed head injury, penetrating brain injury (PBI) carries a worse prognosis. Firearms injuries are major cause of premature death and disability in the developed world.[2]

Penetrating gunshot injury to the brain from a recoiled barrel of a gun is an atypical gunshot wound caused by situations relating to weapons and ammunition. The documentation of such case helps to explain the future interpretation of wounds.[3,4]

The significance of penetrating injuries to the head depends largely on the circumstances of the injury, the velocity of impact, attributes of the projectile, and the location combined with the intracranial path of the object.

We are presenting series of 3 cases of penetrating head injuries from component of locally made gun as a form of malfunction, this type of injury is extremely rare in literature. Management of penetrating injury may appear straight forward but issues regards formation of pseudo-aneurysms, vascular disruption and development of infections are paramount.

CASE REPORTS

CASE 1

A 25year old Hunter was accidentally hit by the barrel of his locally made gun during hunting. He arrived the emergency with impaled barrel of the gun firmly embedded in the left frontal bone just above the supraorbital ridge and there was no loss of consciousness.

A Glasgow Coma Scale (GCS) score of 14/15 (V4) was maintained and no neurological deficits found. Skull radiograph showed an embedded metal object into the left frontal lobe directed away from midline.

He had wound exploration, bone fragments removed and the impaled object carefully removed by pulling out against the trajectory of entry, haemostasis achieved, and dural tear was repaired and the wound was closed. Patient did well postoperative and was discharged home fully conscious (GCS 15/15) on antibiotics and anticonvulsant medications.

He was seen once on follow up appointment but has been lost to follow up.

CASE 2

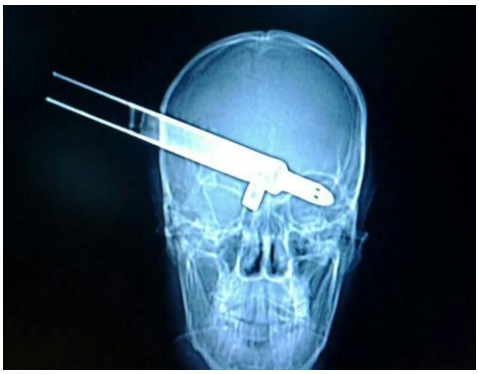
A 35 year old Hunter who was found unconscious in early hours of the day with an impaled barrel of locally made gun in the right frontal bone and there was no eye witness account.

The GCS score was 10/15 (E3, V3, M4). The radiograph showed an embedded barrel of the locally made gun in the right frontal bone.

He had wound exploration, removal of foreign object, copious irrigation, haemostasis achieved and dural tear was repaired.

Patient did well post-operative and regained consciousness. He was discharged home with GCS score 15/15.

He was also lost to follow up.

CASE 3

A 28 year old Night Guard who was found unconscious at the vicinity of his duty post in the morning with an impaled barrel of locally made gun in the middle of his head.

He was said to have died on the way to our facility and was confirmed dead on arrival at emergency with an embedded barrel of locally made gun in the mid frontal region.

DISCUSION

The poor quality and weak weapon design resulted in disruption of the barrel tube and detachment from the base which recoiled and hit the head. Two major mechanisms of wounding have been described; crushing and shearing of tissues. The knowledge of mechanisms by which bullets disrupts tissues helps Clinicians to evaluate the severity of the injury and facilitate the treatment of wounds.[5]

In our cases the rear end of the gun barrel acted as a bullet and caused both crushing and shearing injuries. The projectile fired from the firearm provided a high velocity to the detached rear end and this high velocity projectile could cause a large and devastating wound with enough velocity to disrupt the bone and brain parenchyma.[6]

Gunshot wounds are always contaminated, present in emergencies and require lifesaving and stabilising treatment.[7] After resuscitation, the treatment aim is to prevent possible complications such as infections and functional disturbances.[6,7] The treatment consisted of bleeding control, removal of barrel fragment and wound debridement without further injury to the brain.

Our cases illustrate that, atypical gunshot emergencies presented in developing countries with limited facilities can have good outcomes. Our experiences with these cases show that energy transfer in the discharge of a bullet resulting to recoil forces was strong enough to drive gun barrel through the skull at close range.

Initial presentation of this case was a puzzle to the managing team, coupled with reluctant of relatives divulging the information regards the mechanism and the cause of the injury.

CONCLUSION

Penetrating head injuries from component of locally made gun as a form of malfunction is extremely rare in literature. Timely and appropriate management can lead to optimal outcomes and limit complications.

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