



Patient Presentation

History:

- 8-year-old previously healthy male
- Facial hair x 1.5 years
- Phallic growth, body odor and acne x 9 months

Physical Exam:

- HEENT: sparse facial hair above upper lip, normal fundoscopic exam
- Neck: no thyromegaly
- GU: phallic enlargement, testes 4cc bilaterally and w/o palpable masses, Tanner stage I pubic hair

Initial Work-up:

- Labs notable for elevated LH and testosterone (Table 1)
- Evidence of pituitary mass on MRI (Figure 1)

Initial Labs

LH	9	0.0-0.3 mIU/mL
Testosterone	519	2-8 ng/dL
Estradiol		0-13 pg/mL
17-OHP	155	<63 ng/dL
Androstenedione	0.363	0.03-0.3 ng/mL
FSH	< 0.1	0.0-2.8 mIU/mL
DHEA-S	79	5-115 ug/dL
Alpha Subunit	9	<0.55 ng/mL

Table 1: Initial laboratory studies most notable for
 elevated LH & testosterone

Imaging

Figure 1 (Left): 8 x 12 x 10 mm hypo- enhancing mass consistent with anterior pituitary adenoma.

(ng/dL)

P

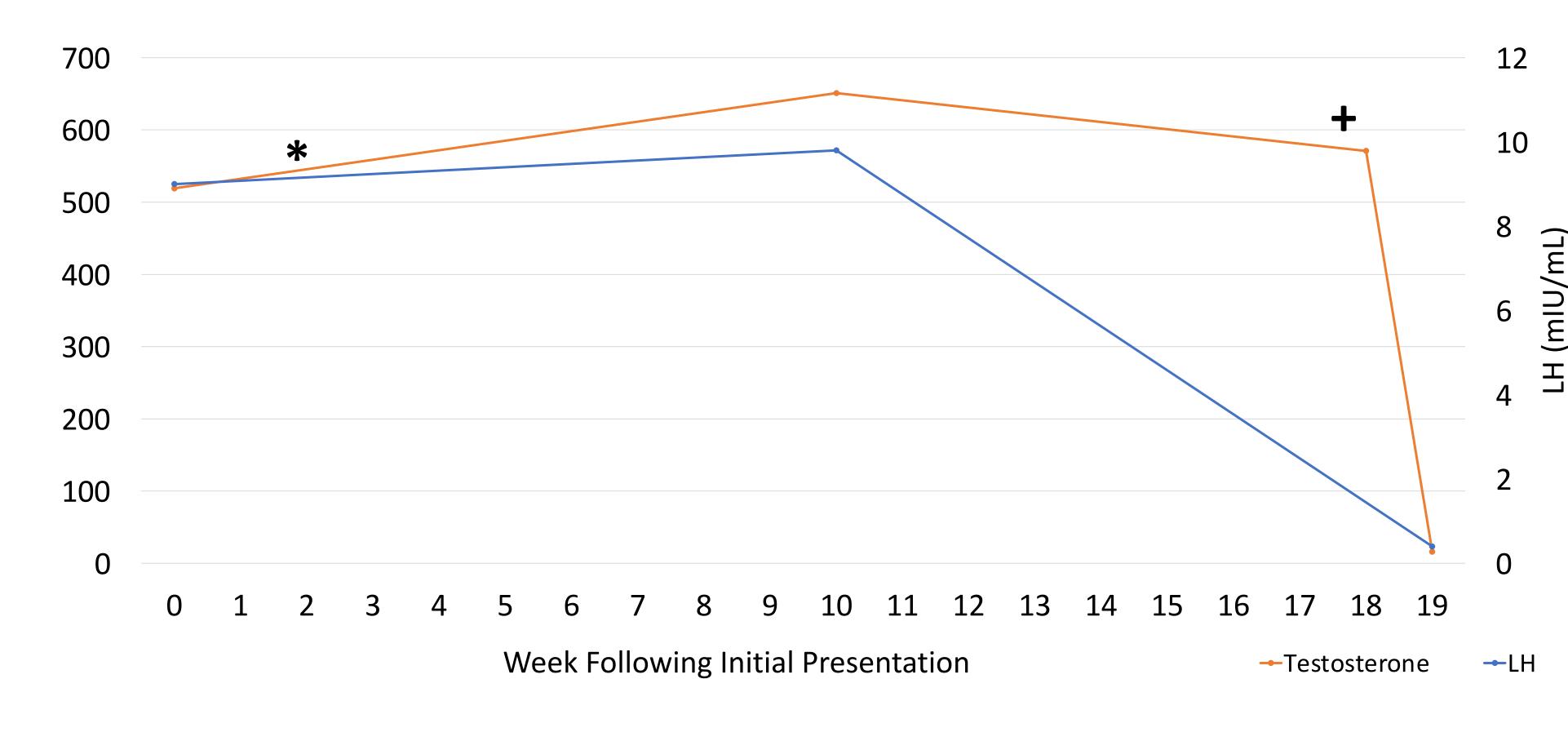
References: 1. Witchel, Selma Feldman, et al. "Update on adrenarche." Current Opinion in Pediatrics 32.4 (2020): 574-581. 2. Soriano-Guillen, Leandro, and Jesús Argente. "Central precocious puberty, functional and tumor-related." Best Practice & Research Clinical Endocrinology & Metabolism 33.3 (2019): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty in Boston boys: a 10-year single center experience." PLoS One 13.6 (2018): 101262. 3. Topor, Lisa Swartz, et al. "Central precocious puberty, functional and tumor-related." Place Pla e0199019. 4. Varlamov, Elena V., Shirley McCartney, and Maria Fleseriu. "Functioning pituitary adenomas-current treatment options and α-subunit in patients with gonadotropinomas in relation to the immunoreactivity of pituitary adenoma." Endokrynologia Polska 69.5 (2018): 526-529.

Rare Presentation of Precocious Puberty Secondary to LH-Secreting Adenoma

Uhing, A; Salamat, M.S.; Ahmed, A; S; Chen, M ¹University of Wisconsin – Madison School of Medicine and Public Health, Department of Pediatrics

> Central precocious puberty is more often associated with CNS lesions in males and requires further evaluation with head imaging

Departures from the typical sequence of development should raise concern for nonconcurrent secretion of gonadotropins



LH & Testosterone Levels Throughout Patient Course

Figure 2: Testosterone and LH levels remained elevated despite treatment with leuprolide (*), although declined to near-normal levels following adenomectomy (+).



- cause.
- intervention.

Surgical Pathology:

- + SF1
- -LH, FSH & TSH

Diagnosis:



UwHealth

American Family Children's Hospital



Department of Pediatrics SCHOOL OF MEDICINE AND PUBLIC HEALTH

Discussion

• Preferential LH secretion led to high testosterone, phallic enlargement and other secondary sex characteristics, while absent FSH led to minimal testicular enlargement. This atypical pubertal progression raised suspicion for a pathologic

• Functioning gonadotroph adenomas are rare, with most secreting FSH or co-secreting FSH and LH. Though surgical pathology was negative for LH, drastic reduction of LH and testosterone following surgery and steroidogenic factor-1 (SF1)+ pathology are consistent with an LHsecreting adenoma.

• Prior to surgery, LH and testosterone levels continued to increase despite treatment with Lupron, indicating failure of typical negative feedback signaling and necessitating surgical

Patient Course

LH-secreting pituitary adenoma

• Started leuprolide without symptomatic or biochemical improvement

 Started spironolactone and anastrozole to preserve height, with slowing of progression in secondary sex characteristics

• Transsphenoidal adenomectomy resulted in reduction of LH & testosterone (Figure 2)

• After surgery, patient noted stalling of phallic enlargement with further improvement in acne, facial hair, and growth acceleration

• Patient started central puberty at age 9