

Craniocerebral Penetrating Injury with Kitchen Knife with Excellent Outcome: Report of an Interesting Case

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Abstract: Craniocerebral penetrating injury constitute about 0.4% of all head injuries. Penetrating craniocerebral injuries crossing midline are generally associated with gross neurodeficit and poor prognosis^[1]. Weapon injuries other than gunshot wounds or low-velocity stab wounds to the head are extremely rare^[2]. There are reported cases of head injury with objects like bicycle brake handle^[3], fish harpoon^[4], chop stick^[5], fan rotor blade^[6], garden scissor^[7], metal bar^[8], hunting arrow^[9], ceramic stone^[10], axe^[11]. But we have not found any penetrating transcranial injury with a kitchen knife so far that also with such an excellent recovery in spite of the weapon crossing the sagittal midline so far and this may be first case of such a rare type of mode of injury with an excellent recovery. This is a case report of 34yr female with craniocerebral penetrating injury with kitchen knife crossing the sagittal midline with excellent outcome.

Keywords: penetrating, cranial, no neurodeficit, kitchen knife

1. Introduction

Penetrating craniocerebral injuries crossing midline are generally associated with gross neurodeficit and poor prognosis.^[1] In this case report we are presenting a case of penetrating head injury with a kitchen knife with its tip crossing the sagittal plane presenting without any neurodeficit in preoperative as well as post-operative period. Usually this kind of injury is found in missile injuries. No such mode of injury and good clinical outcome in a case of deep penetrating injury has not been found by us in literature so far. The relevant literature regarding penetrating trauma and management is reviewed and discussed.

2. Case Report

A 34year female presented in our department with a history of alleged stab injury in left temporal region with a broken kitchen knife 5days back. Patient complained of headache and pain over the wound site. Patient had no history of seizure, vomiting or loss of consciousness. On examination patient had a GCS (Glasgow Coma Scale) of 15/15 and the wound site was closed with stitches but a hard material could be palpated from skin surface.

CT scan brain showed a radio opaque object shape of knife (Figure 1)

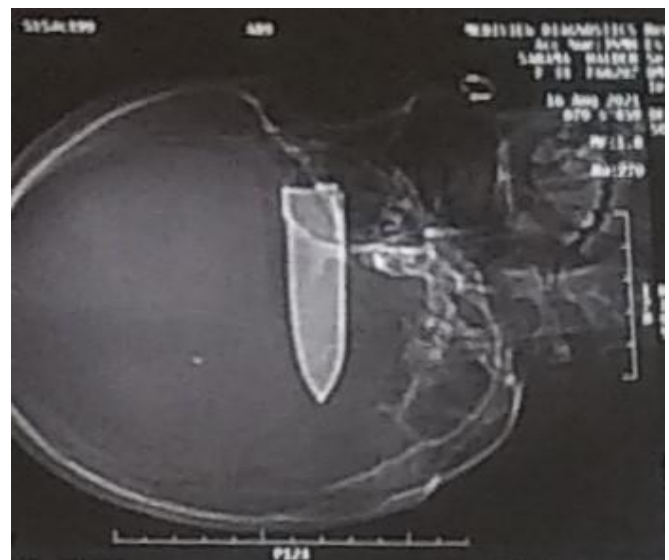


Figure 1: Plain Pre OP CT Scan Brain (TOMOGRAM) Radio Opaque Object Shape of Knife penetrating the left temporal region and crossing the mid sagittal plane (Fig 2)

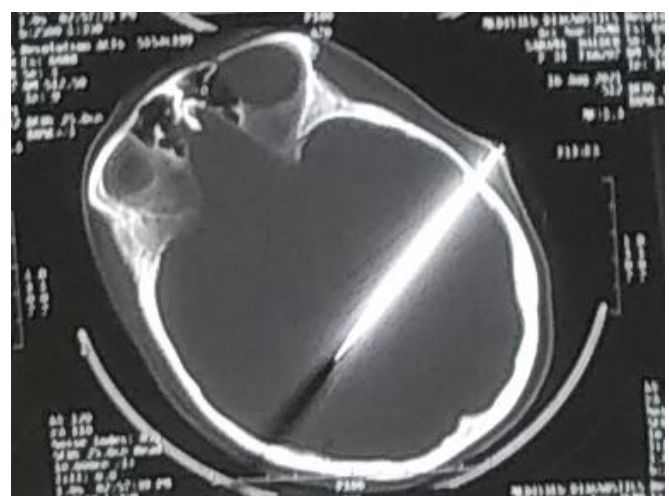


Figure 2: Plain Pre OP CT Scan Brain (Bone Window) Showing the Penetrating Object Crossing the Sagittal Midline without any obvious intraparenchymal contusion or haemorrhage (Fig 3)

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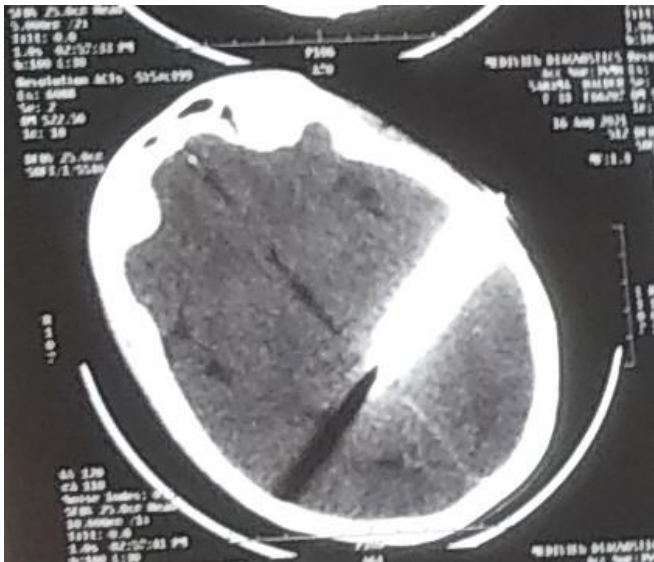


Figure 3: Plain Pre OP CT Scan Brain (Brain Window) Not Showing any Obvious Intra Parenchymal Haemorrhage or Contusion

She was operated. The wound site incision was extended above and below and muscle layers were separated to expose the surrounding bone. The base of the kitchen knife is seen above the bone with smooth margin at the site of penetration of bone.

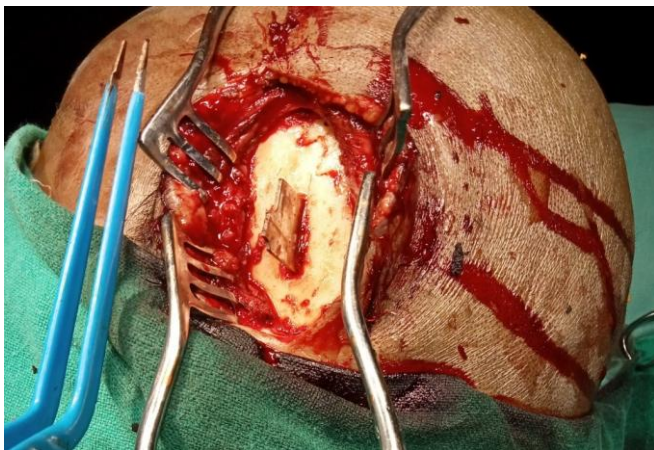


Figure 4: Intra Operative Picture Showing Broken Exposed End of Knife With Clean Cut Penetration into the Skull

A burr hole was made superior to the site of injury and extended circumferentially around the site of penetration. The incision over dura was also extended above. The exposed end of the knife was held and smoothly pulled out FIGURE 5.



Figure 5: The Penetrating Knife after Removal (5CC Syringe and Curved Haemostatic Artery Forcep Kept for Comparison)

The wound site was observed and there was no bleeding. Dural incision was kept open exposed area was cleaned thoroughly with normal saline. Skin closure was done with subgaleal drain ins-itu. Post operatively the patient was on intravenous antibiotics and antiepileptics. Patient was allowed diet from Post Operative Day (POD) 1. Drain was removed on POD-2 Post-operative CT scan on POD 3 showed a oedematous brain around the tract (Fig-6)

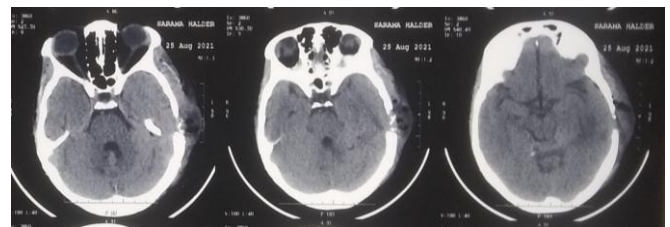


Figure 6: Post Operative Plain CT Scan on POD (Post Operative Day) 3 Showing Oedematous Brain around the Tract of the Penetrating Knife

Which was treated conservatively. Post operative recovery was uneventful and patient was discharged on POD 10 after removal of sutures.

3. Discussion

Cranio-cerebral penetrating injury constitute about 0.4% of all head injuries. Penetrating cranio-cerebral injuries crossing midline are generally associated with gross neurodeficit and poor prognosis^[1]. Weapon injuries other than gunshot wounds or low-velocity stab wounds to the head are extremely rare^[2]. There are reported cases of head injury with objects like bicycle brake handle,^[3] fish harpoon,^[4] chop stick,^[5] fan rotor blade,^[6] garden scissor,^[7] metal bar,^[8] hunting arrow,^[9] ceramic stone,^[10] axe,^[11]. But we have not found any penetrating transcranial injury with a kitchen knife so far.

The subsequent course of penetrating head injury includes bleeding from fractured segment of bone, dura and the traversing brain parenchyma. A foreign body may also inoculate infection leading to abscess^[2]. The damaged brain parenchyma may lead to development of neurodeficit and seizures. The morbidity and mortality has been seen to be related to the sagittal, coronal and transverse planes traversed by the projectile/object^[1]. In review of literature we have not found any case with a craniocerebral penetrating head injury traversing a mid-sagittal plane not eliciting any neurodeficit, seizure, abscess and a fully conscious patient with GCS 15/15.

The management of penetrating head injury includes resuscitation (Airway, Breathing, Circulation), controlling bleeding, intracranial hypertension, prevention of infection (Debridement and Antibiotics) and removal of foreign body if easily accessible^[12]. In this case patient attended local health care 5 days back where she received primary treatment and referred to higher centre after suturing the wound site. There also patient had no neurological symptoms. We received the patient neurologically intact after 5 days of day of injury and managed according to protocol.

In conclusion in cases of craniocerebral penetrating injury GCS and the planes crossed by the object are reliable predictors of mortality and morbidity^[1]. Though the radiological finding may not completely project the severity of injury and predict the outcomes and has to be correlated clinically.

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