

## Solitary neurofibroma of the sensory branch of the axillary nerve. Report of a case.

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**ABSTRACT:** Solitary neurofibromas of the upper limb are rare, especially when they are located more proximally than the elbow. A case of a neurofibroma of the upper arm in a 70-year old female patient, arising from a cutaneous branch of the axillary nerve is presented. Problems of accurate pre-operative diagnosis are emphasised, as her main symptom was pain. Treatment consisted of total excision of the tumour without restoration of nerve continuity. Postoperatively, the patient's symptoms subsided; no significant neurological deficit was recorded as well as any local recurrence three years postoperatively.

*Key Words: Benign tumours, Solitary nerve tumours, Neurofibroma.*

### INTRODUCTION

Primary solitary tumours arising from peripheral nerves are rather infrequent in the upper limb<sup>1,5,9</sup>. Accurate pre-operative diagnosis is not always easy, and in many cases excisional biopsy is the only solution<sup>2,3,8</sup>. Solitary benign nerve tumours are classified as neurilemmomas and solitary neurofibromas, the later being far less frequent than the former<sup>1,3,5,9</sup>. Solitary neurofibromas of the upper limb are rarely encountered more proximally than the elbow<sup>3,5,9</sup>.

A case of a painful solitary neurofibroma regarding the sensory branch of the axillary nerve, successfully managed by surgical excision, is presented in this paper.

### CASE REPORT

A 70 year old, female patient presented with an 8-month history of a rather diffuse pain in the anterolateral aspect of the middle third of the left upper arm, radiating to the left shoulder. She had been treated elsewhere for anterior shoulder pain, with a course of anti-inflammatory drugs and local steroid injections that gave her no relief.

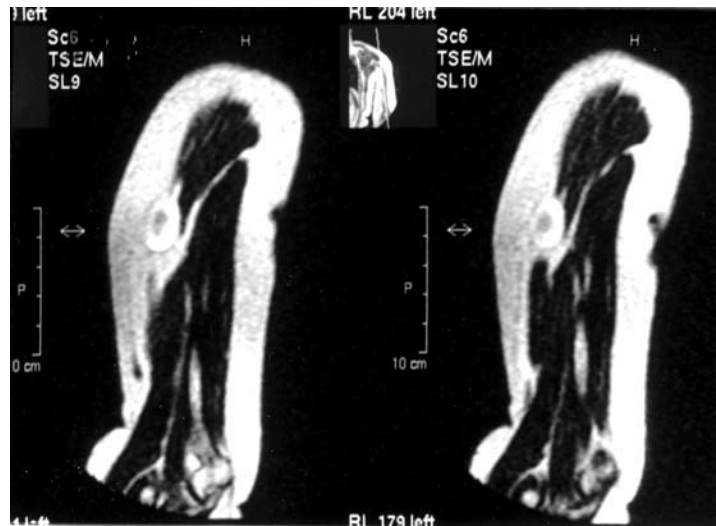
On palpation a firm and very tender mass could be felt in the soft tissues of the anterolateral aspect of the middle third of the left upper arm. The mass could be moved sideways and was not attached to the overlying skin or the underlying tissues. No neurological deficit was recorded on clinical examination and no palpable axillary glands were found.

A well-defined, oval in shape soft tissue mass was obvious on plain X-rays (Figure 1). Further investigation with an M.R.I scan revealed a solid, well defined, 2,5 by 4 cm mass lying in the subcutaneous fat anterolaterally and proximal to the insertion of the deltoid muscle, but the nature of the tumour could not be clarified (Figure 2). Excisional biopsy was therefore decided.

Under general anesthesia, an 8 cm anterolateral incision was performed over the tumour. A well-defined but not encapsulated fusiform mass arising from a cutaneous branch of the axillary nerve was found in the deep layers of the subcutaneous tissues. The mass was firmly attached to the nerve branch, infiltrating it in such a way that separation was impossible, although surgical loops were used. The affected



**Figure 1.** Oval-shaped soft tissue mass as seen on plain X-rays.



**Figure 2.** M.R.I scan picture revealing a solid, well-defined, 2,5 by 4cm mass lying in the subcutaneous fat of the anterolateral aspect of the patient's upper arm.

branch being sensory, decision was made to sacrifice it in order to achieve complete resection of the tumour (Figure 3 a,b,c).

Macroscopically, the tumour's cut surface was characteristically yellow-grey. Histology showed irregularly arranged spindle cells in a myxoid stroma, a picture typical of neurofibroma (Figure 4 a,b). As careful examination of the patient revealed no other signs of Von-Recklinghausen's disease, the tumour was proven to be a solitary neurofibroma.

The pain subsided almost immediately and the patient's postoperative course was uncomplicated. Careful examination revealed only a small patch of hypoaesthesia in the anterolateral aspect of the middle third of her arm, and there was no sign of local recurrence three years postoperatively.

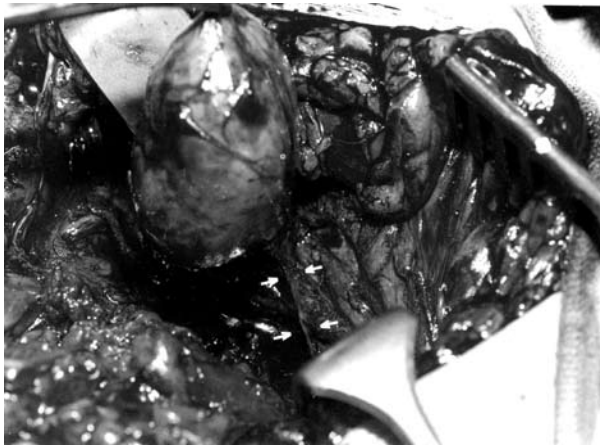
### DISCUSSION

Isolated, benign peripheral nerve tumours are divided into neurilemmomas, which arise from Schwann cells, and solitary neurofibromas, which originate from the connective tissue of the endoneurium<sup>1,3,5,9,10</sup>.

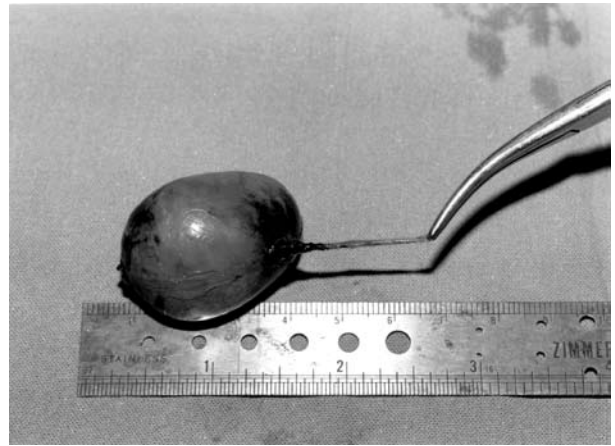
Kehoe et al<sup>5</sup>, Holdsworth<sup>3</sup> and Rinaldi<sup>9</sup> agree that a palpable mass is usually the only presenting symptom of those tumours, while pain or paraesthesia is rarely recorded. These tumours are rarely encountered in children and patients over 65 years of age<sup>3-5,9</sup>. In our case, the patient with the neurofibroma was 70 years old, had no neurological deficit and pain was her main complaint.

Benign solitary nerve tumours and especially solitary neurofibromas are rarely located in the upper limb, and when this happens they are usually found in the palm, wrist or forearm<sup>1,3-5,7-9</sup>. To our knowledge, only one case of solitary neurofibroma located in the upper arm has been reported in the available English literature<sup>5</sup>. Another case of a bizarre cutaneous neurofibroma of the upper arm was reported by King and Barr<sup>6</sup>, but the authors considered it a rare histological variant of solitary neurofibroma located in the dermis.

A specific preoperative diagnosis is very difficult to make<sup>3,5,9</sup>, especially when the tumour is located in a rather unusual site, as was the case with our patient.



a

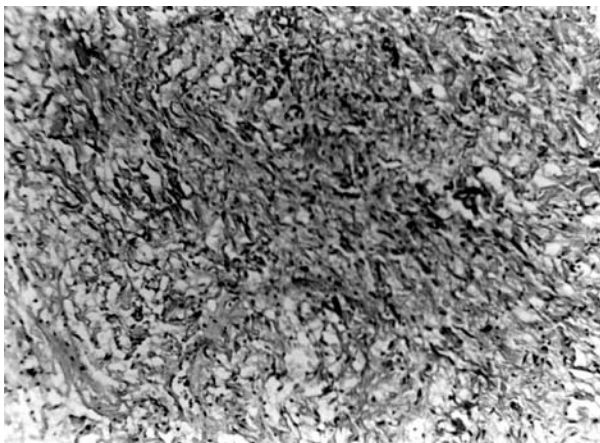


b

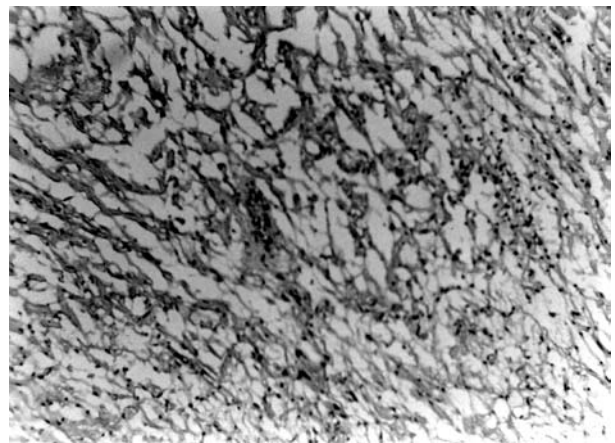


c

**Figure 3.** a. Intraoperative picture of the tumour. (Arrows showing the cutaneous branch of the axillary nerve). b. Tumour after excision. c. Tumour cut in the middle.



a



b

**Figure 4.** a,b Histology: irregularly arranged spindle cells in a myxoid stroma- Picture typical of a neurofibroma. a. Hematoxylin and eosin staining x 150. b. Hematoxylin and eosin staining x 350.

Histological findings are characteristic and confirm the diagnosis in most cases.

If the nerve affected is a major sensory or motor branch, then every attempt should be made to preserve it or to restore nerve continuity either by direct end-to-end approximation or with the use of a nerve graft<sup>1,3,9</sup>. In-toto excision of the tumour without restoring nerve continuity is an acceptable option, if the affected nerve is a small sensory branch which does

not cause significant neurological deficit, as happened with our patient<sup>5,8,9</sup>.

We report this case because solitary neurofibromas are very rarely located in the upper arm and in patients over 65 years of age. The possibility of the existence of this benign tumour in the upper arm should be borne in mind if the diagnosis is not to be missed.

### Μονήρες νευρίνωμα του βραχίονα. Αναφορά περιπτώσης.

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**ΠΕΡΙΛΗΨΗ:** Οι μονήρεις καλοήθεις όγκοι των περιφερικών νεύρων είναι αρκετά σπάνιοι στο άνω άκρο. Η ακριβής προεγχειρητική διάγνωση δεν είναι πάντοτε ευχερής, και σε πολλές περιπτώσεις η εκτομή-βιοψία είναι η μόνη λύση. Οι μονήρεις καλοήθεις όγκοι των περιφερικών νεύρων ταξινομούνται ως νευριλείμωμα (σβάννωμα), και μονήρες νευρίνωμα, εκτός βέβαια από την μετατραυματική υπερπλασία (μετατραυματικό νεύρωμα). Το μονήρες νευρίνωμα είναι αρκετά σπανιότερο από το νευριλείμωμα, ενώ τα μονήρη νευρινώματα του άνω άκρου σπάνια συναντώνται κεντρικότερα του αγκώνα.

Παρουσιάζουμε περίπτωση επώδυνου μονήρους νευρινώματος της προσθιοπλάγιας μοίρας του μέσου τριτημορίου του βραχίονα, το οποίο αντιμετωπίστηκε επιτυχώς με χειρουργική εκτομή.

*Λέξεις Κλειδιά:* Καλοήθεις όγκοι, Μονήρεις όγκοι νεύρων, Νευρίνωμα.

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