Nodular fasciitis is a benign, tumor-like lesion composed of fibroblasts or myofibroblasts. However, because of its rapid growth and bony erosion, it often mimics malignancy. Most cases of nodular fasciitis are diagnosed in adults aged 20-40 years, whereas these lesions are rarely seen during the first 4-5 years of life (1, 2).

We present the case of a 5-month-old infant with nodular fasciitis on the right nasolabial fold, the youngest patient in the literature. The serial ultrasonographic findings, computed tomographic (CT) appearance with bone window setting, and magnetic resonance images (MRI) were correlated with histopathologic findings.

Case Report

A 5-month-old boy who had a palpable mass on the right nasolabial fold for one month was admitted to our institution. The mass was incidentally found by his mother, and there was no history of trauma to the site. He subsequently visited a private clinic and was treated with antibiotics for two weeks. Because the mass did not reduce in size, he was transferred to our institution.

The palpable mass was 2×2 cm in size, hard, fixed and non-tender. The color of the overlying skin was not unusual and inflammatory changes, such as redness or hotness, were not observed. The patient looked healthy, and all laboratory findings were within normal ranges.

Ultrasonography had been performed at the private clinic twice within a 19-day period (Fig. 1). On both examinations, the mass was irregularly shaped with partially ill-defined margins and was hypoechoic with central hyperechogenicity. A Doppler study did not detect any sign of vascularity within the mass. The lateral end of the mass had a beaked appearance and seemed to be connected to the superficial fascia under the subcutaneous layer. After the 19-day interval, the diameter of the mass had increased from 1.37 cm to 1.69 cm. In our institute, the patient underwent CT (Somatom plus 4, Siemens, Germany) and MRI (Magnetom vision plus, Siemens, Germany) in axial, coronal, and sagittal planes.
On MRI, the mass was a 1.5-cm lobular mass located in the subcutaneous layer of the right nasolabial fold. It was isointense with skeletal muscle on T1-weighted images (TR 420.00 / TE 12.00 / slice thickness 3 mm / Mat 1024×215 / FoV 86×115) and heterogeneously hyperintense on T2-weighted images (TR 3700.00 / TE 99.00 / slice thickness 3 mm / Mat 1024×198 / FoV 86×115). Contrast enhancement studies were not obtained. Similar to ultrasonographic findings, the lateral end of the mass had a beaked appearance and was connected to hypointense superficial fascia. On non-enhanced CT, the mass had an attenuation of 40 Hounsfield units, and cortical erosion was not detected in the bone window setting (Fig. 3).

We presumed the lesion to be a benign soft tissue mass like nodular fasciitis, hemangioma, or myofibromatosis; the possibility of a sarcoma was also considered.

The patient underwent excisional biopsy via sublabial incision under general anesthesia, and the final diagno-

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**Fig. 1.** A. Initial ultrasonography detected a mass with an irregular shape and partially ill-defined margins; it was a hypoechoic mass with central hyperechogenicity.
B. Follow-up ultrasonography after 19 days showed that the anterior-posterior diameter of the mass had increased.

**Fig. 2.** MR images in axial (A, B) and coronal (C, D) planes. The mass (arrow) was isointense with skeletal muscle on T1-weighted images (A, C), and heterogeneously hyperintense on T2-weighted images (B, D).
sis was nodular fasciitis.

Histologically, the lesion varied in cellularity; hypercellular areas of spindle cells were admixed with less cellular hyalinized zones (Fig. 4). Microhemorrhaging between bundles of fibroblasts was also observed. Immunohistochemically, the fibroblasts were strongly positive for vimentin and smooth muscle actin, indicating that they were myofibroblasts.

Discussion

Nodular fasciitis is the preferred designation for the condition originally designated subcutaneous pseudosarcomatous fibromatosis (3). The most common locations are the upper extremities, trunk and neck, but these masses have been described almost everywhere. Nodular fasciitis of the head and neck has incidence rates of up to 10-20% (4). In infants and children aged 0-5 years, nodular fasciitis is the most common benign soft tissue tumor in the head and neck with a 20% incidence, followed by hemangioma (18%) and myofibromatosis (11%) (5). In our review of the literature, our patient is the youngest infant diagnosed with nodular fasciitis, with the exception of a boy diagnosed a few weeks after birth with cranial fasciitis that closely resembled nodular fasciitis as reported by Pasquier et al. (6)

Although nodular fasciitis is a benign condition, it usually mimics malignancy clinically because of its rapid growth and bony erosion. Two important clinical features of nodular fasciitis are its history of rapid growth (usually a few weeks) and its small size (4). In our patient, we obtained the increase in the diameter of the mass by serial ultrasonography: an increase of 0.32 cm over 19 days. In fact, radiologically, it is often difficult to diagnose or differentiate nodular fasciitis from other benign soft tissue tumors, or even malignancies, but it should be suggested in conjunction with sarcomas.

There are two methods for classifying nodular fasciitis. One is based on the anatomic location: intermuscular, intramuscular or subcutaneous type. The subcutaneous type is more common than the other types, and our case was also subcutaneous. The second classification is based on the predominant histologic composition: myxoid, cellular or fibrous. Because different histologic components usually coexist in the same lesion, classification based on the histologic component is rather insignificant clinically. The histopathologic evaluation of our patient revealed mixed cellular and fibrous components. Interestingly, Price et al. (7) described the relationship between the histologic components and the age of the lesion. The myxoid appearance predominated in younger lesions, whereas older lesions exhibited more fibrous composition. This suggests that an age-related histologic transition occurs from myxoid to cellular and then to the fibrous subtype.

According to a report by Wang et al. (8), the cellular subtype was slightly hyperintense compared to muscle on T1-weighted images and inhomogeneously hyperintense on T2-weighted images. Therefore, the hyperintensity on T2-weighted images in our case is caused by
the cellular component. The iso-signal intensity on T1-weighted images may be caused by the mixed fibrous component. If we had obtained contrast-enhanced scans, the mass should have been diffusely enhanced, according to the literature (9, 10).

On all image modalities, including US, CT, and MR, the lateral end of the mass in our case was pointed and seemed to be connected to the superficial fascia. We originally thought of this as adjacent fascial thickening as described in Shin’s report (10), but pathologic inspection identified this as an infiltration of the tumor itself (Fig. 4).

In summary, we report the case of a 5-month-old infant with nodular fasciitis on the right nasolabial fold. This case was a subcutaneous type based on the anatomic location and had mixed cellular and fibrous histologic components, which is rare in infancy. The fascial thickening observed on imaging modalities was histologically confirmed as tumoral infiltration. Because of the difficulty in clinically and radiologically differentiating these lesions from malignancies, complete local excision with close post-operative follow-up is the preferred treatment for nodular fasciitis.

References


