

Calcaneal Apophysitis (Sever's Disease) Development In A Case Using Growth Hormone

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INTRODUCTION

The increased use of growth hormone has led to increased information on its complications. Orthopedic complications related to the growth hormone (carpal tunnel syndrome, Legg-Calve-Perthes' disease, scoliosis, and slipped capital femoral epiphysis) are rare and there is no clear pathological association between the use of growth hormone and these complications.

Calcaneal apophysitis is an inflammation of the apophysis and is caused by the constant pull of the Achilles tendon. Symptom onset is at around 11-15 years of age in males and 8-13 years in females. The incidence in the general population has been reported as 3.7/1000 .

A literature search did not reveal a similar case of calcaneal apophysitis during growth hormone use. We presented this case where the relationship with growth hormone treatment was not clear as a potential relationship and aimed to present the clinical follow-up so that the calcaneal apophysitis association is not overlooked in future cases.

CASE REPORT

A 13-year-old male receiving GH treatment for isolated growth hormone deficiency presented outside his routine follow-up schedule with symptoms of pain in both heels and limping for 1 month without a history of trauma. The weight and length at birth had been 3000 gr and 50 cm, respectively. The short stature had become more prominent after the age of 4 years.

The physical examination at first presentation to our hospital

11 years 4 months
height 129.9 cm (-2.6 SDS)
body weight 23.8 kg (-2.69 SDS)
weight according to height 82%
The patient was prepubertal
Other systemic examination findings were normal

Laboratory results

There was nothing of significance in the laboratory investigations.
The bone age was consistent with an age of 8 years.
Midparental height was 170.1 cm (-0.49 SDS).
Pik growth hormone response to L-dopa 1.57 ng/ml and insulin stimulation tests 1.04 ng/ml

Follow up

The patient whose annual growth rate was 4.4 cm (-0.87 SDS) was started growth hormone at a dose of 0.03 mg/kg/day with a diagnosis of isolated growth hormone deficiency.
He grew 7.4 cm in height in the first year of treatment.

The physical examination at the final presentation

13 years
height 141 cm (-2.06 SDS)
body weight 28.4 kg (-2.62 SDS), weight according to height 81% and testis volumes of 5/5

There was pain in both heels increasing with palpation but with no increase in temperature, hyperemia or swelling.
He could not put his weight on his heels when walking.

Laboratory tests revealed hemoglobin 13.4 gr/dl, leukocytes 5420/ μ L, and thrombocytes 218.000/ μ L with no atypical cells in the peripheral smear.



Appearance of calcaneal apophysis

He was recommended bed rest and non-steroidal anti-inflammatory drugs in case of excessive pain. The growth hormone treatment he was using was not interrupted. The pain in both heels and limping had regressed at follow-up 3 months later.

CONCLUSION

Calcaneal apophysitis is different to the orthopedic complications related to the growth hormone. Calcaneal apophysitis is an inflammation of the apophysis and the most common aetiology of heel pain in growing children. Destruction of cartilage layer will inevitably lead to tissue destruction followed by local inflammatory response. On the basis of current pathophysiological insights, growth hormone could improve proteoglycan synthesis, hence limit the development of intra-articular tissue damage and inflammation.

We believe that the association can be incidental and growth hormone also can improve with anti-inflammatory effect on calcaneal apophysitis.

