

RELATO DE CASO

THORACIC OUTLET SYNDROME ASSOCIATED WITH THE ARTERIAL OCLUSION: CASE REPORT

SÍNDROME DO DESFILADEIRO TORÁCICO ASSOCIADA À OCLUSÃO ARTERIAL: RELATO DE CASO

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ABSTRACT

The thoracic outlet syndrome (TOS) is characterized by diverse manifestations resulting from abnormal compression of the brachial plexus, subclavian-axillary artery and/or vein, resulting in involvement of the vascular complex, the nervous bundle or both, when passing between the base of the neck and the armpit. The clinical manifestations of TOS are predominantly neurological, been rare the arterial complications, but potentially grave. The authors report the case of a 28-year-old woman with a left cervical rib that presented left subclavian artery stenosis, with a post-stenotic aneurysm and left axillary artery occlusion, in addition to having brachial plexus neuropathies on the left, also by compression

Keywords: thoracic outlet syndrome, cervical rib, arterial occlusion, brachial plexus neuropathies.

RESUMO

A Síndrome do Desfiladeiro Torácico (SDT) caracteriza-se por manifestações diversas decorrentes da compressão anormal do plexo braquial, artéria e/ou veia subclávia-axilar, resultando em acometimento do complexo vascular, do feixe nervoso ou de ambos, quando de sua passagem entre a base do pescoço e a axila. As manifestações clínicas da SDT são predominantemente neurológicas, sendo as complicações arteriais raras, mas potencialmente graves. Os autores relatam o caso de uma mulher de 28 anos com costela cervical à esquerda que apresentou estenose da artéria subclávia esquerda, com aneurisma pós-estenótico e oclusão da artéria axilar esquerda, além de apresentar plexopatia braquial à esquerda também por compressão.

Palavras-chaves: síndrome do desfiladeiro torácico, costela cervical, oclusão arterial, plexopatia braquial.



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INTRODUCTION

Thoracic outlet syndrome (TOS) is the generic term used to define various signs and symptoms caused by compression of the neurovascular structures somewhere between the neck and the axilla.¹ Several different presentations of this syndrome have been described and these variants are classified into two major Groups: vascular and neurogenic. The vascular variant corresponds to approximately 5% of the cases of TOS and can be divided into arterial and venous forms. Arterial compressions usually presents itself with a cold extremity, weakness, fatigue of the affected limb, diffuse pain and decreased arterial pulse amplitude, while venous alterations frequently present with venous thrombosis, dilation of the superficial vessels, increased collateral circulation, and varying degrees of ache. The neurogenic type is classified as true or classic when there is evident motor and sensory impairment and is generally associated with the presence of elongated cervical ribs or transverse processes of the seventh cervical vertebra (1 to 3% of cases of TOS). Neurogenic TOS is called nonspecific when pain and sensory symptoms predominate in the clinical setting, but there is no objective neurological sign or alterations in neurophysiological studies (more than 90% of cases of TOS).

The thoracic outlet or gorge syndrome has been recognized for more than a century, however, many controversies still exist about it. Their incidence varies from country to country. Individual variations such as age, female gender, longilineous biotype, occupations that require the raising of the arms are considered predisposing factors. It's diagnosis is basically clinical and it's treatment involve different opinions.²

The authors report the case of a patient with arterial occlusion in the left upper limb due to embolism originating from a post-stenotic aneurysm as a complication of Thoracic Outlet Syndrome (TOS).

CLINICAL CASE

Patient K.T.A, female, brown colored, age of 28, married, civil servant, from Palmas -TO. She reports that for the past year she presented pain in the fourth and fifth left cheirodactyls, in a tightning pain, intensity 4 of 10, without irradiation, intermittent, associated with paresthesia, pallor and edema. Negative trauma or triggering factors. He reported using various analgesics, but remained with treatment-refractory pain, and sporadically presented poikilothermia in the fourth and fifth left dactyls.

The patient reports that whenever he presented pain crises he sought medical assistance at the prompt care unit, where he received intravenous analgesia. She said that the nursing team had some difficulty, they were often unable to measure blood pressure, find the radial pulse, measure axillary temperature and O2 saturation in the left arm of the patient.

In the last three months before his hospitalization, there was a progressive worsening of symptoms. The pain ascended from the cheirodactyls to the hand and then to the entire left arm, remaining intense, tight and constant. Patient

denies comorbidities, use of oral contraceptives, similar family history, coagulopathies, smoking, alcoholism and activities that require strenuous movement of the upper limbs.

On march 29th 2017 she was evaluated and admitted by the vascular surgery service of the general public hospital of Palmas that identified at the discreet physical examination edema, paraesthesia, non fixed finger cyanosis of the left hand, coldness of the left upper limb, absence of radial, ulnar, brachial and axillary limb pulses, associated with partial loss of muscle strength of the affected upper limb. The patient was admitted for examination and investigation of the case.

The investigation was started with left upper limb arteriography visualizing left subclavian artery stenosis, with post-stenotic aneurysm and occlusion of the left axillary artery. Arteriography also evidenced the presence of a cervical rib on the left that partially compressed the subclavian artery causing stenosis. Due to the clinical history associated with the imaging examination, the diagnosis of thoracic outlet syndrome was performed.

On april 10th 2017 the patient was submitted to resection of the cervical rib and the first costal arch by the thoracic surgery team and followed by revascularization of the left upper limb by subclavian-brachial bridge with reverse saphenous vein by the vascular surgery team. The patient was discharged from the General Public Hospital of Palmas (HGPP) on april 17th 2017, with guidelines, analgesia and indication of motor physiotherapy. He currently performs physiotherapy five times a week, reports improvement of flexibility and obtained partial improvement of the muscular strength of the left upper limb.

At the physical examination of June 2017 the patient had palpable radial, axillary, brachial pulses in the left upper limb, had no cutaneous pallor and had a change in temperature.

DISCUSSION

The term "Thoracic Outlet Syndrome" was first used by Peet³ in 1956. Its incidence varies from 3 to 80 cases / 1000 inhabitants and predominates in women between 20 and 50 years ^{4,5}. The most common sites of compression are intercostoscalenic triangle, costoclavicular and retrocoracopeitoral ^{6,7}. The intercostoscalenic triangle is formed by the anterior and middle scalene muscles and by the first rib, through which it passes the subclavian artery and the brachial plexus, not being part of the subclavian vein. The costoclavicular space is delimited by the clavicle, first rib, costoclavicular ligament, superior scalene muscle and comprises the brachial plexus, the subclavian artery and vein. In the retrocoracopeitoral space, the nervous vascular bundle can be compressed by the coracoid process that lowers in the hyperabduction and presses it against the minor pectoral muscle ^{2,7}.

The patient in question has an extra rib on the 7th cervical vertebra, which characterizes cervical rib syndrome. It is more common in women, usually onset of symptoms in adulthood triggered by trauma. It can be uni or bilateral, the last one being more common (65% of cases). Nervous symptoms predominate (up to 95% of cases), but it is the most

frequent cause of post-stenotic arterial dilations as presented in the reported case⁶.

In addition to symptoms of neurogenic origin such as paresthesia, moderate pain and weakness of the entire left limb, the patient presented signs and symptoms characteristic of arterial ischemia such as pain, pallor, cyanosis and coldness in the affected limb. Raynaud's phenomenon, although a common symptom of the syndrome, was not found in the patient. The other vascular symptoms, represented by venous symptoms, such as weight sensation, engorgement of extremity, increase in local temperature, venous turgor and edema, were not found in the patient due to the location of the compression².

The diagnosis of TOS is clinical. Image exams can be performed to evaluate bone changes, vascular damage and to aid treatment in cases of surgical indication. In the investigation of the patient, vascular alterations in arteriography were evidenced, as already mentioned by the authors, caused by the presence of cervical rib on the left. Other tests that aid in the management of patients with TOS include simple radiography, used to visualize bone abnormalities and Doppler ultrasonography, indicated in the suspicion of vascular involvement when there is a contraindication of arteriography or in the initial evaluation when the clinical maneuvers leave doubt about the diagnosis⁷.

After the diagnostic confirmation of neurogenic TOS without vascular involvement, the initial treatment is clinical. Simple analgesics, anti-inflammatories, muscle relaxants, warm compresses and resting can be used. It is also possible to guide the toning of the suspensory muscles of the shoulder girdle with physiotherapy. In the presence of venous compression, anticoagulation, thrombolytic therapy and elastic compression of the limb should be considered².

In the refractoriness of clinical treatment, symptomatic bone abnormalities or vascular complications indicate the surgical treatment. Surgical access can be obtained supraclavicularly or axillary with similar success between the techniques. The axillary pathway makes it difficult to access the plexus, but it has better aesthetics in the scar, while the supraclavicular approach allows a better visualization of the scalene muscle⁸.

In the case presented the patient underwent surgical treatment, indicated by the presence of vascular complications. The surgery was performed by the Vascular Surgery team of the Public General Hospital of Palmas (HGPP) who opted for the supraclavicular route due to the ease of access to the intercostoscalenic triangle and the circulation of the region. Resection of the cervical rib and the first costal arch was performed, decompressing the artery and brachial plexus. In the same surgical time, revascularization of the left upper limb was performed through a subclavian-brachial bridge with a reverse saphenous graft. After surgery, the patient reported improvement in flexibility and absence of vascular symptoms. Surgical complications frequent in the approach to TOS, such as phrenic nerve injury, subclavian artery and vein injury, hematomas and defects in healing⁸ were not presented by the patient.

SDT is a rare, clinically diagnosed disease that usually leaves no sequelae. The treatment is essentially clinical,

although surgery is indicated in more complex cases or in the presence of vascular complications. Late diagnosis occurs more frequently in the presence of pure vascular symptoms, which appear only in the presence of established vascular complications. Therefore, management by the specialized vascular team should be sought whenever the syndrome is suspected.

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