Juvenile hyaline fibromatosis in siblings

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ABSTRACT

Juvenile hyaline fibromatosis (JHF) is a rare, autosomal recessively inherited disorder. We report two siblings with multiple large tumors on the scalp, translucent papules on the nape of the neck, hypertrophic gingiva, and severe flexural contractures of large joints. The histopathology from the skin lesions showed features characteristic of juvenile hyaline fibromatosis. The cases are being reported on account of the extreme rarity of the condition.

Key Words: Juvenile hyaline fibromatosis, Chondroid appearance, Autosomal recessive

INTRODUCTION

Juvenile hyaline fibromatosis (JHF) is a rare, autosomal recessive hereditary disease with distinct clinical and histopathological features. It usually affects one or more siblings, initially presenting in children at 2-5 years of age. It is characterized by papular and nodular skin lesions, gingival hyperplasia, joint contractures and bone involvement in variable degrees. A scan of world literature revealed that less than 70 cases have been reported so far. We report two siblings, born of a first-degree consanguineous marriage, presenting with JHF. Both showed characteristic clinical and histopathological features of JHF. The elder sister had a severe crippling form of the disease as compared to her younger brother.

CASE REPORT

Case 1
A 10-year-old female child, born full term of a first degree consanguineous marriage presented with painless stiffness and contractures at large joints involving the knee, ankle and elbow since the age of 6 months. The flexion deformity of joints had progressed rapidly making the child almost crippled and bedridden by the age of 5 years. Multiple translucent, asymptomatic, flat papules, 2-5 mm in size present on the nape of the neck and alae nasi, had appeared since 2 years of age. She also developed asymptomatic, progressively enlarging subcutaneous nodules and tumor masses (Figure 1) varying in size from 2 x 2 cm² to 10 x 10 cm² on the scalp, face, back and extensor aspect of the limbs. Nodules were prominent on the pinna causing its deformity (Figure 2). The consistency of the nodules varied from soft to hard. Some of the nodules showed ulceration (Figure 3). Progressive gingival hyperplasia developed at the age of 3 years. Craniofacial dysmorphia characterized by parietal humps and short nose (Figure 2) was evident. Her physical growth was severely stunted. Her mental growth was normal.
Investigations revealed low Hb (8.5 gm%). Serum VDRL was negative. Serum biochemistry, urine and stools examination, ECG and chest X-ray were normal. X-ray of the skull showed large soft-tissue shadows. X-ray of the knee joints showed calcification in the subcutaneous plane and in the quadriceps femoris tendon (Figure 4). No evidence of osteolysis was detected.

**Case 2**

The patient was the younger brother of Case 1, aged 3 years. He presented with asymptomatic, subcutaneous nodular masses on the scalp and back (Figure 5). He also developed translucent, flat papules since 9 months of age. Nodular gum hyperplasia appeared since 2 years of age (Figure 6). There were no joint contractures. Joint movements at all the joints were normal. The physical and mental growth of the patient was normal.
Serum VDRL was negative. Other investigations including hemogram, serum biochemistry, urine and stools examination, ECG, and chest X-ray were normal. Skeletal roentgenograms were normal.

Both the patients had no history of seizures. Speech, hearing and vision were normal. There were no café-au-lait spots or axillary freckles. Systemic examination was normal.

Histological examination of the nodular lesions and translucent papules from both the patients revealed almost similar findings. Dermis revealed PAS +ve, diastase-resistant, amorphous hyaline matrix with fibroblasts-like tumor cells embedded in it (Figure 7). Some of these cells particularly in the nodular masses were oval to polygonal in shape with prominent retraction artefact giving them a “chondroid appearance” (Figure 8).

**DISCUSSION**

The hyaline fibromatosis syndromes have an important place among the genetic fibromatosis group of
unknown etiology. Juvenile hyaline fibromatosis is a rare mesenchymal dysplasia.\[3\] It is a crippling autosomal recessive disorder, first described by Murray as “molluscum fibrosum” and renamed by Kitano as JHF.\[6\] A total of 68 cases have been reported so far.\[4\]

The disease presents with typical clinical and histopathological features. The major diagnostic criteria for JHF are (a) pearl-like skin papules and subcutaneous nodules (b) gingival hyperplasia (c) osteolytic lesions (d) joint contractures and (e) the histological deposition of amorphous hyaline material.\[3\] Joint contracture, the earliest and the most constant feature, cripples the patients and retards normal motor development if it occurs infancy.\[14\] The skin lesions may present as translucent papules, nodules or large subcutaneous masses in several densities. The largest masses tend to localize at the scalp.\[1\]

The differential diagnosis of JHF includes neurofibromatosis, gingival fibromatosis, nodular amyloidosis, infantile systemic hyalinosis, congenital generalized fibromatosis, lipoid proteinosis and Winchester syndrome.\[3\]

The etiology of JHF is unknown. The gene that causes JHF has been mapped to 4q21.\[6\] Various abnormalities in the biosynthesis of glycosaminoglycans and a defect in collagen III and VI have been described. Mutations in the capillary morphogenesis factor-2 gene have also been described.\[7\]

The diagnosis is confirmed by histology. The skin lesions consist of benign fibroblastic proliferation—‘chondroid cells’—occupying the dermis and subcutaneous tissue. These fibroblasts are surrounded by an amorphous hyaline or chondroid-like PAS +ve substance. This substance, rich in chondroitin-6-sulphate, is made up of glucosamine and galactosamine.\[5\]

The clinical course of JHF is variable and relentlessly progressive, with most patients surviving only up to the 4th decade.\[6\] The treatment is only aesthetic and its aim is to limit orthopedic disability. Early tumorectomy may help but relapses are not infrequent.\[5\] Joint contractures may respond to intralesional systemic steroids and physiotherapy.\[16\] This was tried in our Case 1 without much success. As of now there is no specific treatment for this disorder. But genetic counseling of the parents may prove invaluable in preventing the disease.

REFERENCES