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Fibrodysplasia ossificans progressiva: A case report

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ABSTRACT

Fibrodysplasia ossificans progressiva (FOP) is a genetic disorder with unknown cause. Disease is characterized by heterotopic ossifications of connective tissue and congenital malformations of distal part of extremities. Most cases are sporadic and transmitted as autosomal dominant. As very few cases of FOP are being reported in Indian literature, we, therefore, report one such case here.

Our case is a 20 years-old female patient who had bilateral short great toes with hallux valgus associated with heterotopic ossifications of connective tissue with restrictions of range of motion and disability of daily living activities. We have diagnosed it as FOP based on our physical examination and skeletal x-rays findings.

Key words: Myositis ossificans progressiva, Genetic disorder, Autosomal dominant, Ossifications

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INTRODUCTION

Fibrodysplasia ossificans progressiva (FOP), also known as myositis ossificans progressiva, is an extremely rare disorder of connective tissue characterized by congenital malformation of the great toe and progressive heterotopic ossification of tendons, ligaments, fasciae and skeletal muscle.[1] The worldwide prevalence is approximately 1 in 20 millions. There is no ethnic, racial, gender, or geographic predilection to FOP.[2] Dysregulated bone morphogenetic protein (BMP) signaling is involved in the pathogenesis of FOP. A heterozygous mutation (617G --> A; R206H) in the BMP type I ACVR1 is identified in affected individuals.[3] Evidence suggests that the inflammatory component of the immune system plays a critical role in FOP.[4] The presence of macrophages, lymphocytes and mast cells in early FOP lesions, flare-ups following viral infections and the beneficial response of early flare-ups to corticosteroids support the involvement of the innate immune system in the pathogenesis of FOP.[5] Clinical suspicion of FOP early in life on the basis of malformed great toes can lead to early clinical diagnosis and the avoidance of harmful diagnostic and treatment procedures. Biochemical tests do not help in establishing the diagnosis.

The case is presented here because of its rarity in India and to diagnose the condition early in the childhood to minimize trauma and painful flare ups.

CASE

We report a 20 year young female with complaints of restriction of neck movements and walking difficulty. The restriction of movements first involved in the neck region at the age of 8 years and gradually progressed to involve the rest of the body over a period of 3 years causing severe restriction of daily activities. She had a history of nodule formation at the site of trauma which used to disappear spontaneously after 1 to 2 weeks.

On examination, the patient had bilateral short great toes (Figure 1) with valgus deformity, palpable hard nodules over the back and left biceps, and ankylosis of cervical, thoracic and lumbar vertebrae. All joints of her body were having restricted movements but she is able to walk with support.

All hematological and biochemical tests were within normal limits. X-ray cervical spine showed straightening and

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narrowing of intervertebral disc spaces between C3 and C6 with increase in height of the vertebra in proportionate to the width and calcified ligamentum nuchi.

The chest x ray (Figure 2) showed new bone formations in soft tissue bridging from right humerus to right scapula and left side ribs to left scapula.

DISCUSSION

Although FOP is a relatively rare condition, it is well described with characteristic clinical, radiologic and pathologic features. Usually signs are present at birth like congenital malformations of great toes but FOP is poorly recognized by most clinicians. Nearly 90% of FOP patients worldwide are misdiagnosed, and 67% undergo dangerous and unnecessary diagnostic procedures that lead to permanent harm and lifelong disability in >50% of all affected individuals.[6]

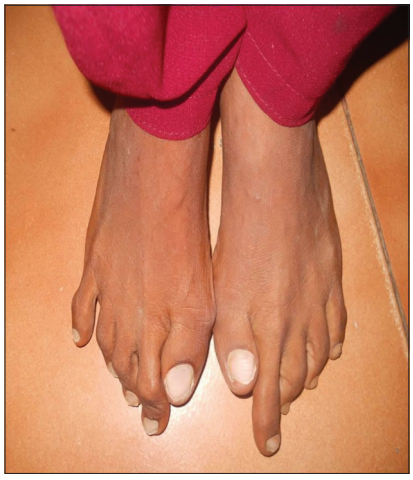

Figure 1: Bilateral short great toes

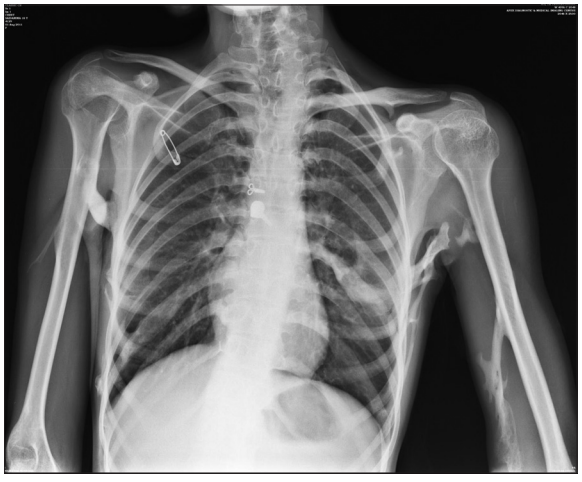

Figure 2: Chest X-ray showing bone formations bridging from right humerus to right scapula and left side ribs to left scapula

Corticosteroids are indicated for flare-ups. A nonsteroidal anti-inflammatory drug (NSAID) or cox-2 inhibitor (in conjunction with a leukotriene inhibitor) may be used symptomatically for the duration of the flare-up when corticosteroids are discontinued. Surgical treatment is almost always contraindicated, since new heterotopic ossification can develop.[7]

The median lifespan is approximately 40 years of age.[8] Most patients are wheelchair-bound by the end of the second decade of life and commonly die of complications of thoracic insufficiency syndrome.[8]

The severe disability produced by this disease merits early recognition so that good general care and avoidance of trauma (particularly iatrogenic trauma from intra-muscular injections, biopsies, and surgery) may be emphasized.

FOP is a rare and disabling disease that still does not have an effective treatment that can cure it or stop its progression. Clinicians, patients and their families must be educated about the disease. Therefore, in presence of bilateral short great toes with hallux valgus associated with heterotopic ossifications of connective tissue, one should consider FOP as a diagnosis.

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Authors Contribution:
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