

# Pediatrics Cushing's Disease: a diagnostic challenge

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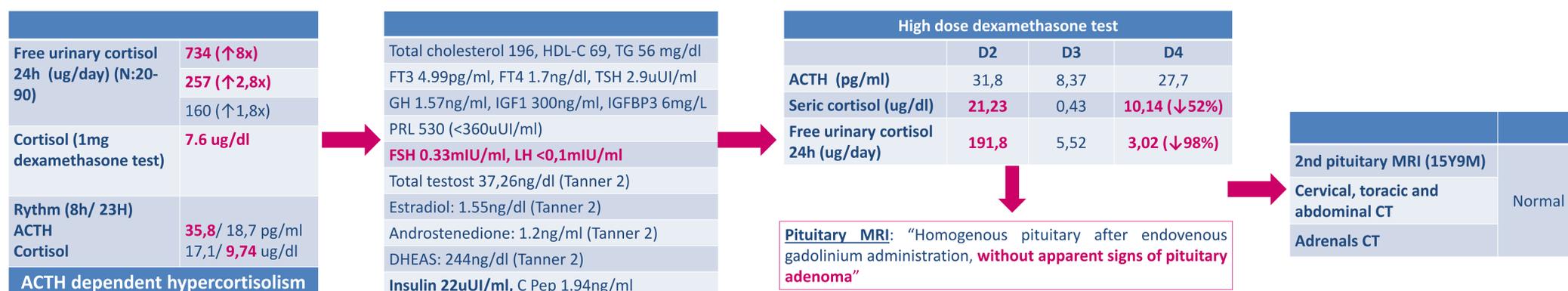
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**Introduction:** Cushing's disease (CD) is rare in children. It's most common clinical manifestations are growth retardation, changes in pubertal development and weight gain. The diagnosis, based on clinical suspicion, is often hampered by the non identification of the microadenoma in MRI.

## Clinical case

- **History of present illness:** Fourteen year old boy observed in a pediatric endocrinology consultation due to **increased weight gain since age of 9 and short stature and growth arrest (growth velocity < P3) since age of 12.**
- **Past Medical History:** irrelevant
- **Family history:** overweight in both parents; one 18 year old brother with normal growth and pubertal development
- **Physical Exam**
  - **Moon face, facial flushing, acne, abdominal obesity.**
  - **BP 131/75mmHg (P95), Weight 54.5Kg (P75), height 135cm (<<<P3), BMI 29.9Kg/m2 (>P95)**
  - **Tanner: P2, A1, G1.**
  - **Similar bone and chronological ages.**

## Investigation



**VIGILANCE WHILE UNCERTAIN DIAGNOSIS**

- Risks of the procedures
- Few experience in our centre at that time

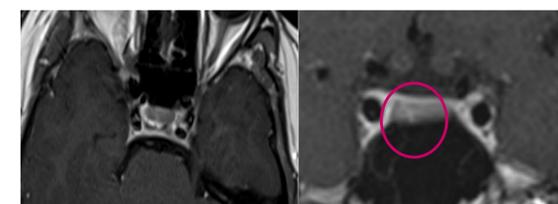
**INFERIOR PETROUS SINUS CATHETERIZATION AND/OR SURGERY**

- Cushing's complications
- Growth and pubertal development delay

??

Inferior Petrous Sinus Catheterization			
ACTH	Right side	Left side	Peripheric
-15'	>1250	62,0	36,3
0'	203	54,8	40,3
2'	1201	245,0	43,8
5'	50,8	79,2	46,8
10'	86,0	230,0	52,8
15'	80,0	84,9	57,2

Ratio Central/Peripheric >2  
Ratio Right/Left >1.4

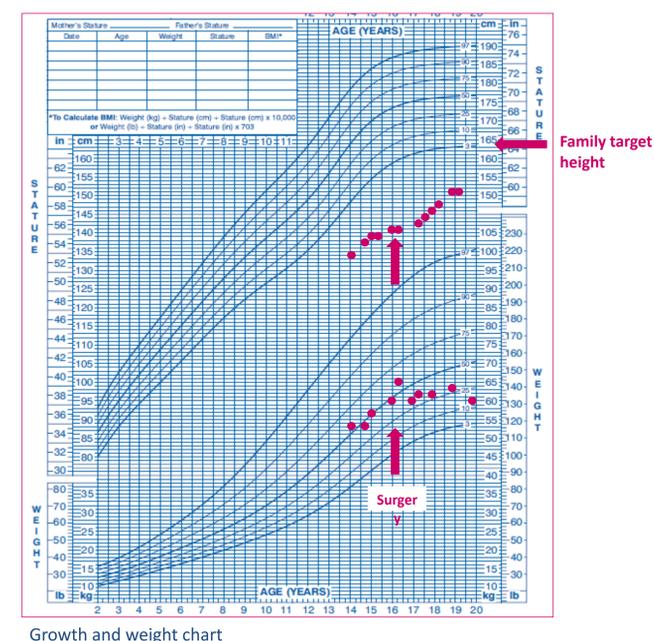


**3rd pituitary MRI:** "Discrete asymmetry of the anterior pituitary, slightly higher on the right side; adjacent to the supero-medial wall of the cavernous sinus, there is a **hyperintense area on T2 with 2.5 mm, with a slight uptake of gadolinium in the dynamic study**"

## Treatment and evolution

15 years and 7 months	
Transfenoidal surgery	Apparent macroscopic tumor removal
Seric cortisol after surgery	0,32ug/dl (<1,8ug/dl)
Histology	<b>No pituitary adenoma identified</b>
Hydrocortisone post surgery	Suspended only 10 months after
Evolution	<b>Clinical and analytical improvement with increased growth velocity and normal pubertal development</b>

Follow-up: 19 years (3Y 4M after surgery)	
Weight	59 Kg (P10-25)
Height	151cm (<<P3)
BMI	25.9Kg/m2 (P75-90)
BP	112/47mmHg
Tanner	V (Test 20cc bilateral)
Bone vs chronological age	Similar (19 years)
ACTH	22 pg/ml (N<46)
Seric cortisol	14,7 ug/dl (4,3-22,4)
Free urinary cortisol	271,2 ug/24h (55,5-286)
IGF1	332,3 ng/ml (247,3-481,7)
Total testosterone	559,2 ng/dl (241-827)



**Conclusion:** This case had a successful evolution, but highlights the difficulties of CD diagnosis in children. Time between clinical suspicion and definitive treatment can be long, and the therapeutic decision must take into account all the risks and benefits involved.