

Review Article

Nodular fasciitis of hand: a handy review

Praveen G. P.*, Amal Abraham, Krishna Prasad K., Ravikiran H. R., Shashirekha C. A.

Department of Surgery, SDUMC, Tamaka, Kolar, Karnataka, India

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***Correspondence:**

Dr. Praveen G. P.,

E-mail: praveengp87@gmail.com

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ABSTRACT

Nodular fasciitis of hand is a rare entity described in the literature with very less number of cases posing a dilemma in understanding the nature of the lesion. Nodular swelling in the hand with a short duration with rapid increase in the size is tempting to confirm it as malignancy. Sonological and fine needle aspiration cytology plays a role in defining this benign lesion due to proliferation of fibroblasts. Excision is the treatment of choice with no adjunctive therapy required. Recurrence has been found to be very low.

Keywords: Nodular fasciitis, Excision, Fibroblast

INTRODUCTION

Nodular fasciitis is a self-limiting benign disease occurring mostly in the adulthood.¹ Curiosity arises as it presents as a swelling with rapid progression in growth pointing towards soft tissue malignancy. Nodular fasciitis in hand is very rare posing diagnostic and management dilemmas. Here is an effort made to simplify the management strategies of nodular fasciitis of hand reviewing the literature and the case reports.

CLINICAL PRESENTATION

Nodular fasciitis is a benign proliferation of fibroblasts with unknown etiology but the history of trauma has been documented in few cases. It has no gender predilection and usually affects 20-40 years aged adults.² None of the risk factors have been researched neither related to ethnicity nor the environmental factors.

Nodular fasciitis in hand presents as a solitary swelling commonly over the volar aspect of fingers especially at MCP (metacarpophalangeal joint) and over the palm. A firm mildly tender immobile swelling with no signs of inflammation of short history of 1-2 months with rapid

progression in size is the usual presentation. In few cases, restriction of joint movement and also local paresthesia has been noted. There is a case reporting the rupture of the swelling at presentation. Generally there is no regional lymphadenopathy found in any of the cases.

MANAGEMENT

Modalities in the Investigation panel to pin point the lesion, though are many in number, there is no specific choice which accurately comes to a diagnosis.

Radiological investigations beginning with the non-invasive ultrasound examination can show one or more well-defined isoechoic to hypoechoic nodules with mildly increased vascular flow in the deep portion of the subcutaneous fat layer, either in fascia or adjacent to it. MRI shows isointense on T1-weighted images and heterogeneously hypo intense or hyper intense on T2-weighted images.³

CT of the hand too reveals the same with uncertainty amounting to none of the non-invasive investigations clearly diagnosing nodular fasciitis rather soft tissue tumour.

On cytological aspirate taken from the lesion, there is no clear description about the histologic features of nodular fasciitis occurring in hand. Still, FNAC is considered arriving at the diagnosis as it has potentially ruled out sarcoma in few cases.^{4,5} Excisional biopsy is both diagnostic and therapeutic option which can solve the dilemma of benign and malignancy.⁶ There is no requirement of resection of extra margin as it is routinely done in soft tissue sarcoma.

DISCUSSION

Nodular fasciitis is a benign reactive lesion first reported by Konwaler and Weiss in 1955 as a subcutaneous pseudosarcomatous fibromatosis as it presented with rapid growth and histologic features.¹ Earlier to it, it was mistaken for the malignant neoplasm. It affects every part of the body with most common sites being upper extremity (48%), besides the trunk (20%), followed by head and neck (17%), and lower extremity (15%).² Its occurrences is rare in hands and feet, and very rare in fingers.¹⁵ Occurrence has been found in all the age groups but most commonly occurs in the 20-40 year adults with no racial or gender predominance.¹⁷ In less than 15% of cases, patients older than 50 years have been affected.⁷

Nodular fasciitis often presents as a rapidly growing swelling of one month or less in duration, which leads to it being mistaken for a malignant neoplasm. For this reason, a diagnosis must be aggressively and carefully sought. Nodular fasciitis is usually found as a small (<2 cm) nodular lesion, with less than 50% of cases complaining pain and mild tenderness noted. The lesion most commonly presents in the upper extremity, with a predilection for the volar aspect of the forearm. Lesions in the hand are extremely rare.⁷

Though thorough history and clinical examination do not suggest nodular fasciitis further workup with the investigations is a must. Noninvasive modalities being MRI must be sought of which clearly delineates the soft tissue mass from the surrounding anatomical structure with or without the involvement. CT scan has got limited use diagnosing this entity.

Histological evidence proves the lesion which is composed of plump but regular spindle-shaped fibroblasts or myofibroblasts lacking nuclear hyperchromasia and pleomorphism and high cellularity. Atypical mitoses are not seen though mitotic figures are found. Five important histologic features of nodular fasciitis aid in diagnosis, including spindle-shaped fibroblasts, clefts separating the fibroblasts, extravasated erythrocytes, interstitial mucoid material, and a loosely textured 'feathery' pattern of the mucopolysaccharide ground substance.⁸ Immunostains like vimentin and alpha-SMA are usually positive, but desmin, cytokeratin and S-100 are typically negative in nodular fasciitis.³

Although it is considered a benign lesion, there has been considerable controversy regarding the origins of nodular fasciitis. Many studies have been taken place to see whether it is polyclonal or monoclonal in origin.⁹ Recent cytogenetic studies have demonstrated clonal chromosomal aberrations in some cases of nodular fasciitis.^{10,11} However, Koizumi et al performed clonality analyses in 24 female patients with nodular fasciitis and showed a polyclonal population by a HUMARA-methylation-specific polymerase chain reaction. Therefore, most cases of nodular fasciitis represent a reactive process composed of proliferating fibroblasts and myofibroblasts.¹²

CONCLUSION

A non-tender small swelling on hand in an adult should always arise suspicion of nodular fasciitis after ruling out potential clinical diagnosis like neurofibroma, dermatofibroma according to clinical examination.¹⁶ Excision is the mainstay of treatment and helps in ruling out malignancy with evidence. These lesions do not metastasize and recurrence after excision is rare. Reconsideration of primary diagnosis always warrants in case of recurrence.

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