



Disproportionate short stature with advanced bone age due to PTHLH mutation

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The authors have nothing to disclose.
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Introduction

Our patient presented with disproportionate short stature with brachydactyly.

Patient

A boy of 5 years old presented with:

- height 108.9 cm (-1.8 SD)
- sitting height / height ratio +3.4 SD
- short hands and feet with short metacarpal 4 and metatarsal 4
- increased lumbar lordosis
- painful legs after walking of a long distance.

Mother: 150.6 cm (-3.0 SD), disproportionate short stature and brachydactyly.

Father 179.9 cm (-0.4 SD).

Previous history:

Twin pregnancy AD 34 weeks, moderate start

Birth weight 1740 g (-1.4 SD).

Development retarded. Twin sister healthy.

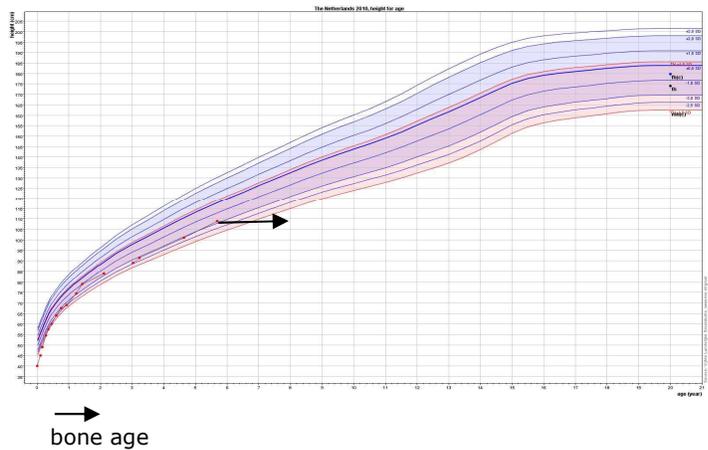
His bone age was about 2.5 years advanced.

Results

DNA analysis showed a mutation in exon 4 of the *PTHLH* (PTH-like hormone) gene (c.25T>C, p.Trp9Arg). The mutation was also found in the mother, but not in her parents.

Additional laboratory assessment:
normal serum calcium, phosphate, alkaline phosphatase, PTH and immeasurable PTH-related protein (PTH-rp).

PTHrp acts through the PTH-receptor and is essential for normal cartilage development. Failure of this activation leads to increased chondrocyte apoptosis and premature closure of the growth plates.



CA 2.4 yrs

5.6 yrs

Conclusion

Disproportionate short stature with advanced bone age may be caused by a PTHLH mutation.