RELATO DE CASO

CERVICAL PENETRATING INJURY IN ZONE II: CASE REPORT

LESÃO CERVICAL PENETRANTE EM ZONA II: RELATO DE CASO

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ABSTRACT

Several vital structures, of both the aerodigestive and vascular systems, are contained in the cervical regions. Cervical lesions have high complexity and high morbidity and mortality. They are more common in young men inserted in a context of violence. The objective of this study was to demonstrate an injury by firearm with transfixation of the trachea, approached by cervicotomy in which was performed a termino-terminal anastomosis of the affected segment. The patient presented satisfactory clinical and surgical outcomes.

Key-word: Cervicotomy; Zone II; Tracheal injury.

RESUMO

Na região cervical encontra-se estruturas vitais para o sistema aerodigestivo e vascular. Lesões cervicais possuem alta complexidade e elevada morbimortalidade. Acomete mais homens jovens inseridos em contexto de violência. O objetivo deste estudo e demonstrar uma lesão com transfixação da traquéia por arma de fogo, abordada por cervicotomia e realizado anastomose termino-terminal de segmento afetado. Paciente apresentou bom desfecho clínico e cirúrgico.

Palavras-chave: Cervicotomia; Zona II; Lesão traqueal.

ACESSO LIVRE

Citação: Silva LFB, Silva VD, Ferreira LM, Oliveira JGS, Maia Júnior R (2019) Cervical penetrating injury in zone II: case report. Revista de Patologia do Tocantins, 6(2): 38-40.

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Editor: Guedes V. R. Medicina, Universidade Federal do Tocantins, Brasil.

Publicado: 09 de junho de 2019.

Conflito de interesses: os autores declararam que não existem conflitos de interesses.

INTRODUCTION

Cervical trauma can be classified as penetrating or non-penetrating, anterior or posterior and by zones (I, II and III). The first depends on whether the lesion has crossed the platysma muscle. The second comprises two large regions between the lower border of the mandible, the sternocleidomastoid muscle and the anterior medial line of the neck (anterior) and the upper face of the clavicle, or trapezius muscle and the sternocleidomastoid (posterior). Zones I, II and III are comprised, respectively, between the clavicles and the cricoid cartilage; the cricoid cartilage and the angle of the mandible; the angle of the mandible and the mastoid process[1].

In the cervical region lie several vital structures. Any trauma, such as knife or firearm injury, can result in irreparable damage. The region where there are more repercussions of instability is the anterior region. Large vessels and aerodigestive system structures are contained in this region. Vascular injury is the most common form of involvement in cervical injuries, followed by lesions of the airways and digestive tract[1].

In Brazil, injury by firearm and by knife have similar statistics, unlike countries where there is strict control over the possession of weapons. Traumas are more common in men (88%-92%), around 30 years of age and living in a context of violence[1].

Thorough knowledge of the region's anatomy and its mechanisms of injury are essential for conduct. The approach, whether it should be conservative or surgical, is a controversial topic in the literature.

CASE REPORT

MSA, 24 years old, male, drug addict, natural and precedent from Gurupi-TO. Patient was received on 02/12/2019 at the General Public Hospital of Palmas (HGPP), sent from the Regional Hospital of Gurupi, victim of firearm injury in the anterior cervical region (zone II) with the projectile housed in right scapular region with evolution of approximately 12 hours. He was immediately received by the emergency department of General Surgery. He arrived at the unit by means of an outpatient ambulance, in use of orotracheal tube, without additional information on intubation, sedated (RASS -5), hemodynamically stable (HR: 104bpm BP:120x78mmHg), without signs of active bleeding and with good peripheral perfusion. CT scan was requested and, in the image, both a hemothorax on the right (figure 01) and airway involvement (figure 02) were visualized.

General surgery chose to drain the affected thorax into a water seal drain and to ask for assistance of the Head and Neck Surgery Service (HNSS). The HNSS promptly referred the patient to the surgical center for exploratory cervicotomy.

The patient in dorsal decubitus, with the aid of cushions and in ETI, underwent a right longitudinal cervicotomy with extension to the furcula. The inventory showed fracture of the cricoid cartilage and fragmentation of the first two tracheal rings. There were no lesions of the esophagus, recurrent laryngeal nerve or major vessels (figure 03). The 2 affected tracheal rings were resected and a protective tracheostomy was performed with end-to-end tracheal anastomosis. The region was then drained with a Penrose drain and closed by planes. In order to guarantee the integrity of the anastomosis so as not to force it, sutures were placed on the patient's chin and in the sternal region, making cervical hyperextension impossible.

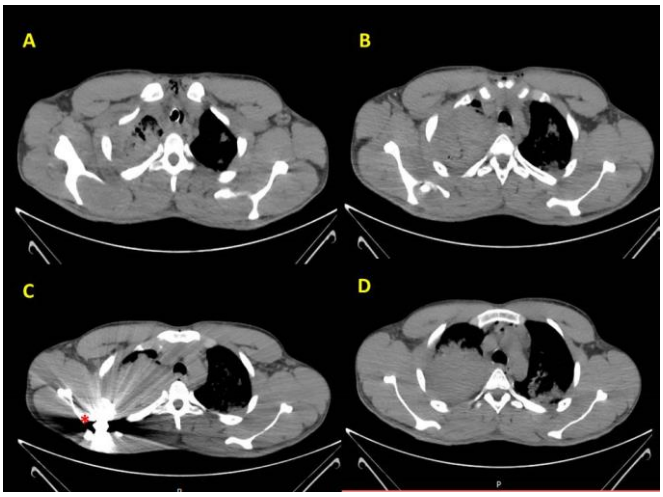

Figure 01: CT transverse section where hemothorax on the right and bullet lodged in scapular region (red asterisk) can be observed

Figure 02: It is observed that tracheal path is irregular, suggestive of injury and transfixation of projectile

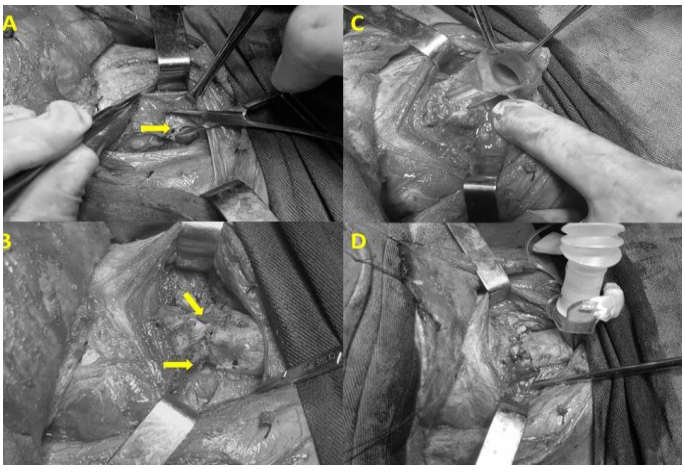

Figure 03: A: At the tip of the arrow: recurrent laryngeal nerve; B: The 2 arrows show the projectile inlet and exit holes with explosion of the first two tracheal rings; C: Tracheal rings removed (tracheoplasty); D: End-to-end anastomosis of the trachea with protective tracheostomy;

After recovery from anesthesia, the patient was referred to the ICU for continuous multiparametric monitoring. He stayed in the unit for 14

days. In the first 2 days, he remained fasting. He underwent empirical antibiotic therapy with ciprofloxacin and clindamycin because it was a potentially contaminated surgery and with more than 6h of evolution. It was essential to avoid stimulating cough, to change the plastic cannula frequently, to avoid cervical hyperextension and to maintain rigorous radiographic control. The patient presented progressive clinical improvement, with effective feeding and good pulmonary expansion by tracheostomy at the end. He was discharged to the HNSS ward and, after 2 weeks, he received hospital discharge. He left the hospital verbalizing, eating spontaneously and breathing through the tracheostomy. He was instructed to return to the clinic every month for control.

DISCUSSION

The approach in a cervical trauma patient is a controversial subject still and there is no consensus in the scientific environment. With the advent of highly complex imaging exams with considerable sensitivity and specificity, the surgical exploration that was previously mandatory will become progressively selective.

There are several efforts to demonstrate a unified approach. A retrospective study of 57 patients in a tertiary hospital in Curitiba-PR shows data that strengthens the fact that the vast majority of the surgical explorations identify lesions. The study shows that the isolated cervical approach, despite having high morbidity and mortality, is not the primary cause of death. [2]

Nowicki *et al* states that imaging exams should be considered for conduct.[3] At the end of his article, an algorithm that simplifies approach in cervical trauma is presented. It separates the patient into two categories: unstable or stable. Instability does not only comprise hemodynamic criteria, but also considers the establishment of a permanent airway. Thus, for an unstable patient, an airway should be secured for surgical management. For stable patients without alarm signals (shock, pulsatile bleeding or an expanding hematoma, audible or tangible blow, airway compromise; bubbling wounds, subcutaneous emphysema, stridor, hoarseness, difficulty or pain when swallowing secretions, neurological deficits) an angiography-CT should be performed: if no lesion is seen, keep the patient under observation and consider high digestive endoscopy.

Bahten *et al*, with a sample of 191 cases, argued that males were the most affected (86%), classifying these based on the ages of the patients found in the literature. The largest age group (88-92%) had approximately 28 years of age. The numbers of gun and knife lesions were similar, 47 % and 46%, respectively. The anterior region had the highest number of cases, 43%. An uncommon analysis made by this author was the time period of higher incidence of traumas. In his service, there was greater admission between 20h and 04h, rectifying the relationship with urban violence[4]. The current report occurred in the aforementioned time.

Some authors plead the argument that mandatory exploration should be done in all firearm lesions and that the conservative conduct should be taken for all knife wounds (Shenk *et al*)[5]. Although Demetriades *et al* demonstrated a greater number of lesions by firearms (16% versus 10% of knife wounds, it would not be prudent to fixate these conducts, since, in many cases, the time for adequate therapy would be lost.

Objectively, Ayuyao *et al* was more successful in carrying out a study with 257 patients in order to compare mandatory versus selective exploration. Two groups were separated. In the first group, there were 148 patients. Of these, 134 were mandated approaches. Only 31% had injuries. The other group with 109 patients managed selectively, 40 were surgically operated and 31 were found to be injured.[7]

Finally, it is observed that there is no definite conduct. In the present case, the sex, age, inserted context and hour of the event are comparable with the literature. The conduct performed is more compatible with that advocated by Nowicki *et al*, that is, performing imaging tests on the stable patient. However, as presented earlier, the patient's exams were compatible with tracheal injury and selective exploration became essential.

CONCLUSION

Although several studies that approach conducts in cervical injury exist, the subject still remains controversial. Thus, the ideal is to have different approaches in mind and to choose which best suits the case when necessary.

In prompt care, the appearance of cervical lesions is not uncommon, and knowledge about it serves both head and neck surgeons and general surgeons.

A definite conduct and protocol are needed in order to guide professionals.

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