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Case Report

Superficial Branch of the Radial Nerve Compression by a Cyst - Ultrasonographic Diagnosis

Márcio Luís Duarte[1,2,3,4]*, Marco Antonio Alves Braun[5], Lucas Ribeiro dos Santos[6], Maura Harumi Ito[2] and Élcio Roberto Duarte[1,2]

[1]*Radiologist of Clínica Radiológica e Especialidades Médicas São Gabriel, Praia Grande, São Paulo, Brazil*

[2]*Radiologist of Hospital Municipal Irmã Dulce, Praia Grande, São Paulo, Brazil*

[3]*Radiologist of WEBIMAGEM, São Paulo, São Paulo, Brazil*

[4]*Master Degree in Evidence-Based Health by UNIFESP, São Paulo, São Paulo, Brazil*

[5]*Medical Student of Faculdade de Ciências Médicas de Santos, Santos, São Paulo, Brazil*

[6]*Endocrinology Professor of Faculdade de Ciências Médicas de Santos, Santos, São Paulo, Brazil*

***Corresponding Author:** Márcio Luís Duarte, Clínica Radiológica e Especialidades Médicas São Gabriel, R. Mihailo Lukich Michel, Boqueirão, Praia Grande - São Paulo, Brazil.

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Abstract

Radial nerve pathologies include compressive syndromes, entrapment neuropathy, focal intrinsic lesions, and peripheral nerve sheath tumors. Clinically, radial neuropathy presents as wrist drop with or without sensory loss along the posterior surface of arm, forearm, thenar eminence and dorsal aspect of radial three and a half digits, depending upon the site of injury. Ultrasonography is quick, less expensive, has no contraindications and provides detailed imaging of the entire length of the nerve and may represent abnormal changes in the superficial branch of the radial nerve. In patients with neurological symptoms, rapid cyst removal is indicated to restore nerve function and prevent further damage.

Keywords: *Cyst; Ultrasonography; Radial Nerve*

Introduction

The radial nerve originates from the ventral branches of C5-T1 and is located in the posterior fascicle of the brachial plexus, having the axillar artery as its anterior relation [1]. The radial nerve has a long and tortuous trajectory in the upper limb and stays close to the spiral groove, making it susceptible to lesions [1].

The radial nerve pathologies include compressive syndromes, entrapment neuropathy, focal intrinsic lesions and peripheral nerve sheath tumors [1]. Clinically, radial neuropathy is presented as wrist drop with or without sensory loss along the posterior surface of the arm, forearm, thenar eminence and dorsal aspect of radial three and a half digits, depending of the site of the injury [1].

The superficial branch of the radial nerve is cutaneous and articular in its distribution [2]. It continues from the cubital fossa until the inferior point of the trisection of the forearm and turns it deep to the brachioradialis [2]. Generally, it is divided into two branches at this level, which splits through the space between the tendons of the extensor pollicis brevis and the extensor pollicis longus to lie superficial to them [2]. The superficial branch of the radial nerve supplies the radial half of the dorsum of the hand and extends until the dorsum of

the thumb, index finger and middle finger [2]. An injuries to the radial nerve easily occurs due to a trauma, and may happen when setting the fixators to Colles fractures [3].

Etiology and pathogenesis of cysts remain obscure, however, repeated minor traumas seem to be an etiology factor for its development [2]. Cysts are generally linked to the adjacent joint capsule, to the tendon or to the tendon sheath [2]. Cysts represent 50% to 70% of all soft tissue hand tumors, and, dorsal cysts from the wrist answer for 60 - 70% of all cysts of the hand and the wrist [2].

Case Report

Female patient, 38 years-old, refers pain and paresthesia in her right wrist and fourth and fifth fingers. Physical examination presented positive Tinel's sign. Patient denied traumas and past surgeries. Ultrasonography presents a cyst compression of the superficial branch of the radial nerve (Figure 1).

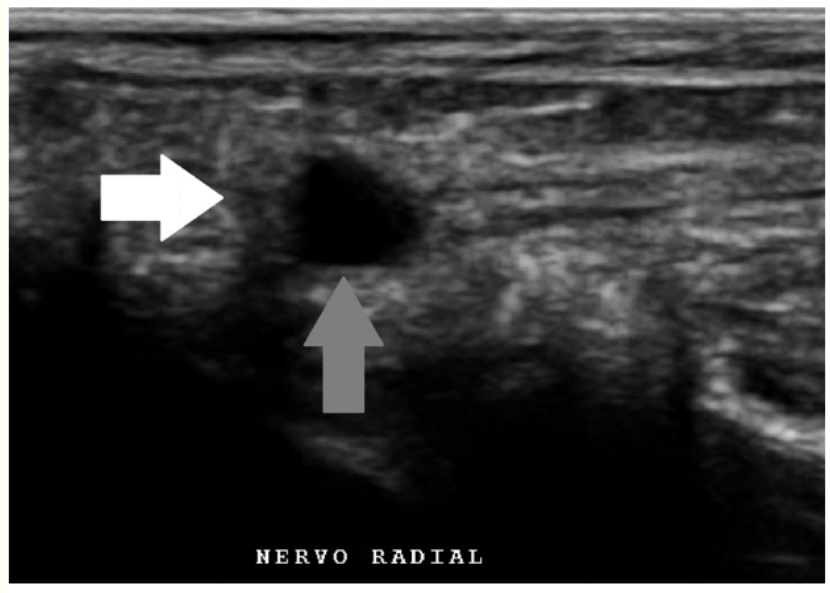

Figure 1: *Coronal section ultrasonography image demonstrate the superficial branch of the radial nerve (white arrow) compressed by the cyst (grey arrow).*

Discussion

Conventionally, neuropathies are diagnosed based on clinical examination, Tinel's sign and electrodiagnostic (nervous conduction speed and electroneuromyography) which supplies with data about the involved nerve and possible place of the injury [1].

Ultrasonography is a fast, cheap and with no contraindication method that also presents detailed images of the complete nerve length [1]. High resolution ultrasonography can represent abnormal changes in the superficial branch of the radial nerve [3]. Magnetic resonance imaging increase soft tissue details, alterations of the muscles innervated by the damaged nerve, and helps to characterize the injury of the nerve [1].

In cases of peripheral nerve injury, recovery prognosis varies according to the lesion severity degree and with the nerve injury type [4]. In patients with neurological symptoms, a quick removal of the cyst is indicated to restore nerve functions and prevent additional damages [2].

Conclusion

We report an unusual case of compression of the superficial branch of the radial nerve by a cyst, diagnosed by ultrasonography, without the necessity of high cost tests, like magnetic resonance imaging.

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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Bibliography

1. Agarwal A., *et al*. "A panorama of radial nerve pathologies- an imaging diagnosis: a step ahead". *Insights Imaging* 9.6 (2018): 1021-1034.

2. Yoshii S., *et al*. "Compression neuropathy of the superficial branch of the radial nerve. Case reports". *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery* 34.1 (2000): 93-95.

3. Choi SJ., *et al*. "Ultrasonography for nerve compression syndromes of the upper extremity". *Ultrasonography* 34.4 (2015): 275-291.

4. Choi SY., *et al*. "Ultrasonographic and Surgical Findings of Acute Radial Neuropathy Following Blunt Trauma". *American Journal of Physical Medicine and Rehabilitation* 95.11 (2016): e177-e182.

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