92 - THE THORACIC OUTLET SYNDROME AND A PHYSIOTHERAPY INTERVENTION

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Introduction

The thoracic outlet syndrome is a generic term to define several signs and symptoms at any point between the neck and the armpit, characterizing clinical entity with a variety of symptoms, caused by the excessive compression of the access or the area of thoracic outlet.

Anatomically, the thoracic outlet is an area formed by scalene muscles (inferior and medial), clavicle, first rib, subclavian muscle and pectoral minor having vessels and brachial plexus transiting among them. As it is a narrow area any automatic variation with its narrowing causes of nerves and vessels compression.

There are three classical places of compression in the bundle of nerves and vessels:

A. Interscalene triangle: This triangle is bordered by the anterior scalene muscle anteriorly, the middle scalene muscle posteriorly, and the medial surface of the first rib inferiorly. Among the scalene are the brachial plexus which is superior and subclavian arteries which are inferiorly.

B. Costoclavicle triangle: which is bordered anteriorly by the middle third of the clavicle. Variations of the first rib may produce nerves and vessels compression (increased by the "stand to attention" position of the militaries or in hyper abduction for long periods.

C. The subcoracoid space: The bundle of nerves and vessels leaves the anterior space and enters through a narrow canal limited by the initial portion of the pectoral minor muscle and its insertion tendon in the coraoid process of the scapula. The compression happens in hyper abduction.

Clinical aspects can be characterized by nervous and vascular alterations. Having intensive pain and a variety of characters, and might have inexact localization, followed by weakness and paresthesias. Pain may appear in the lateral region of the neck, head, rhomboids area and suprascapular when superior lace of brachial plexus compression occurs (C5, C6, C7).

Pain, pallor, cyanoses, erythro-cyanoses, paresthesias, fatigue, trophic alterations, gangrene, and local temperature decrease can recognize the vascular symptoms.

The symptoms of the nervous compression are: weight sensation, pain and upper extremities ingurgitation, increase of the skin temperature and cyanosis, edema especially on the shoulder and the pectoral area.

The thoracic outlet syndrome can be classified as vascular and neurogenic.

In relation to the diagnosis the history and the physical examination of the patient are fundamental.

The physical examination consists of verifying the biotype inspection, the development of the muscular symmetry, the shoulder horizontal level, the presence of supra and infra clavicle curving. Touching to evaluate the consistence, sensibility and mobility. The neurological examinations also evaluate the sensibility, motricity and trophicity and relating them to miotome and dermatome.

The initial clinical treatment is based on the symptoms decrease using an allopathic treatment, orientations for posture correction, avoiding working in positions of hyper abduction and lowering the shoulder.

A surgery intervention may be advisable in approximately 15% of the cases, usually when the syndrome is caused by symptomatic bony modifications or vascular implications as well as the conservative treatment failure.

This treatment consists of thoracic outlet syndrome liberation through pompage, rolfing, deep transversal massage, vertebral and joint mobilization as well as the strengthen of the scapular waist.

Therefore this is a study about the case of one patient L.F.C, 39 years old, with a thoracic outlet syndrome diagnosis taken through complementary and clinical examinations done by a board of doctors in the Military Hospital of the Army in Curitiba, State of Paraná. With the aim of evaluating the physiotherapy treatment of the patient in school clinic college institution.

Material and methods

Subject

L.F.C., male sex, aged 39, married, military, living in Porto União, Estate of Santa Catarina, with a thoracic outlet syndrome clinical diagnosis (TOS). He was evaluated for the first time at Physiotherapy Clinical School of UNIGUAÇU College on March 10th 2006, beginning a physiotherapeutic treatment.

Evaluation

The patient kinetic-functional evaluation initially began with an anamnesis, seeking for data about his daily life, professional life (for his professional military history) some physical abuses were reported and the appearance of aches and functional limitations, approximately two years ago.

In relation to the physical examinations on November 27th, after an eletricneuromiography (ENMG), an injure of the right brachial plexus was found, being suggested with a Nuclear Magnetic Resonance (NMR) the presence of signs of hemangioma in T3.

To the main complaint a pain in dermatome (C7 C8) was noticed, with paresthesia in the 3rd, 4th, and 5th, chirodactitly. As well as pain in the rhomboid and suprascapular area.

A pain was recorded during the maximum abduction of the shoulder within the physical examination (Wright test), Adson test, to the occlusion of the subclavian vessels and a three minutes stress test, being all of them positive, confirming a TOS clinical diagnosis. Some clinical signs as pallor, right forearm pain with paresthesia in the right hand were recorded. The initial movement amplitude was 80º in abduction and the strength of the scapulas and abductors of the shoulder were classified in 3º.

Procedures

With the re-evaluation, the aims of the treatment were to reduce the pain, decrease the nervous compression, regaining the normal movement amplitude and strengthen the effective muscles in the pelvic waist of the patient. For this mussle fascial procedures were taken, transversal deep massage and muscular stretch, neural mobilization and muscular strengthen using swiss ball and a phisio-roll ball.

Results

In realation to the proposed aims, right after the second and third assistance the patient reported an reduction of the pain according to the pain scale and noticed effort of Borg, (scale CR - 10). His movement amplitude was visibly increased to 176º and the patient reported an improvement after the initial muscle strength, with an evaluation of muscular strength in a second time with 5º.

Discussion

With relation to the initial evaluation, some of the obtained results suggest an increase and stabilization of the patient's clinical aspects, matching the indication of the conservative treatment based on physiotherapy, according to SILVESTRI, WAGNER AND DAL MORO[4]; MAKOFSKY[5].

On April 10th of the current year, after 7 (seven) assistances and re-planning aims for the treatment, the patient was re-evaluated to collect data for the clinical study. A decrease of pain was noticed, increase of the blood flow in the upper right limb (negative Adson test) and pain reduction in maximum abduction.

Based on the pathology, its etiology and symptomatology, the basis of the treatment are mussle fascial liberations associated with the neural mobilization to reduce retraction and adherences. Following a muscle strengthen with extrinsic resistance and elastomers. Probably the procedure used might have reached a stabilization of the problem. Concluding that the suggested physiotherapeutic procedures are grounded[4,5] and the perspectives of the treatment are favorable to the TOS.

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THE THORACIC OUTLET SYNDROME AND A PHYSIOTHERAPY INTERVENTION

Abstract

The thoracic outlet syndrome (TOS) is a generic term to define symptoms and signs of vascular or nervous compression in some area between the neck and the armpit. The clinical aspects can be characterized by vascular or nervous alterations, varying in kind and intensity of pain, with an imprecise location followed by weakness and paresthesia. When a compression of the superior lace of brachial plexus occurs, pain in the lateral area of the neck, head and rhomboids region and suprascapular may appear. With the re-evaluation, the aims of the treatment were to reduce the pain, the nervous compression, regaining the movement amplitude and normality of the strengthened effective muscles of the patient's scapular waist. Thus, subject was used for this research, L.F.C. aged 39, male, with a TOS clinical diagnosis. He was evaluated at Physiotherapy Clinical School of UNIGUAÇU College, located in União da Vitória, State of Paraná, South of Brazil, after medical guiding with conservative treatment indication. The treatment based on manual therapies and muscular strengthen contributed for the reduction of the threshold of pain, favoring the positive prognostic to the physiotherapeutic treatment.

Key words: thoracic outlet, physiotherapy, nervous compression.

SYNDROME DU DÉFILÉ THORACIQUE E FISIOTHÉRAPIE I'INTERVINE

Résumée

Le Syndrome du Défilé Thoracique (SDT) est un therme générique que définit des symptômes e des signes de compression neurologique ou vasculaire dans un point quelconque entre le cou et l'aisselle. Les conditions cliniques sont caracthérissés par des altérations neurologiques et vasculaires manifestés par douleur d'intensité et caracthère variables, ayant localisation imprécise, suivis de faiblesse et paresthésie. Quand'il existe la compression du plexus brachial, il peut avoir douler dans les régions latérales du cou, de la tête, suprascapulaire et des romboïdes. À partir de l'évaluation, le but du traitement a été de réduir le cadre algique, réduir la compression neurologique, rendre normal l'amplitude des mouvements et fortifier la musculature des épaules. Ainsi, on a utilisé dans la recherche un individu du sexe masculin, LFC, 39 ans, avec diagnostique clinique de SDT. Il a été évalué à la Clinique-école de Fisiothérapie de l'UNIGUAÇU Université, après indication médicale pour le traitement conservateur. Le traitement a consisté dans un conditionnement musculaire et a contribué pour la rédution du seuil de douleur, ce qui a favorisé le prognostique positif de l'intervention fisiotherapeutique.

Mots-clé: défilé thoracique, fisiothérapie, compression neurologique.

SÍNDROME DEL DESFILADERO TORÁCICO Y INTERVENCIÓN FISIOTERÁPICA

Resumen

El Síndrome Del Desfiladero Torácico (SDT) es una definición genérica para síntomas y señales de compresión nerviosa o vascular en algún punto entre el cuello y la axila. Los cuadros clínicos pueden ser caracterizados por alteraciones nerviosas y vasculares. Se manifiestan por dolor de intensidad y carácter variables, y pueden tener localización imprecisa, seguida de debilidad y parestesia. Cuando ocurre compresión del cordón superior del plexo braquial, pueden surgir dolor en región lateral del cuello, cabeza, región de los rombóides y supra-escapular. A partir de la reevaluación, los objetivos del tratamiento fueron reducir el cuadro doloroso, disminuir compresión nerviosa, volviendo la amplitud de movimiento a la normalidad y fortalecer músculos actuantes en la cintura escapular del paciente. Así se utilizó para la pesquisa un individuo del sexo masculino, L.F.C, 39 años, con diagnóstico clínico de SDT. Fue evaluado en la Clínica-escuela de Fisioterapia de la UNIGUAÇU Universidad, tras encaminamiento médico con indicación de tratamiento conservador. El tratamiento fundamentado en terapias manuales y fortalecimiento muscular contribuyó para la reducción del umbral doloroso, favoreciendo pronóstico positivo al tratamiento fisioterápico.

Palabras chave: desfiladero torácico, fisioterapia, compresión nerviosa.

SÍNDROME DO DESFILADEIRO TORÁCICO E INTERVENÇÃO FISIOTERAPÊUTICA

Resumo

A Síndrome do Desfiladeiro Torácico (SDT) trata-se de um termo genérico para definir sintomas e sinais de compressão nervosa ou vascular em algum ponto entre pescoço e axila. Os quadros clínicos podem ser caracterizados por alterações nervosas e vasculares. Manifestam-se por dor de intensidade e caráter variáveis, podendo ter localização imprecisa, seguida de fraqueza e parestesia. Quando ocorre compressão do cordão superior do plexo braquial, podem surgir algia em região lateral do pescoço, cabeça, região dos rombóides e supraescapular. A partir da reavaliação, os objetivos do tratamento foram reduzir o quadro álgico, diminuir compressão nervosa, voltando a amplitude de movimento à normalidade e fortalecer músculos atuantes na cintura escapular do paciente. Assim utilizou-se para a pesquisa o individuo L.F.C., 39 anos, sexo masculino, com diagnóstico clinico de SDT. Foi avaliado na Clínica-Escola de Fisioterapia da UNIGUAÇU, após encaminhamento médico com indicação de tratamento conservador. O tratamento baseado em terapias manuais e fortalecimento muscular contribuiu para redução do limiar doloroso, favorecendo prognóstico positivo ao tratamento fisioterapêutico.

Palavras chave: desfiladeiro torácico, fisioterapia, compressão nervosa.