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Neurinomas of the brachial plexus: case report

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Abstract. – Neurinomas, also referred to as neurilemmomas and schwannomas, are rare benign tumours of the peripheral nerves, a low proportion of which arise from the brachial plexus. Authors report a case of an ancient schwannoma arising from the brachial plexus. The tumour, usually asymptomatic, may cause sensory radicular symptoms, or rarely motor deficits in the involved arm. Enucleation of the tumour from the nerve without damage to any of the fascicles is the correct treatment.

Key Words:

Brachial plexus tumours, Ancient schwannoma.

Introduction

Benign tumours of peripheral nerves are schwannomas, also known as neurilemmomas or neurinomas, which originate from the neurilemmal sheath, and neurofibromas, which derive from perineurium and endoneurium[1].

Schwannomas are isolated lesions generally localised in the head, neck, mediastinum, retroperitoneum, pelvis, or limbs[2].

The tumours of the peripheral nerves deriving from the brachial plexus are rare: less than 100 cases have been described in literature[3]. In particular, only 24 of the 480 schwannomas reported in literature up to 1980 originated in the brachial plexus[4]. Recently, Donner et al[5] reported a 5% incidence rate for schwannomas localised in the supraclavicular brachial plexus.

The authors examine a case of schwannoma of the brachial plexus and discuss the problems related to the differential diagnosis and treatment of this pathology.

The case

In January 1996 we examined a 62-year-old female patient, who a few months before had noticed a nut-like mas in her right supraclavicular region, complaining paresthesia of the upper right limb, especially in the ulnar area.

Her medical history did not show any relevant pathology. The physical examination revealed a firm mass (few centimeters in size) in the right supraclavicular region, with smooth surface, clear-cut margins, tense elastic consistency, not painful at palpation, and mobile both superficially and deeply. The chest and cervical column radiographs gave results within the norm. At the echographic exam the lesion appeared to be a $18 \times 18 \times 18$ mm nodular formation, solid but mixed with liquid areas. It was located posterolaterally to the sternocleidomastoid muscle and laterally to the anterior scalene muscle. FNA biopsy showed only few blood cells, so that it was impossible to reach a conclusive diagnosis. The patient underwent surgery. We found a whitish, translucent, encapsulated tumour, originating in the lower branches of the brachial plexus. The lesion was completely enucleated taking care to preserve the nerve trunk. The histologic exam revealed that the tumour had the characteristics of a schwannoma, with central hemorrhagic cysts and phagocytes with blood pigment. The histopathologic diagnosis confirmed a case of ancient schwannoma.

The patient was discharged two days after surgery, and two years later she does not show any relapse or neurological deficit.

Discussion

The lesion examined is a neoplasia of the peripheral nerves. The term neurilemmoma

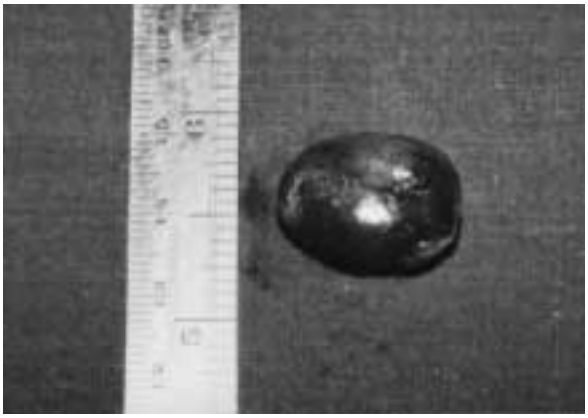

Figure 1. Neurinomas of the brachial plexus.

was first introduced in 1935 by Stout[6]; in 1943, Ehrlich and Martin[7], more appropriately, named it schwannoma. Schwannomas tend to be isolated, but multiple localisations and multiple lesions along a single nerve have also been described[8]; rarely they are associated with von Recklinghausen s disease[2,3,5]. Usually the tumours don t exceed 2.5 cm in diameter, although cases with greater diameters have also been described in literature[9]. Grossly, they are white-greyish in colour and always encapsulated. Microscopically, they are characterised by a clear cellular monomorphism of the neoplastic tissue. The cellular disposition leads to the identification of high and low density areas, named Antoni s type A and type B areas. Occasionally, isolated cells with bizarre hyperchromatic nuclei, perivascular hyalinization, calcification, and cystic degeneration have been observed. This lesion is named ancient schwannoma. Malignant transformation of schwannoma is a very rare event[2].

Peripheral nervous system tumours are generally asymptomatic until they become quite large and determine sensitive and motor deficits associated with algoparesthetic disorders[3,10].

These lesions are so oligosymtomatic that their diagnoses rely mostly on diagnostic methods. Ecography, CT, and NMR allow to ascertain the localisation, the extension, and the anatomical relationships between the tumour and the adjacent structures; but mostly they permit to differentiate these lesions from those arising from soft tissues, which have different attenuation values. Even with the help of these sophisticated imaging techniques, however, some cases cannot be diagnosed with certainty. The case-report examined by Kehoc[10] shows that a preoperative diagnosis was reached with absolute certainty only in 42% of the cases. The diagnostic process can be helped by the FNA, the excisional biopsy with histologic exam, or the immunohistochemical exam with anti-protein S100 antibodies.

The only effective therapy remains surgery. Since most patients do not show any motor deficit, surgery may be required only if the lesion grows, or if the patient feels any sense of pain or uneasiness. Its eccentric position in respect to the nervous fibres, and the presence of the capsule allow the enucleation of the tumour, leaving the other fibres intact in most cases[5].

This case allows us to draw the attention to a disease rarely observed, which is revealed by a palpable lump, often asymptomatic. An accurate physical examination and the use of imaging techniques are crucial to reach the diagnosis. Treatment, if necessary, remains surgical.

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