

ABOUT A FAMILY OF PYCNODYSTOSIS

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Objectives:

- Think of the diagnosis of Pycnodysostosis face to stunting and fractures
- pycnodysostosis is a lysosomal genetic disease characterised by osteosclerosis, short stature and brittle bones
- Unknown exact prevalence but is less than 1/100000
- Autosomal recessive deficiency of cathepsin K enzyme of bone resorption.

The children A.Z, A.H,A.R siblings of 2 girls and a boy aged between 9 and 18 from consanguineous parents, consult for stunting.

History : they had a closing delay of anterior fontanelle with dysmorphia and multiple fractures of lower limbs.

Clinical examination objectives a short stature ranging between -3 DS and -4 DS , notion of closing delay anterior fontanelle, large skull, frontal bossing, eyes slightly protruding with slightly bluish sclerotic(fig 1, fig 2, fig 3), mandibular hypoplasia, decayed teeth, ends atrophy of hands and feet (fig 4).

The same symptomatology was described for the 3 children.

Bones radiography: - skull: persistence of opening both of anterior and posterior fontanelles (fig 5) , - hands: acroosteolysis of the distal phalanges (fig 6) , -upper and lower limbs: excessive densification of bones (fig 7), - clavicles: outside their densification, they have normal size and structure.

DMO: + 6 z-score

Treatment : For our patients, the management was only supportive. Short stature can be treated with growth hormone.



Results:

Pycnodysostosis (OMIM 265800) is a rare autosomal recessive bone disorder resulting from osteoclast dysfunction . The first case of pycnodysostosis was described in 1923 by Montanari; however, Maroteaux and Lamy defined the typical features of pycnodysostosis (Greek: pycnos = dense; dys = defective; osteon = bone) in 1962. Thus, it is also known as Maroteaux-Lamy syndrome. This disorder is also called Toulouse-Lautrec syndrome after the famous French artist Henri de Toulouse-Lautrec, who was thought to be afflicted with the disease.

Less than 200 cases have been reported worldwide since 1962 . The prevalence of pycnodysostosis is estimated to be 1 to 1.7 per million with equal sex distribution .

The typical features of pycnodysostosis include short stature, an increase in the bone density of long bones, pathological fractures with poor healing, stubby hands and feet with dystrophic nails, unossified fontanels, and an obtuse mandibular angle The candidate gene for pycnodysostosis was mapped to human chromosome 1q21 by genetic linkage analysis, and was subsequently identified as coding for cathepsin K (CTSK, MIM# 601105) by a positional cloning strategy in 1996

To date, no specific treatment has been validated in pycnodysostosis with the exception of symptomatic management(growth hormon can be used).

Research on specific approaches to correct the abnormal bone metabolism in pycnodysostosis is another hot topic. Due to providing normal osteoclasts and osteoclast-targeted enzymes, bone marrow transplantation is drawing the increasing attention. Gene replacement strategies are other alternative choices. However, considerable research is required in this area.

Conclusions:

Pycnodysostosis is a relatively rare constitutional bone disease that has unfortunately reached 3 members of the same family.

The diagnosis is clinical and radiological and the confirmation is obtained by the identification of gene mutation.

Some patients with pycnodysostosis have partial GH deficiency and low IGF-1 concentration. GH therapy markedly increases IGF-1 secretion and improves their linear growth. MRI study of the brain including the hypothalamic-pituitary area is recommended in these children because of the high incidence of pituitary hypoplasia and cerebral demyelination.

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