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Thyroid Gland Rupture associated with Blunt Cervical Trauma – a case report

Ruptura da Glândula Tiróide associada a Trauma Cervical Fechado – caso clínico

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RESUMO

Embora a lesão de partes moles no trauma cervical seja relativamente comum, a lesão da tiróide é extremamente rara, como resalta a literatura em Inglês. Os trabalhos relatam que o trauma da glândula tiróide é muito raro em pacientes sem bócio pré-existente. Este artigo relata um caso de trauma cervical contuso numa mulher jovem sem bócio, que resultou em lesão da tiróide diagnosticada por tomografia computadorizada (TC) e que foi conduzido de forma conservadora, com uma evolução favorável, sem complicações posteriores.

Palavras chave: *Trauma Fechado, Ruptura da Tiróide, Trauma Cervical.*

ABSTRACT

Although soft tissues injury in cervical trauma is relatively common, thyroid injury is extremely rare, as seen in English-language reports. Thyroid trauma is quite rare in patients without preexisting goiter. This paper relates a blunt cervical trauma in a young woman without goiter disease that results in thyroid injury diagnosed by a computed tomography scan (CT) that has been conducted conservatively, with a favorable course without further complications.

Key Words: *Blunt Trauma, Thyroid Rupture, Cervical Trauma.*

INTRODUCTION

Although soft tissue injury in cervical trauma is relatively common, the thyroid injury is extremely rare, especially in patients without preexisting goiter.¹⁻³

Several situations contribute to blunt cervical traumas as hyperextension, hyper flexion, deceleration, rotation and direct trauma against the neck.²

CASE REPORT

A 31-year old healthy woman suffered a direct cervical impact by a surf board. She was initially observed at a small district hospital, complaining of drooling, dysphonia and odynophagia. She had no ventilatory changes. There were bruises and increased cervical volume, specifically on the right side. Her vital signs



were normal, blood pressure 99x62mmHg, heart rate 76 bpm, respiratory rates 18 breath per minute and oxygen saturation of 99% in room air. There were no blood tests alterations (blood count and thyroid function).

Cervical Computed Tomography (CT) reports referred “right lateral cervical soft tissues edema from sub maxillary region to the inferior cervical region, particularly between the sternocleidomastoid muscle and the right lobe of the thyroid gland. Hematic density was not seen at this level, but it admitted tearing in upper and medial portion of right thyroid lobe. (figures 1 and 2) There appears to be a right infra-glottic slight mucosal / submucosal thickening. There was a regular tracheal permeability”.



FIGURE 1: Cervical CT showing right thyroid lobe ruptured (white arrow). Edema of the surrounding tissues is also present.



FIGURE 2: Cervical CT. Coronal view (white arrow) of superior pole of the right thyroid gland rupture.

The patient was transferred to a central hospital for surveillance and other complementary exams. In a new clinical evaluation she was eupnoeic but had dysphonia, and sore throat. She had a painful right cervical swelling on palpation, along the edge of the sternocleidomastoid muscle. Laryngoscopy showed right hemi larynx paralysis, and right vocal cord hematoma. There was no airway compromise. A new CT scan confirmed the right thyroid lobe laceration and subglottic region hematoma.

The patient presented excellent ventilatory conditions, good oxygen saturation in room air. Laryngoscopy was repeated eight hours after the first one. There was median right vocal cord paralysis, but there was no airway risks, normal left vocal cord mobility and complete glottis closure. A soft diet was started and well tolerated.

The patient was discharged after 24 hours of surveillance. Laryngoscopy was repeated three days after discharge showing only right vocal cord paralysis. Twenty days after the trauma she presented with improvement of dysphonia and dyspnea during exercise. Laryngoscopy showed persistent medial paralysis of the right vocal cord, no other relevant alteration. Multiple observations (two times a month) confirmed good recovery. Cervical volume decreased gradually. In the last evaluation she presented euphonic, eupneic and euphagic. There were no significant alterations in neck ultrasound and thyroid hormones in blood tests were normal.

DISCUSSION

Although blunt cervical trauma is considered relatively common, thyroid injury, especially in patients without goiter, is a quite rare condition.¹⁻³ The first case described about blunt cervical trauma with thyroid injury was in 1894, with a fatal outcome.¹⁻⁴ There are only few cases reported on this topic presently.

The principal situations that contribute to blunt cervical traumas are hyperextension, hyper flexion, deceleration, rotation and direct impact against the neck, explaining why most of blunt cervical traumas



occur in sports activities, strangulations, direct impacts and vehicle collisions.²⁻³⁻⁴ Other possibilities like falling from staircases and bed are described as causes of blunt thyroid injury.

In literature, the most extensive review was published in 2014 by Von Ahnen and col. It showed, after analyzing 36 cases of hematomas, hemorrhage and rupture, that a high variety of age (13 to 82 years old), more frequent in women, more likely in the left lobe. Cases treated surgically were slightly higher (59%).³⁻⁴

Heizmann et al. proposed an algorithm for management of thyroid gland injury. According to this classification, this case is considered as not severe trauma and surveillance only should be made¹.

Most patients are admitted to the emergency room clinically stable, with neck swelling, pain, respiratory distress, dysphagia and hoarseness. Surveillance is necessary to identify and promptly treat threatening conditions such as airway obstruction. The timescale of these symptoms can be earlier than 60 minutes but no later than 24 hours after the trauma.³

Imaging studies can show thyroid gland injuries in the majority of cases. Computed tomography is the technique of choice for evaluation of blunt cervical trauma.³

Being a rare lesion, there is no consensus about work-up, surveillance period or management (surgery or surveillance only). The initial approach to these patients follows the ATLS recommendations. Invasive airway control is not necessary to most of the patients.¹⁻²⁻⁵

Even though more than half of cases are treated by surgery, observation has only been considered as one feasible option, followed by monitoring after discharge, with laboratory tests or ultrasound or laryngoscopy are advised.²

In this case, the patient was clinically stable, without significant ventilatory alterations, after ATLS initial management. The team decided for surveillance, imaging studies and serial laryngoscopy.

Cervical computed tomography (CT) was performed and showed a thyroid lesion that needed close monitoring.

In view of the evolution, the conservative treatment option seemed the best decision. Serial laryngoscopy has proven to be the best option to evaluate the airway and vocal cords functions in this case. Blood test and ultrasound evaluation were also effective in this case.

CONCLUSION

Thyroid gland lesions after blunt cervical trauma are a rare condition, and literature is not consensual about treatment. Each case must be evaluated one-by-one to make well justified decisions. The suspicion of these lesions is imperative in all cases of blunt cervical traumas and close observation during the first hour in an emergency room must be made in all cases, being airway alterations the cut factor between conservative and surgery treatment.

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