Alkaptonuric ochronosis

Sir,

A 64-year-old woman was hospitalized for evaluation of a 25-year history of low back pain and discomfort in the knees. Physical examination revealed bluish-black pigmentations of the ear cartilage and antihelix, and dark pigmentation of the sclera on both eyes in the interpalpebral fissures [Figure 1]. Blue-black discoloration was visible on lateral aspect of the fingers and nailbeds [Figure 2]. Inflammatory markers, calcium, phosphorus, rheumatoid factor, and HLA-B27 were normal. On x-rays, sacroiliac joints were found to be normal, but the lumbar spine showed loss of lordosis, osteophytes, and wafer-like calcification of intervertebral discs [Figure 3]. The urine turned black on exposure to air or Benedict's reagent. Measurement of urinary organic acid levels showed a large quantity of homogentisic acid, which is consistent with ochronosis. The patient was treated symptomatically with analgesics and was given vitamin C and nitisinone. One year after the treatment, the patient only complained of mild back pain.

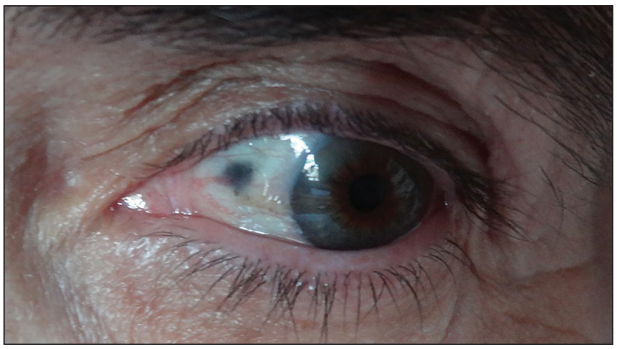

Figure 1: Dark pigmentation of the sclera on eye in the interpalpebral fissures

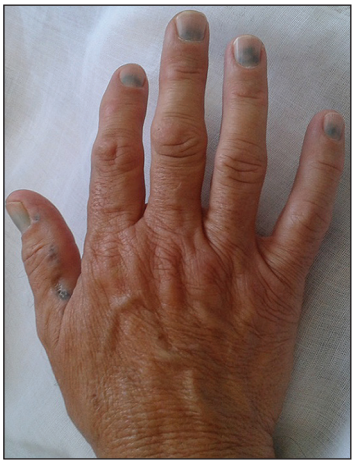

Figure 2: Blue-black discoloration was visible on lateral aspect of the fingers and nailbeds

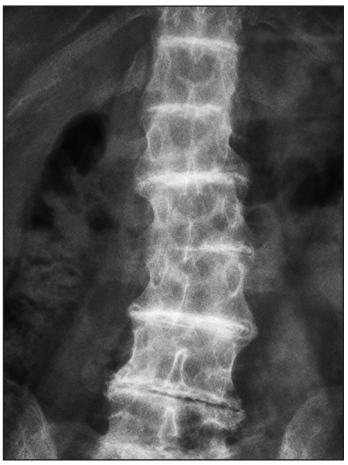

Figure 3: Lumbar x-ray showed osteophytes and wafer-like calcification of intervertebral discs

Alkaptonuria is an autosomal recessive disorder of metabolism caused by the deficiency of homogentisic acid oxidase (HGA) and resulting in accumulation of homogentisic acid in collagenous structures. The incidence of alkaptonuria was estimated at 1:250,000-1:1,000,000 live births.[1] Alkaptonuria has three major features:

a Homogentisic aciduria;
b. Ochronosis; and
c. Arthritis, usually in the fourth decade of life.

The least expensive screening test to perform is the urine oxidation test, i.e., having it standing in light for a period of 24 h when suspicion has risen.[2] No effective therapy is available for ochronosis. Dietary restriction of tyrosine and phenylalanine will reduce the excretion of HGA, although the clinical effect is limited.[3] Pharmacologic treatment of alkaptonuria with oral administration of nitisinone has been proposed. Nitisinone inhibits 4-hydroxyphenylpyruvate dioxygenase, the enzyme that produces HGA.[4] High dose of vitamin C decreases urinary benzoquinone acetic acid, a derivative of HGA, but it has no effect on HGA excretion. It has been hypothesized that high dose of ascorbic acid may prevent the deposition of ochronotic pigment, although it does not alter the basic metabolic defect.[5]

Based on the findings of this clinical study, it is highly recommended that in the patients presented with spondylosis, associated with bluish-black pigmentation of connective tissue, performing urine oxidation test (standing in light for a period of 24 h) can probably reveal this metabolic disorder.

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Conflicts of interest

There are no conflicts of interest.

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