

A case of ductal-invasive breast carcinoma presenting as first manifestation with right brachial plexopathy

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Introduction: brachial plexus is a network of nerves formed by ventral branches of the spinal nerves C5-T1 in posterior triangle of neck, which provides motor and sensory innervation to the upper extremity. Cancer is second cause of brachial plexopathy after traumatic pathology, mainly represented by invasion of a pulmonary cancer apex. Metastatic invasion is more rare but is often prerogative of breast cancer. In oncological practice, the fundamental distinction is between cancer recurrence and non-malignant conditions such as fibrosis and inflammation, which may occur as a result of previous treatments such as chemotherapy, radiotherapy and surgery. We report a case of ductal-invasive breast carcinoma, presenting as first clinical manifestation with right brachial plexopathy.

Clinical Case: we report a case of a 40 years old woman with medical history showed migraine, undifferentiated connectivity (ANA 1:320) not being treated and hypothyroidism under substitution therapy who presented pain in the right axillary region. A breast ultrasound was performed showed mastitis with omolateral flogistic lymphonodes. Then the patient performed a mammography who confirmed edema excluding neoplastic lesions. Shoulder ultrasound showed adhesive capsulitis with flogistic involvement of the rotator cuff cap with liquid flap in the sub-acromion-sub deltooid bag. Two months later she presented at neurological examination *weakness of right upper arm with hypoesthesia on the dorsal region of the ipsilateral forearm*. She performed an **electrodiagnostic study (EDX)** (Fig. 1) suggestive of a brachial plexopathy (medial and posterior cord). A MRI of cervical spine showed only disc protrusion C5-C6 with prevalence to the left side. Was also performed a **brachial plexus ultrasound (Fig. 2)** showed an increase volume of the C7 root at interscalenic triangle muscle level and its distal branches in supraclavicular region. Slightly increase volume results also of right radial nerve at the level of the humeros spiral groove.

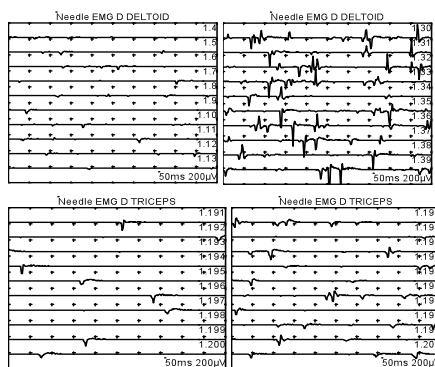


Fig 1: Electrodiagnostic study (EDX) suggestive of a brachial plexopathy (medial and posterior cord)

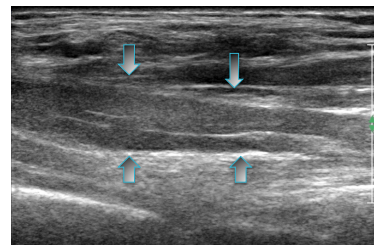


Fig. 2: Brachial Plexus Ultrasound: Long-axis 12-5MHz ultrasound image of the right infraclavicular area demonstrates aspecific fusiform thickening of brachial plexus cords (arrows). The surrounding soft-tissues do not show any relevant abnormality detectable.

MRI of brachial plexus (Fig. 3) showed brachial plexus infiltration. The patient performed a breast MRI showed, on the right side a 4.5 x 3 cm productive lesion almost completely invades the upper outer quadrant with widespread skin thickening characteristic of carcinomatous mastitis. Histologic examination confirmed an **infiltrating ductal carcinoma**. Following oncological evaluation the patient started chemotherapy with Taxol.

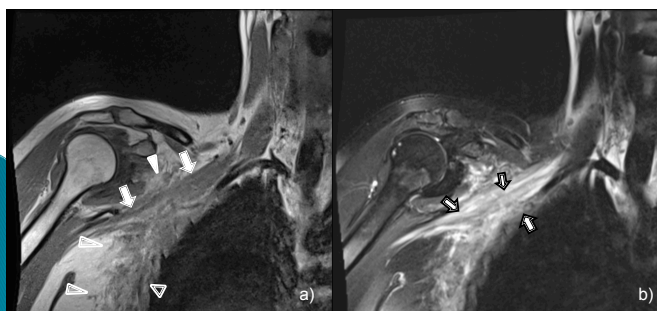


Fig. 3: MRI brachial plexus: Coronal oblique (a) T1-weighted and (b) fat suppressed T2-weighted MR images of the right thoracic outlet reveal extensive tumour infiltration of the breast (void arrowheads) spreading into the soft-tissue of the infraclavicular and retropectoralis minor area along the course of brachial plexus nerves (arrows). The cords appear diffusely swollen and hyperintense on T2w images as a result of intraneural involvement by tumor tissue. Some regional lymphadenopathies (white arrowheads) are also seen.

Conclusion: by our knowledge, in literature, are not described case of brachial plexopathy as first clinical manifestation of breast cancer. Brachial plexus ultrasound and MRI should be mandatory in case of brachial plexopathy in young women in the absence of other causes of plexopathy.