

Burr Hole Drainage for Liquefied Extradural Hematoma: Case Report and Review of Literature

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ABSTRACT

We report a case of 53-year old known hypertensive with liquefied extradural hematoma secondary to road traffic accident, who was treated successfully with burr hole drainage instead of the traditional craniotomy and reviewed relevant literature.

Keywords: Burr hole, extradural hematoma, head injury

INTRODUCTION

Extradural hematoma is regarded to be the most serious complication of traumatic brain injury, requiring immediate accurate diagnosis and evacuation to reduce morbidity and mortality. ^[1] Extradural hematoma is a neurosurgical emergency recognized for more than a century and is encountered in 2% of head injury. ^[1-3]

Craniotomy and evacuation has been accepted as the preferred treatment option for the management of acute extradural hematoma. ^[4] However, in clinical practice, it appears possible to evacuate liquefied extradural hematoma via a burr hole without the need for the traditional craniotomy. Liquefied extradural hematoma is extremely rare clinical entity, representing less than one percent of cases of traumatic extradural hematomas. ^[5] Its mostly seen in patient with concomitant coagulopathy. ^[4]

This report aimed to highlight an unusual case of liquefied extradural hematoma treated successfully with burr hole drainage.

CASE REPORT

A 53 year old woman presented with persistent right parietal headache and left

hemiparesis of three months duration. She was involved in road traffic accident 2 weeks prior to the onset of the aforementioned symptoms. There was loss of consciousness for about 30 minute and sustained laceration on the right parieto-frontal scalp. The patient was managed at secondary health care centre and discharged home after 3 days. She was diagnosed with systemic hypertension 3 years prior to head trauma and blood pressure was controlled with antihypertensive medications.

On physical examination she was conscious and alert, no pallor or fever. Blood pressure was 110/80mmHg, chest and abdominal examinations were normal.

The Glasgow coma score was 15, both pupils were equal and reacted to light normally. Power was 3/5 on the left upper and lower limbs, while right upper and lower limbs were normal.

Computerised tomography (CT) scan showed a right parietal hypodense lentiform extra-axial collection consistent with liquefied extradural hematoma (fig. 1). Full blood count, clotting profile and serum electrolytes, urea and creatinine were normal.

The patient had burr-hole drainage of engine-oil like liquefied hematoma collection of about 200mls (fig. 2). A closed drainage system was then kept in extradural space for 2 days. Postoperatively, the headache subsided and left hemiparesis improved to full power over 7 days. She was discharge on 9th day post-surgery and has remained well at last follow up 6 months after surgery.

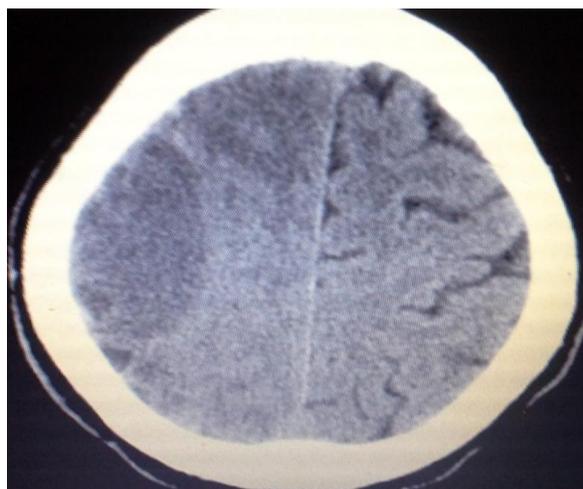


figure 1: Axial cut Brain CT scan showing right sided collection



figure 2: Intraoperative image showing liquefied extradural haematoma collection

DISCUSSION

It's important to note that early diagnosis and prompt treatment of extradural hematoma may result in significant reduction in morbidity and mortality. Liquefied extradural hematoma is extremely rare clinical entity; few cases were reported in the literature. [4,5] Most of cases of extradural hematoma in liquefied form are seen in patients with coagulation abnormalities. [4] This is in contrast to our index case that has normal coagulation profile. About 70% of cases of extradural hematoma are found on the temporal region and this makes hematoma fatal due to direct compression of the brainstem. [6] As against this report, the hematoma was localized to

parietal region which probably accounts for the slow progression of symptoms.

The classical textbook presentation of loss of consciousness followed by a lucid interval then obtundation, contralateral hemiparesis and ipsilateral papillary dilatation is seen in one third of patients. [7] In comparison, our patient presented with contralateral hemiparesis, but there was no lucid interval or papillary dilatation. This is perhaps, due to chronicity of the hematoma.

The densities of extradural hematomas on computerised tomography scan are due to attenuation values of erythrocyte and hemoglobin concentration in clot. [8] The possible reasons for low density of extradural hematoma are, an anemia, mix of blood with leaked cerebrospinal fluid (CSF) due to dural tear, or clotting abnormalities. [8,9] In the present case, the CT scan findings could probably be due to CSF leak into hematoma from dural laceration that has healed over time. The patient had no anemia, or evidence of dural tear. Zimmerman and Bilaniuk have classified extradural hematoma of the head into acute (type I), subacute (type II) and chronic (type III) types. The hypodensity on CT scan (called swirl sign) was seen in type I in their series. [9,10]

As in the present case, burr hole drainage without the need for craniotomy will suffice for the treatment of liquefied extradural hematoma. [4] Burr hole evacuation of extradural hematoma has also been practiced as a life saving; as well as time saving procedure in mass casualty. [11]

CONCLUSION

It's paramount to note that, early diagnosis and treatment of extradural hematoma may result in reduction in morbidity and mortality. Liquefied extradural hematoma is an uncommon neurosurgical condition and burr hole drainage without the need for more invasive craniotomy is an adequate treatment option.

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How to cite this article: Koko AM, Ismail NJ, Lasseini A. Burr hole drainage for liquefied extradural hematoma: case report and review of literature. *International Journal of Science & Healthcare Research*. 2018; 3(4): 17-19.
