

CASE REPORT

A hunting arrow traumatism to the head: A case report from Niger

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Key Clinical Message

Arrow injuries have not disappeared in our environment despite the advances in the development of warfare tools in the world. All regions of the body can be the target of these arrows and in particular the cephalic region whose gravity will depend on the structures reached.

Abstract

With the development of modern weapons of war, arrow wounds have become rare in developed countries, but they are still common in developing countries, including Niger. These injuries are often serious and life-threatening when they are in the head and neck region, due to the presence of major vessels and vital organs in these areas of the body. Extraction of these arrows is usually difficult due to the proximity of major vital structures. Unskilled extraction can aggravate the injury or result in unintentional damage to vital structures with imminent risk of death. We present the case of a patient with a homemade arrow to the head in the left periorbital region that we successfully extracted at the National Hospital in Niamey. Our objective is to highlight the experience with this patient and review some reports in the literature.

KEYWORDS

case report, hunting arrow, niger, traumatism

1 | INTRODUCTION

Since ancient times, since prehistoric times, arrows have been used as weapons of war in many civilizations, including African civilizations.¹ With advances in technology, arrows as weapons of war are now almost abandoned in developed countries. Nevertheless, in developing countries, arrow injuries are still a reality.^{1,2}

In developing countries, for example, penetrating head injuries occur most often after fights and conflicts between farmers, and these situations are much more

frequent in practice than the rarity of reported cases would suggest.^{2,3}

Arrow injuries are very rare.^{4,5} All areas of the body can be targets, including the cephalic region, and the severity of which depends on several factors. Among these factors, we cite, the distance at which the arrow was shot, the degree of penetration of the arrow and the application or not of poison on the arrowhead, which is a common practice.¹ These injuries can affect any part of the human body, including the head and neck and can be fatal.⁶ These head and neck injuries are often life-threatening due to the

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presence of major vessels and vital organs. Management of these injuries is not always easy due to the proximity of major vital structures. We report on a patient who received a left periorbital arrow and was successfully treated.

2 | CASE REPORT

A 42-year-old patient with no known past medical history from a remote area of Niamey (Diffa region), 1318.8 km from the city of Niamey, was referred to the Surgical Emergency Department of the National Hospital of Niamey 5 days after a fight between farmers over agricultural land. On admission, he presented with an impacted arrow in the left orbital rim 1 cm lateral to the medial canthus (Figure 1: Figure showing the hunting arrow impacted in the left supraorbital area). The patient was conscious and had normal vital signs. There was no evidence of intracranial hypertension. His sensory and motor functions were normal. His vision was also normal. The orbitocranioencephalic scan showed the extracranial trajectory of the dart. The arrow passed through the left orbital rim, the base of the nose, and the right external canthus without penetrating the skull (Figure 2: Brain scan images showing the extracranial trajectory of the arrow). The patient was given antibiotics and tetanus prophylaxis.

He underwent wound exploration with arrow extraction under general anesthesia (Figure 3: Figure showing arrow extraction technique in the operating room). The arrow was approached through a trans-sourciliary incision followed by dissection along the path of the arrow. The extraction was performed under visualization. The immediate postoperative course was uncomplicated and the patient was discharged 1 week after admission. Postoperative follow-up, first 2 weeks and then 1 month later, revealed no abnormalities. The wound had healed well (Figure 4: Image showing the good healing of our patient's wound).

3 | DISCUSSION

Head trauma is a major global public health problem. These traumas include a wide range of etiologies.⁷ Among these etiologies, we can mention accidents on public roads, accidents at work, sports, traumas caused by bullets, traumas caused by arrows, etc.

Head injuries from arrows are too rare in the developed world, but they have not disappeared in the developing world despite advances in the tools of war. In developing countries, farmers still value their farmland as a source of wealth and economy.² Nevertheless, conflicts between them are frequent and are the source of fights that most

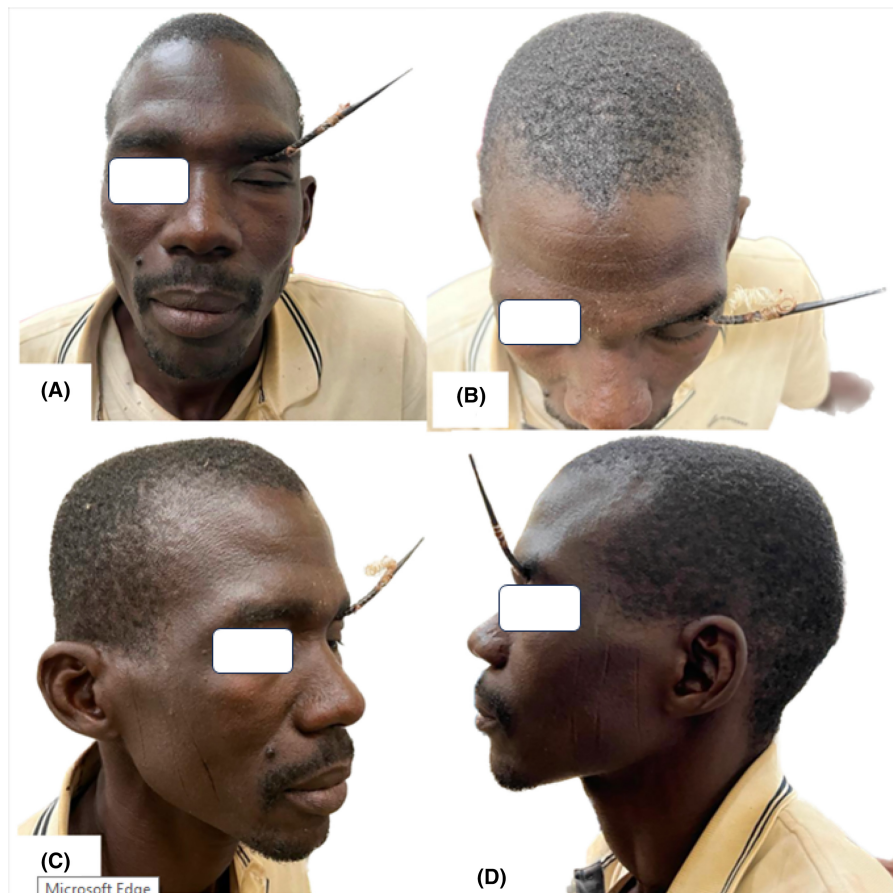


FIGURE 1 Figure showing the hunting arrow impacted in left supraorbital.

FIGURE 2 Brain scan images showing the extracranial path of the arrow.

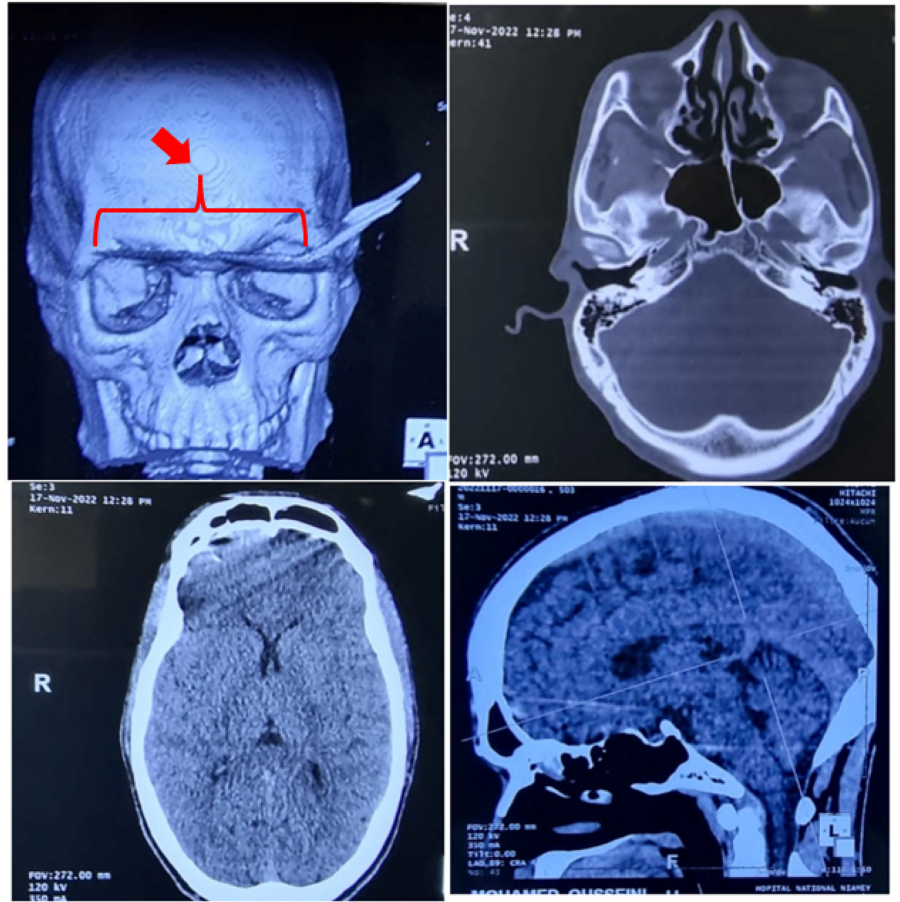


FIGURE 3 Figure showing the technique of extracting the arrow in the operating room.





FIGURE 4 Image showing the Good healing of our patient's wound.

often involve bladed weapons, including arrows. In this paper, we report the case of a patient who suffered an arrow trauma to the head after agricultural conflicts in his village.

There are very few reported cases of penetrating arrow injuries to the head in the literature. The clinical presentation of penetrating arrow injuries to the head depends on the structure involved and the severity of the injury. The degree and severity of injury depend on the distance at which the arrow was fired, the trajectory it followed, the degree of penetration, and the possible application of poison to the tip of the arrow.⁸ Eight Poisoned arrows cause paralysis or severe infection of the wound, depending on the type of poison.^{2,9} Poisoned arrows cause paralysis or severe infection of the wound, depending on the type of poison.² Brain and spinal cord injuries can result in paraplegia, quadriplegia, ventricular hemorrhage, or immediate death.¹ The good news is that in our patient, the path of the arrow was exclusively extracranial and the large vessels were not involved.

The emergency action to be taken will depend on the clinical condition of the patient on admission. Patients

whose injuries are immediately life-threatening should be treated urgently, while those who are clinically stable and have an optimal hemodynamic status will be evaluated before the decision to explore is made.^{10,11}

Our patient was clinically stable and had received a complete and unremarkable clinical examination. CT scan is an essential examination for lesion assessment in patients with arrowhead trauma to the head.¹ It is usually indicated in patients who are hemodynamically stable, which was the case with our patient. The scanner is a noninvasive diagnostic tool that determines the trajectory of the arrow and its relationship to vital structures.¹² Attempting a blind extraction can lead to a serious catastrophe, especially if major vessels are hit. Our patient was able to obtain a cranioencephalic CT scan, which clearly showed us the extracranial trajectory of the arrow.

4 | CONCLUSION

Arrow wounds to the head have never disappeared in the developing world, despite advances in the manufacture of weapons of war. Radiologic imaging is the key to appropriate treatment to prevent high rates of disability and mortality. Prognosis and surgical approach depend on the location of the arrow, its trajectory, and neurovascular damage. Civic conflicts remain to be discouraged.

AUTHOR CONTRIBUTIONS

Assoumane Issa Ibrahim: Conceptualization; writing – original draft. **Roméo Bujiriri Murhega:** Conceptualization; writing – original draft. **Sanoussi Samuila:** Supervision.

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None.

CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

All the materials used in this study are available on request.

ETHICS STATEMENT

This case report received ethical clearance from the Ethical committee of the university of the first author.

CONSENT

Written informed consent was signed by the patient prior to the publication of this paper

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REFERENCES

1. Abdullahi H, Adamu A, Hasheem MG. Penetrating arrow injuries of the head and-neck region: case series and review of literature. *Niger Med J J Niger Med Assoc.* 2020;61(5):276-280. doi:10.4103/nmj.NMJ_17_20
2. Olasoji HO, Tahir AA, Ahidjo A, Madziga A. Penetrating arrow injuries of the maxillofacial region. *Br J Oral Maxillofac Surg.* 2005;43(4):329-332. doi:10.1016/j.bjoms.2004.10.026
3. Olasoji HO, Tahir A, Arotiba GT. Changing picture of facial fractures in northern Nigeria. *Br J Oral Maxillofac Surg.* 2002;40(2):140-143. doi:10.1054/bjom.2001.0716
4. Peloponissios N, Halkic N, Moeschler O, Schnyder P, Vuilleumier H. Penetrating thoracic trauma in arrow injuries. *Ann Thorac Surg.* 2001;71(3):1019-1021. doi:10.1016/S0003-4975(00)02179-2
5. Brywczyński JJ, Barrett TW, Lyon JA, Cotton BA. Management of penetrating neck injury in the emergency department: a structured literature review. *Emerg Med J EMJ.* 2008;25(11):711-715. doi:10.1136/emj.2008.058792
6. Hain JR. Fatal arrow wounds. *J Forensic Sci.* 1989;34(3):691-693.
7. Menezes JM, Batra K, Zhitny VP. A Nationwide analysis of gunshot wounds of the head and neck: morbidity, mortality, and cost. *J Craniofac Surg.* 2023. doi:10.1097/SCS.00000000000009268
8. Madhok BM, Roy DDD, Yeluri S. Penetrating arrow injuries in Western India. *Injury.* 2005;36(9):1045-1050. doi:10.1016/j.injury.2005.05.032
9. Milner GR. Nineteenth-century arrow wounds and perceptions of prehistoric warfare. *Am Antiq.* 2005;70(1):144-156. doi:10.2307/40035273
10. Ngakane H, Muckart DJJ, Luvuno FM. Penetrating visceral injuries of the neck: results of a conservative management policy. *Br J Surg.* 2005;77(8):908-910. doi:10.1002/bjs.1800770822
11. Biffi WL, Moore EE, Rehse DH, Offner PJ, Franciose RJ, Burch JM. Selective management of penetrating neck trauma based on cervical level of injury. *Am J Surg.* 1997;174(6):678-682. doi:10.1016/S0002-9610(97)00195-5
12. Gracias VH. Computed tomography in the evaluation of penetrating neck trauma: a preliminary study. *Arch Surg.* 2001;136(11):1231. doi:10.1001/archsurg.136.11.1231

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