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Clinical case

Cervicofacial trauma by iron bar: about two unusual cases

Traumatisme cervico-facial par barre de fer : à propos de deux cas insolites

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Résumé

Les traumatismes cervico-faciaux sont fréquents aux urgences ORL. La gravité depend de la zone d'impact, de l'objet causal et des lésions occasionnées. Nous rapportons deux cas de traumatisme cervico-facial secondaire à une barre de fer par accident ludique.

Cas clinique 1 : Garçon de 12 ans recu pour plaie Pénétrante du cou transfixiante par une barre de fer, interessant les secteur 2 et 3 avec point d'entrée au niveau de la region sous digastrique gauche et point de sortie la région mastoidienne homolatérale. La cervicotomie exploratrice n'avait pas retrouvé de lésions vasculaires majeures et a permis l'extraction de l'objet contondant. Les suites opératoires etaient simples.

Cas clinique 2 : Fillette de 8ans reçue pour traumatisme de la mandibule par barre de fer transfixiante. L'exploration avait mis en évidence une barre de fer qui traversait la region sous mentale avec point de sortie au niveau du plancher buccal. L'extraction a été réalisée sans lésions vasculo-nerveuses majeures. Les suites opératoires etaient simples.

Mots-clés : traumatisme, cou, barre de fer, Sénégal.

Abstract

Cervicofacial trauma is a frequent occurrence in ENT emergencies. The severity depends on the area of impact, the causal object and the lesions caused. We report two cases of cervicofacial trauma secondary to an iron bar in a playful accident.

Clinical case 1: A 12-year-old boy was admitted for a penetrating neck wound caused by an iron bar, involving sectors 2 and 3, with an entry point in the left subdigastric region and an exit point in the homolateral mastoid region. Exploratory cervicotomy revealed no major vascular lesions and allowed extraction of the blunt object. Postoperative management was straightforward.

Clinical case 2: 8-year-old girl presented with transfixing iron bar trauma to the mandible. Exploration revealed an iron bar passing through the submental region and exiting at the level of the floor of the mouth. Extraction was performed without major vascular lesions. Post- operative management was straightforward.

Keywords: trauma, neck, iron bar, Senegal.

Introduction

Cervicofacial trauma is relatively common in our ENT practice.

They account for around 24% of ENT emergencies in our setting [8]. Penetrating neck wounds are cervical wounds with crossing of the platysma [1]. They are increasingly common in our practice due to the rise in crimé and road traffic accidents. Their severity can be immediate putting the vital prognosis at stake and subsequently the functional prognosis, due to the vascular-nervous richness of the neck and the presence of the upper aerodigestive tract.

Cervicofacial trauma involving blunt metal objects is a major cause of damage, with serious complications [5].

We report two cases of unusual cervicofacial metal bar trauma to describe the diagnostic circumstances and our therapeutic approach.

Clinical cases

Case n°1

The patient was 12 years old, a student with no previous pathological history. He was admitted to our department with a penetrating neck wound caused by transfixing trauma from an iron bar. The history revealed the circumstances of a playful accident. In fact, the events had taken place in the Kaolack region of central Senegal. In a house undergoing renovation, the patient was hopping with friends and fell on the iron bar, which was nailed to the floor.

On admission, the patient was in good general condition, with clear consciousness and stable hemodynamics. Physical examination revealed an iron bar approximately 25 mm thick and 50 cm long, transfixing, left laterocervical, located in zones 2 and 3 from the left submandibular region to the retro-mastoid region (figure 1: A, B).

There was a grade 2 left peripheral facial paralysis. There was no emphysema or hematoma. The rest of the clinical examination was normal.

A front and side cervical X-ray was taken (Fig. 2), as a CT scan was not available due to the patient's solvency. It showed the iron bar in the left laterocervical region, with no bone lesions.

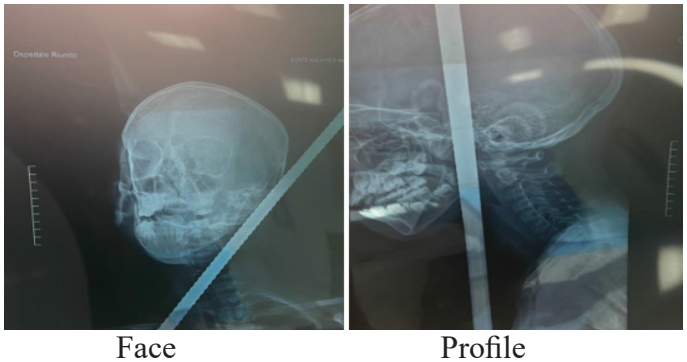
An emergency exploratory and reparative cervicotomy was performed, allowing removal of the iron bar. Exploration using an L-shaped incision (Fig. 5A) revealed sectioning of the superficial part of the parotid gland, partial sectioning of the sternocleidomastoid muscle at its mastoid insertion, injury to the inferior border of the submaxillary gland and partial injury to the stylohyoid muscle. In terms of vasculo-nervous system, the intra-parotid vessels were transected, and there was no visualized nerve damage, particularly to the facial nerve. The major vessels (carotid artery and internal jugular vein) were intact.

The iron bar was removed and found to lie above the carotid artery (Fig. 4: A, B). The various lesions were repaired, and the post-operative course was straightforward. The patient was discharged after 3 days in hospital. Anti-tetanus serotherapy was administered.

Grade 2 peripheral facial paralysis indicated 7 days of prednisolone-based corticosteroid therapy at a dose of 40mg/day combined with motor physiotherapy; full recovery was achieved after one month.



Figure 1: Penetrating neck wound caused by an iron bar



Face Profile

Figure 2: Front and side cervical X-ray

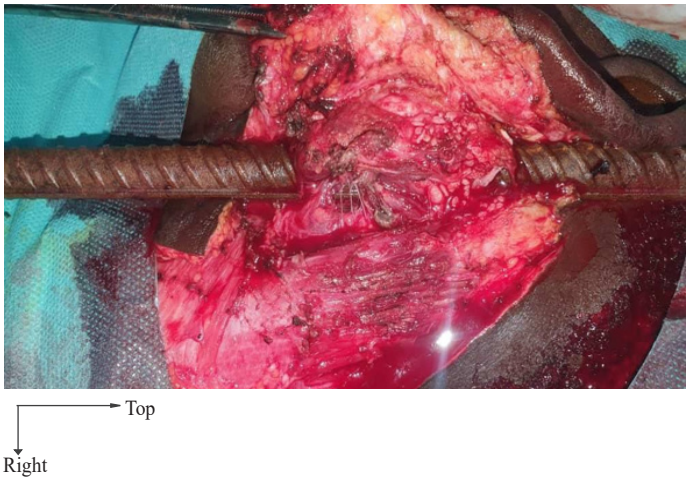


Figure 3: Exploratory cervicotomy with exposure of the iron bar

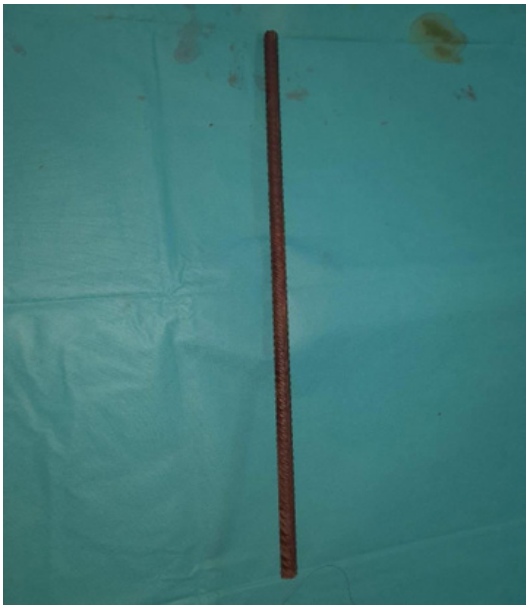


Figure 6: Metal bar 1 after extraction, 50cm long and 24mm thick

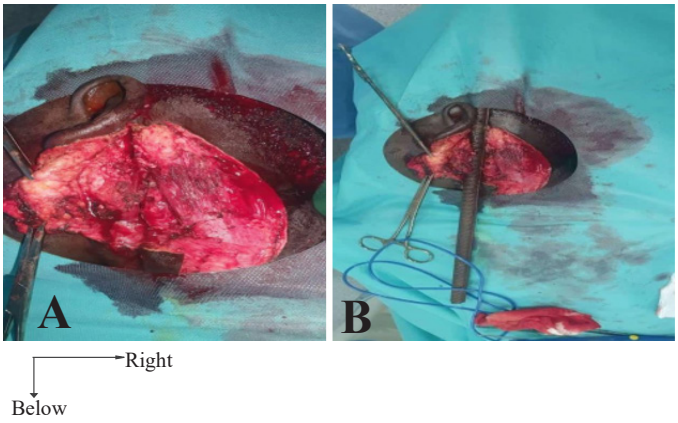


Figure 4: (A: after removal of iron bar), B: Position of iron bar in operative view



Figure 5: Incision (A) and closure of approach (B)

Case n°2

The case involved an 08-year-old girl with no specific pathological history, referred to the ENT emergency department by the SAMU National for cervico-facial trauma caused by an iron bar during a play activity. The interview revealed that the patient was playing with her friends and, while running, fell on an iron bar fixed to the floor, landing on the mandible.

On admission, the examination revealed clear consciousness, and hemodynamic constants were normal.

Physical examination revealed a submental transfixing wound, traversed by an iron bar approximately 25mm thick and 75cm long, with an exit orifice at the level of the anterior buccal floor (figure 1). There was a punctiform jagged wound on the soft palate.

A CT scan of the facial and cervicothoracic regions revealed an iron bar perforating the submental region and anterior floor (Fig. 2). There were no bone or vascular lesions.

Removal of the object under general anaesthesia with placement of a Boyles Devis mouth- opener (figure3) allowed extraction of the iron bar by progressive traction. There was a section of the anterior belly of the subdigastric muscle and a transfixing wound of the mylohyoid muscle, which communicated with the

floor of the mouth.

The lesions were repaired in three planes (cutaneous, muscular and mucosal).

The extracted iron bar was approximately 75cm long and 25mm thick (figure 4). Clinical evolution was favourable. The patient was discharged after 3 days in hospital. Anti-tetanus serotherapy was administered.



Figure 7: transfixing iron bar

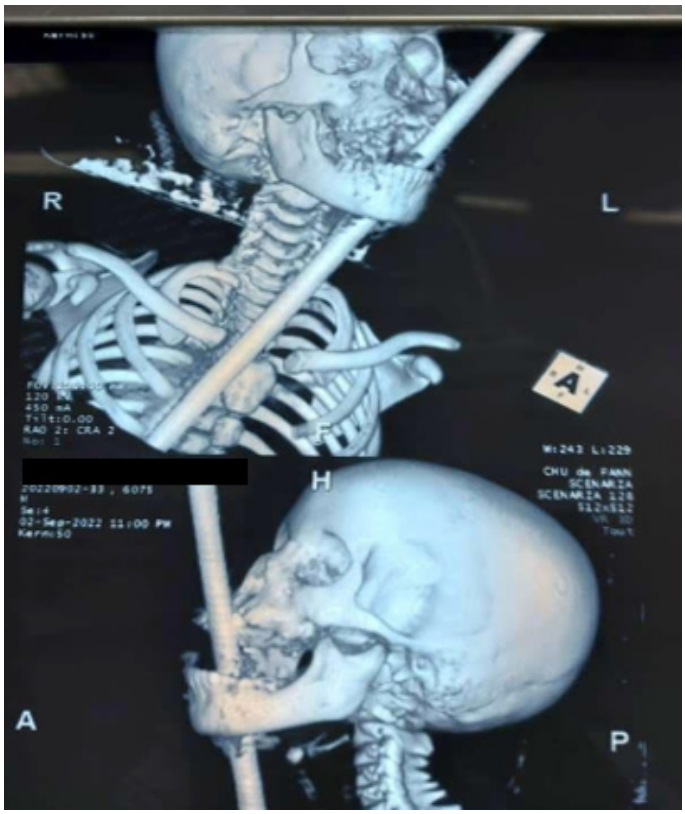


Figure 8: bone reconstruction image

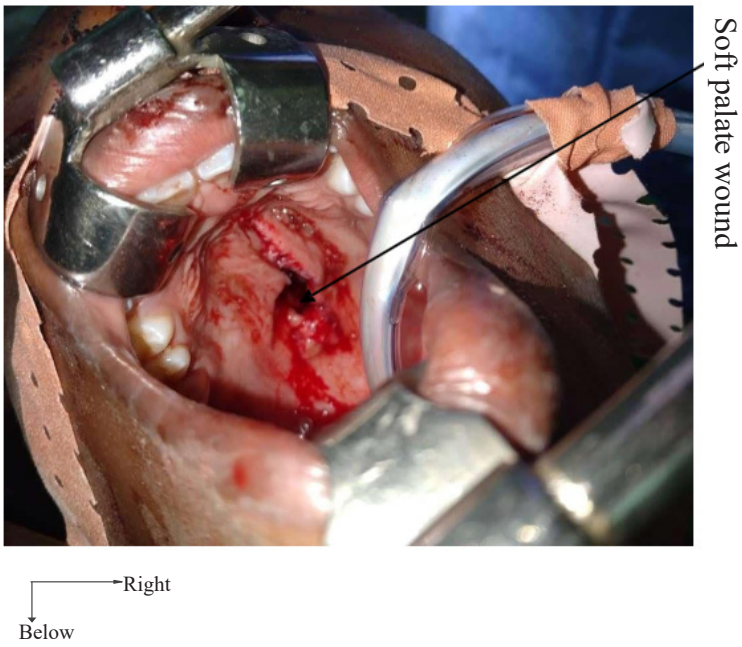


Figure 9: Installation with Boyles mouth opener estimate



Figure 10: Metal bar 2 after extraction, 75cm long and 25mm thick

Discussion

Cervico-facial trauma is marked by a variety of anatomo-clinical forms and can constitute a genuine surgical emergency.

These neck wounds are considered potentially serious due to the presence in this region of vital organs that can be damaged during these traumas [1]. A study

carried out in our department found a frequency of 25.4 cases / year according to E Nao et al [7] and the circumstances were dominated by fights. Because of their perforating nature, iron bar injuries are known to cause visceral or vascular-nervous complications. The circumstances of occurrence and the vulnating agent are rarely described. E Nao et al. reported a predominance of physical assaults or brawls in a series of 22 cases [7]. There were no cases of post-accident play involving an iron bar.

The vulnating agents involved are generally bladed weapons or firearms or other blunt objects [2]. The particularitý of the vulnating agent in our observation is that it was an iron bar caught in the ambient environment with the risk of infection in particular tetanus.

Cross-sectional imaging is essential for lesion diagnosis, particularly in relation to the vascular-nervous bundle of the neck. It is not systematically performed in our context in the case of penetrating neck wounds. However, in the case of vulcerating agents using metal objects, a CT scan should be carried out to study the vascular relationships and look for metal debris in the cervical cavities [9]. In Observation 1, it should be noted that the CT scan was not available at the time the patient was admitted, and that the family was unable to pay for it. Standard cervical X-rays can provide information on the path of the object and look for bone damage [3]. However, it is very limited when it comes to exploring soft tissues and vessels.

The unavailability of certain investigations in emergency is a reminder of the difficulties in terms of therapeutic decisions in our context.

Sulaiman et al [1] reported a case of cervical wound caused by a nail passing medial to the carotid artery, without causing major lesions. Li et al. [5] reported a lateral neck wound caused by a steel bar associated with a vertebral fracture complicated by spinal cord injury. West estimated that a third of cases were likely to present with major lesions [11]. The severity of lesions may depend on the nature and site of the weapon, as in the case reported by M Ndiaye et al [6] of a zone I, transverse cervical wound caused by an iron bar with no vascular lesions. A Gouéta et al [2] reported a cervical wound caused by an iron bar extending from the cricoid to the scapula, without causing any major injury.

In our two observations, no major vascular lesions were noted despite the blunt agent. Tetanus serotherapy is routinely performed on all metal objects.

In our practice, emergency exploratory cervicotomy is de rigueur for all penetrating neck wounds. There is controversy about the fact that a certain number of surgical explorations come back white [11]. In view of our modest technical resources, we adopt an interventionist approach.

Conclusion

These clinical observations are unusual because of the common vulnating agent and, above all, the minimal vascular lesions explored. Cervicofacial trauma remains a cause for concern due to its potential severity and remains a medico-surgical emergency. The management of such cases must be preceded by a diagnosis of the lesion, in order to avoid surgical surprises. Exploratory cervicotomy allows good exposure of vascular and nerve structures. In this way, the enhancement of the technical platform contributes to improved management. Prevention by educating parents and monitoring children is crucial to reducing the incidence of these injuries.

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References

[1] A.O. Suleiman, O.A. Afolabi, B.S. Alabi. An unusual penetrating stab injury in a child: case report International Journal of Pediatric Otorhinolaryngology Extra, 8 (2013), pp. 119-121

[2] A Gouéta, B Mamoudou Bambara. Plaie pénétrante insolite du cou : A propos d'un cas et revue de la littérature. Jaccr Africa 2020 ;4(3) :594-597

[3] A Thiam, B Loum, M Ndiaye, E.E.M Nao, M S Diouf, A Tall, B K Diallo, I C Ndiaye. Corps étranger insolite de l'oropharynx ; Médecine d'Afrique Noire,2012 ; 59(6)

[4] Awad Z, Jacques T. Traumatisme cervical contondant et pénétrant ; Chirurgie(oxford) ;2018 ;36(10) :582-586

[5] Li Z, Chen J, Qu X, et al. Prise en charge d'une blessure par barre d'acier penetrant la téte et le cou: a propos d'un cas et revue de la literature. Neuro-Chirurgie Mondiale 2019; 123:168–73.

[6] M Ndiaye, M S Diouf, M C Sarr, N Faycal. Plaie Pénétrante inhabituelle au cou. Eur Ann Otorhinolaryngol Tete cou Dis. 2020;137(5):445-446

[7] Nao EEM, Tall A, Ndiaye M, et al. Prise en charge des plaies pénétrantes cervicales au Sénégal à propos de 22 cas. Journal Africain de Chirurgie,2014 ;3(1) :39-43

[8] Njifou Njimah,A bella, Vodouhe,Mpessa. Lésions traumatique ORL et cervico-faciales à l'hopital Laquintinie de Douala, science de la sante et maladies,20 (3),2019

[9] Philippe Clément, Pierre Verdale. Plaies et traumatisme du cou. Traité d'oto-rhino-laryngologie .2008 ;653-654.

[10] Porcher N, Mercier O, Cortes A, et al. Une plaie des troncs supra-aortiques révélée par des manifestations neurologiques retardées chez un malade ayant une plaie cervicale. Journal Européen des Urgences 2010;23:100–4.

[11] West JG. Patterns of injury. In: Mattox KL, Moore EE, Feliciano DV, editors. Trauma. Norwalk: Appleton and Lange; 1988. p. 94–6. .