Introduction: Penetrating head injuries are mostly caused by aggression. The type of weapon used and the subsequent anatomical structures injured often occasion its particular clinical, therapeutic and evolutive characteristics. We report the management case of penetrating head injury by an “unusual” object.

Methods: We describe a case of a penetrating brain injury by a traditional agricultural tool admitted in the department of Neurosurgery of the Ouagadougou University Teaching Hospital in April 2017.

Observation: A 14-year-old admitted in the Neurosurgery Department following 26 hours of head injury by a local agricultural tool “DABA”. On examination, patient had a GCS of 8 (E2V1M5), fever, right hemiplegia, a left frontoparietal and parasagittal penetrating head injury with the metal blade tucked. CT scan showed a large metallic artefact, a bone fragment at the entry point, hemorrhagic contusion and diffuses edema. Complete blood count showed leukocytosis with predominantly neutrophils, clotting profile showed low prothrombin. The penetrating metal was removed 20 hours following admission and an eventful post op evolution characterized by septicemia on post op day 5 and subsequently death post op day 10.

Conclusion: The immediate prognosis of penetrating brain injuries is dependent on the different anatomical structures that were severed by the penetrating object. The principal complication in the short and long term is infection.

INTRODUCTION

Penetrating head injuries are direct mechanical cerebral injuries that create a communication between the cerebral parenchyma and the external milieu by opening of the scalp, skull and dura. The type of weapon used and the anatomical structures injured can occasion their particular clinical, therapeutic, and evolutive features. We report the management case of penetrating head injury by an “unusual” object.

METHODS

We describe a case of penetrating head injury by a traditional agricultural instrument (locally called DABA) admitted in the department of Neurosurgery of Yalgado Ouedraogo University Teaching Hospital of Ouagadougou in April 2017.

OBSERVATION

A 14-year-old was admitted in April 2017 for management of traumatic brain injury by a penetrating object with immediate loss of consciousness following the incident.

No known past medical and surgical history.

Admitted 26 hours following a fight where he was hit by a traditional agricultural tool (DABA) with its blade tucked into his head (Figure 1). He was first received in a peripheral health center were the initial treatment comprised of Paracetamol, ceftriaxone, metronidazole, anti-tetanus medications were administered and a skull X ray was done (Figure 2).

At admission, physical examination showed a Glasgow coma scale score of 8 (E2V1M5), fever of 39.5°C, right hemiplegia of 2/5 and the blade of a “DABA” implanted in the left frontoparietal area with a linear scalp laceration of 6 cm and contused necrotic edges (super infection) associated with evidence of cerebral contusion (super infection) with hemorrhagic contusion and diffuses edema and coronal and sagittal fracture disjunction (Figure 1). CT scan showed a large metallic artefact, a bone fragment at the entry point, hemorrhagic contusion and diffuses edema and coronal and sagittal fracture disjunction (Figure 3).

Complete blood count showed normochromic normocytic anemia with a hemoglobin of 8.5g/dl, leukocytosis 14,000 leucocytes per millimeter-cube predominantly neutrophils (74%). Prothrombin was low 31% Barely 20 hours after admission ablation of the implanted metal was done under...
general anesthesia. Craniectomy, dural plasty using the epicranium and transfusion 425 ml of packed cells was performed in per operative. Patient was then admitted in the Intensive Care Unit intubated with assisted ventilation and empiric triple anti biotherapy (ceftriaxone 2g q24 hours, Metronidazole 500mg q8hours and gentamycine 160mg q24 hours), 20% Mannitol 100ml q6hours for 48 hours and phenobarbital 120mg q24hours. Immediate post op evolution was good with a Glasgow coma scale score of 10 (E3V2M5). Day 2 post-operative CT scan showed hemorrhagic at the operative site, diffuse cerebral edema, with subcutaneous collection of cerebral tissue at the level of the craniectomy (Figure 4).

Post-operative day 4 patient developed septicemia; fever of 40°C, leukocytosis of 31200 leucocytes per millimeters cube predominantly neutrophils (80%), deterioration of conscious level with a Glasgow coma scale score of 6 (E1V1M4). Patient however died on post-operative day 10 before the results of the blood culture were obtained.

DISCUSSION

Aggressions represent one of the principal’s causes of penetrating head injuries. They are either the first or second most frequent causes according to the literature [1]. In our case, the penetrating head injury was occasioned by a fight. The medico legal aspect was already started by the health center that referred the patient. The object used was a traditional farming tool used to till the soil or removing weeds from the crops in Africa locally called DABA (Figure 5). Clinically, disorder of consciousness and hemiparesis were the most frequent signs [2,3]. However, the lesions can be fatal depending on the anatomic structures (major vessels) traversed by the object penetrating the skull [4]. Death can occur concomitantly during the penetration of the object or following ablation. In our case an X ray showed the proximity to the superior sagittal sinus as a result it was imperative for a CT scan; axial view and sagittal and coronal reconstructions to better evaluate the trajectory of the blade of the DABA before the decision of removal. CT scan is indispensable in the diagnosis of penetrating head injuries [5,6]. Mostly, when the metal was still stuck in the skull, the presence of metallic artefact considerably
obscures the CT images as in our case. Besides the fatal risk due to the anatomic structures severed, two other risks include; infection (meningitis, septicemia, empyema, abscess) [1,7] or epilepsy [1,3]. These risk occasion the routine use of antibiotics and antiepileptic drugs. The use of antibiotic prophylaxis has been reported by most of the authors [1,7]. Our patient was operated about 46 hours after his injury when he already developed signs of infection clinically and from the complete blood count. The delay in management have already been reported by other African Authors [1,7], due to lack of accessibility (financially and geographically) to the department of Neurosurgery. Early surgery considerably reduces the risk of infection and sometimes improves the prognosis by decompressive craniectomy [3]. The mortality of penetrating head injuries is especially when the patient is admitted with a low Glasgow coma scale score. Coagulation disorders are also another sign of severity [8]. These two factors in addition to septicemia could account for the death of our patient. Follow up of these patients is characterized by the disabling sequelaes occasioned by the injury.

CONCLUSION

Penetrating head injuries constitute a neuro-trauma entity where the immediate prognosis is function of the anatomic structures severed by the penetrating object. The principal complication in the short and medium term is infection. Early management can reduce the risk of infection thus improving the prognosis

REFERENCES


