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Case Report

Extra nuchal-type fibroma associated with repetitive blunt trauma during religious activities

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ABSTRACT

Nuchal-type fibroma (NTF) is a rare, benign subcutaneous tumor that usually arises from the posterior neck. NTF is histologically characterised by dense collagen bundles and sparse fibroblasts. Only four trauma-related cases have been previously published. Herein, we present a case of extra NTF with histopathology, and six palanquin porters by using snowball sampling technique in ethnographic field research. A palanquin is a type of human-powered transport carried upon the shoulders mostly seen in religious processions. All individuals (mean age, 26.8 years) displayed similar shoulder masses measuring up to 12 cm in the greatest dimensions. They averaged approximately 8.1 years of palanquin-carrying work each. We believe that long-term, heavy shoulder weight bearing of palanquins in religious dance performances may attribute to the incidence of extra NTF. This study reviews all literature of trauma-associated NTF through PubMed database, and highlights the association between repetitive blunt trauma and the development of NTF.

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Introduction

NTF represents a rare, fibrocollagenous tumor that typically originates from the cervicodorsal region [1]. Extra NTF occurs at extra-nuchal locations. The goal of the study is to investigate the prevalence of extra

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NTF caused by repetitive blunt trauma during religious shoulder-bearing activities. Between February 19, 2015 and March 5, 2015, research participants were recruited from a Taoist temple procession in Kaohsiung City, Taiwan. As observer-as-participants, we used the snowball sampling technique to identify potential respondents with history of participation in the palanquin-carrying ritual linked with our previously pathologically confirmed case of extra NTF. Also, we used PubMed database to retrieve all literature of trauma-associated NTFs in comparison with our present cases.

Case report

A 24-year-old male presented to our plastic surgery department with a firm, painless mass over his right shoulder without restriction of movement. The lesion had gradually increased in size over time. He asked for surgical removal of the mass due to aesthetic concern. The patient had been a religious palanquin porter for more than eight years (Fig. 1). He denied any other local or systemic pathology. Physical examination revealed an erythematous, ellipsoid, solid, and immobile lesion 9×7 cm in size.

Harboring the suspicion that repetitive blunt trauma might associate with the lesion, we implemented the snowball sampling strategy in ethnographic study, and subsequently identified additional six palanquin porters with similar shoulder masses. The lesions were observed over the palanquin shaft's friction areas (Fig. 2). Axial T1- and T2-weighted MRI examinations revealed a low-signal-intensity subcutaneous mass overlying the right posterolateral side of the trapezius muscle. There was no evidence of bone invasion (Fig. 3).

A complete excision of the tumor was performed under general anesthesia. At the section level, the tumor was found to involve the dermal layer with a whitish, fibrotic tissue attached to the surface. The tumor's gross appearance was reddish-tan in color, firm, homogenous, non-encapsulated, and poorly circumscribed. Microscopic examination revealed a poorly demarcated lesion composed of thick collagen bundles, and interspersed adipose tissue with variable-sized adipocytes. Entrapped traumatic neuromas were observed. The sclerosing lesion was paucicellular, and contained CD34-positive, β -catenin-negative fibroblasts infiltrating subcutis. The adipocytic immunostaining result of CDK4 was negative. The pathological findings of the subcutaneous mass were consistent with the diagnosis of NTF (Fig. 4). At six-month follow-up, the patient still maintained normal range of motion of the right shoulder without local recurrence. The patient had also discontinued participation in the palanquin-carrying ritual.



Fig. 1. Photograph showing eight devotees holding deity statue on palanquin that weighs approximately 180 kg in religious dance routines during a Taoist festival.

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