A rare case of dermoid cyst as a cause of short stature, precocious puberty, optic nerve hypoplasia, and hypopituitarism

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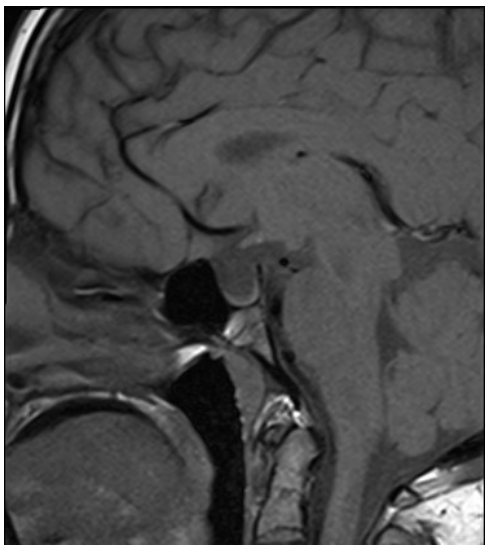
Hypopituitarism, a deficiency of one or more of the hormones produced by the pituitary gland, is a very rare condition. It can be congenital or acquired.
We present a **19-year-old female with primary amenorrhea** and **short stature**.

Despite short stature**, the diagnostic process started at the age of 18. Due to lack of** growth charts, the exact time of growth delay was impossimble to establish. The birth weight/length was normal. There is a history of early childhood impairment of vision in the right eye, however, no medical records are available.

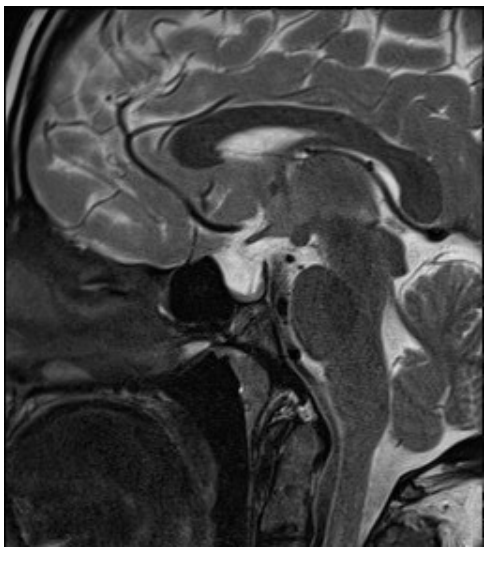
- The patient presented:
  - short stature (**145 cm**; midparental height (**MPH**) = **158.5 cm**)
  - normal **BMI** (**19.5 kg/m^2**)
  - complete **lack of axillar and pubic hair**
  - adult size breast (**Tanner V**)
  - in a gynecological examination, no pathologies were detected.
- **Genetics**: The patient's karyotype was normal. *PROP1* mutation was excluded.
- **Biochemical status**:
  - **multihormonal pituitary insufficiency** (**adrenal, thyroid, and gonadal axis**) with mildly elevated prolactin concentration and very low IGF-1.
  - the results of insulin hypoglycemia test confirmed **severe growth hormone (GH) deficiency**. Additionally, during insulin test, very good adaptation to low glucose concentrations was noted which may indicate that the patient experienced many unaware hypoglycemic episodes in the past.
- **Radiological findings:** the magnetic resonance imaging (**MRI)** of the pituitary gland revealed a lesion suspected of the **dermoid cyst and right optic nerve hypoplasia**. Additional MRI of the pituitary gland with FLAIR and DWI sequences was performed to evaluate the lesion, but the outcomes are in preparation.
- Densitometry revealed **osteoporosis**. Bone age assessment revealed **advanced bone** age compatible with chronological age, therefore growth promotion on growth hormone therapy is limited.

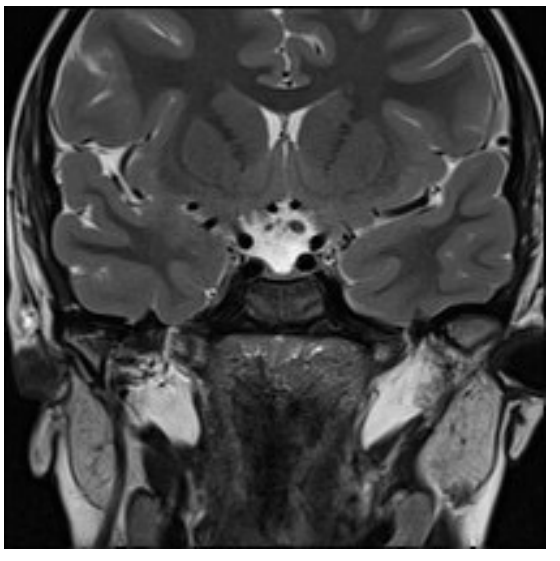


MRI of the pituitary gland:

T1 sequence (left)

T2 sequences (right)





The patient received appropriate hormonal supplementation (hydrocortisone and levothyroxine) and was qualified for growth hormone replacement therapy with **initial dose of somatropin 0,3 mg/day**. After the first month of treatment, the patient reported **improval in quality of life** and the **dose of somatropin was increased to 0,6 mg/day**.

Our case highlights the **importance of early diagnosis and treatment of hypopituitarism**. Dermoid cyst could be a rare cause of short stature, precocious puberty, optic nerve hypoplasia, and hypopituitarism.