Question: 10

A 15-year-old boy comes to your office for a health supervision visit. He expresses concern that he is only 5 ft, 2 in tall and is not competitive in track. On physical examination, he appears healthy, has a height of 62 in, and weighs 96 lb. His testes are 8 mL in volume bilaterally, there is slight pubertal phallic enlargement, and he has Sexual Maturity Rating 3 pubic hair. He has a small amount of subareolar breast tissue. His last health supervision visit was 2 years ago. He did not have pubic hair at the last visit, and his testes were described as "prepubertal" in size.

Of the following, the MOST likely cause of his short stature is

A. constitutional delayed puberty
B. exercise-induced growth delay
C. Klinefelter syndrome
D. prolactinoma
E. undernutrition
Critique: 10

Puberty is considered delayed in boys if there is no testicular enlargement by age 14 years. Unless other features are present on physical examination or history, it is very difficult to separate boys who have delayed puberty clinically from those who have true hypogonadotropic hypogonadism until failure of pubertal progression persists for several years. After puberty commences, adult testicular size usually is achieved by 3.2±1.8 years.

The boy described in the vignette is of normal height for age and is progressing into puberty, based on review of his previous visit and his present appearance. Most likely, he has only mild constitutional delayed puberty. Most boys who have constitutional delayed puberty are underweight and do not have other signs of chronic illness.

Exercise and weight loss rarely induce the type of marked growth delay in boys that is seen in girls who are competitive gymnasts or active in ballet. Although Klinefelter syndrome may lead to failure to progress through puberty, the increasing testicular size of the boy in the vignette makes this diagnosis unlikely. Prolactinomas can inhibit pubertal growth, but are not common. Underweight caused by undernutrition must be severe before it inhibits growth and puberty.

Only close follow-up is required for a boy who seems to be progressing into puberty. However, if there is evidence of failure to progress into puberty, a full evaluation to determine if the boy has an underlying chronic illness such as celiac disease or inflammatory bowel disease, hypergonadotropic hypogonadism as seen in Klinefelter syndrome, or other endocrine disorder such as a prolactinoma, is indicated.

References:


Sedlmeyer IL, Palmert MR. Delayed puberty: analysis of a large case series from an academic center. J Clin Endocrinol Metab. 2002;87:1613-1620. Available at: http://jcem.endojournals.org/cgi/content/full/87/4/1613