Nodular Fasciitis of the Finger and Hand: Case Report

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Nodular fasciitis rarely arises in the hand. We describe 4 cases that were histologically diagnosed as nodular fasciitis on biopsy specimens arising in the hands. The masses of 2 patients were excised due to rapid growth. Both of these patients had no recurrence. The other 2 patients were followed without surgical excision, and the masses partially regressed without functional impairment. (J Hand Surg 2010;35A:1184–1186. © 2010 Published by Elsevier Inc. on behalf of the American Society for Surgery of the Hand.)

Key words Fingers, hand, nodular fasciitis.

NODULAR FASCIITIS is a self-limiting reactive process composed of fibroblasts. It typically manifests as a rapidly growing, solitary, subcutaneous soft tissue mass. Although one half of cases of nodular fasciitis arise in the upper extremities, its presence in the hand and finger is rare, with 14 cases reported in the English literature.1–11 Contrary to the previous reports that included biopsy, our treatment for nodular fasciitis is by observation initially because of the occasionally self-limited process of this disease. We describe 4 cases of nodular fasciitis arising in the hand and the finger. All 4 cases were observed initially without surgery. In 2 cases, the masses partially regressed and did not require excision. In the other 2 cases, the masses showed rapid growth and were surgically removed with a limited margin.

CASE REPORT

Case 1
A 57-year-old man had a 1-month history of a mass on the volar side of the interphalangeal (IP) joint of his right thumb. He complained of thumb pain but reported no history of infection or prior trauma. Physical examination of the thumb at the first visit revealed a 2 × 1 cm elastic hard and immobile mass, with slight tenderness on the volar aspect of the IP joint of his right thumb. Range of motion (ROM) of the thumb metacarpophalangeal (MCP) joint was equal to that of the contralateral, normal side. However, the IP joint had limited motion (0–40° versus 0–70° over the contralateral side). There is no locking or triggering of the involved thumb. Magnetic resonance imaging demonstrated an ill-defined mass surrounding the flexor tendon at the IP joint of his right thumb.

A diagnostic, incisional biopsy was performed, and the findings were consistent with a diagnosis of a nodular fasciitis. The mass shrank, and the motion of the IP joint was improved 3 months after the incisional biopsy. After one year of observation without additional surgical treatment, the mass did not completely resolve, but it shrank to 0.5 × 0.5 cm in size, and the patient had no disturbance of daily activities.

Case 2
A 30-year-old woman presented with an enlarging mass on the volar aspect of her right thumb in the region of the MCP joint. She noticed small, painless swelling in her right thumb approximately 40 days before presentation. She denied any history of trauma or infection. A diagnostic needle biopsy was performed, and it suggested the possibility of a nodular fasciitis or spindle cell sarcoma. Physical examination of the thumb revealed a 2 × 2 cm elastic hard, non-tender, and immobile mass on the volar aspect of the MCP joint of her right thumb. Magnetic resonance imaging (MRI) dem-
demonstrated a well-defined mass on the flexor pollicis longus at the MCP joint of her right thumb (Fig. 1). Re-examination of histology slide confirmed the diagnosis of nodular fasciitis. The mass shrank to 1.5 × 1.0 cm at 3 months after the needle biopsy. During 12 months of observation without additional surgical treatment, she had no disturbance of her daily activities.

**Case 3**

A 30-year-old woman presented with an enlarging mass in the hypothenar aspect of her right hand. The patient had observed a small mass in her palm approximately 2 months before. Physical examination revealed a 2.5 × 2.0 cm elastic hard and immobile mass with slight tenderness on the hypothenar aspect of the right hand.

An incisional biopsy revealed a pathological diagnosis of nodular fasciitis. During the 2 months of observation, the mass enlarged rapidly to 4 × 3 cm. An excisional biopsy was performed. The hand healed uneventfully, and the patient had no recurrence at 12-month follow-up.

**Case 4**

A 39-year-old woman presented to our institution with a 3-month history of an enlarging mass on the radial aspect of her left index finger. Physical examination revealed a 1.5 × 1.5 cm soft and immobile mass with tenderness on the radial aspect of her index finger. An incisional biopsy showed nodular fasciitis. During one month of observation, the mass enlarged rapidly, and excision of the tumor was performed. Permanent histology examination confirmed the diagnosis of nodular fasciitis. The patient had no recurrence at the 6-month follow-up.

**DISCUSSION**

Nodular fasciitis was first described in 1955 by Konwaler et al. as *subcutaneous pseudosarcomatous fibromatosis*. Subsequent reports confirmed the benign nature of this proliferation, and this disease was renamed as *pseudosarcomatous fasciitis*, which was later changed to *nodular fasciitis*. Although nodular fasciitis is clearly a benign process, the precise cause of this proliferative lesion is unknown. The pathogenesis might involve a local reactive or inflammatory process of fibrous connective tissue. The tumor grows rapidly, and patients are usually seen with a history of a mass for one to 2 weeks. The time from first detection to surgical excision is commonly less than 2 months. It most commonly occurs in the forearm (27–29%), followed by the back and chest wall (15–18%) and the upper arm (12%).

Even in large series, nodular fasciitis of hands and fingers is rare. Fourteen cases have been reported previously. The location of the masses reported was the palm in 11 and the finger in 3. The previous reported cases were all treated surgically, whereas 2 of 4 cases in this report were not completely excised. Previous reports described that some cases of nodular fasciitis spontaneously regress. One study reported 11 cases in which nonsurgical observation led spontaneously to complete resolution; the locations include 4 lesions located in the arm, 3 in the thigh, 2 in the temporal area, 1 in the breast, and 1 in the parotid. Another study reported that, among 46 cases with nodular fasciitis, 31 cases (67%) arose in the upper extremity and 88% of the cases showed spontaneous resolution. However, no cases have been described with finger or hand involvement. Nodular fasciitis is often mistaken for sarcoma because of its rapid growth, rich cellularity, and high mitotic activity, which resemble malignant fibrous histiocytoma or fibrosarcoma. According to our treatment modality for soft tissue tumors, incisional biopsy was performed instead of excisional biopsy in all cases. The 4 cases in this report received an accurate histological diagnosis of nodular fasciitis made by experienced pathologists in our institution. After careful confirmation of the histological diagnosis, we observed these 4 cases without surgery initially.

Imaging and histological characteristics of nodular fasciitis that can predict the growth pattern have seldom...
been reported. A relationship has been described between the histologic components and the age of the lesion.\textsuperscript{18} Myxoid appearance predominates in younger lesions, whereas older lesions have a more fibrous composition. Wang et al. described that the areas of high signal intensity in the center of the lesion on T2-weighted images probably reflect a myxoid or extracellular matrix with abundant, proliferating fibroblasts and myofibroblasts.\textsuperscript{19}

The reason is not still clear why some nodular fasciitis spontaneously regress and others do not. Because gene expression profiles of nodular fasciitis lesions reveal up-regulation of genes encoding inflammatory cytokines and chemokines in comparison with other types of fibroblastic entities,\textsuperscript{20} we could speculate that these lesions are ready to regress spontaneously without inflammatory stimulation. There is a case report that supports the inflammatory condition of nodular fasciitis. In the case report, biopsy-proven nodular fasciitis resolved completely after intralesional injection of corticosteroid, suggesting an inflammatory etiology.\textsuperscript{21} After histological confirmation of nodular fasciitis by biopsy, observation may be a reasonable option for the cases arising in the finger or the hand.

REFERENCES