A 14-year-old-boy has been followed yearly by another physician. When you see him for the first time, he brings records that you use to construct a growth curve (Item Q186A). His parents state that they are not worried about his growth because his 20-year-old brother was a slow grower and still seems to be growing a little. Physical examination reveals 6-mL testes and Sexual Maturity Rating 2 pubic hair. There are no other signs of puberty. His bone age on radiography is 12 years.

Of the following, the MOST appropriate suggestion for the family is that

A. a period of watchful waiting for 6 months is reasonable because he likely has delayed puberty

B. a short course of injected testosterone might help boost his growth and initiate puberty, which is delayed

C. eating a high-calorie, high-protein meal once a day may initiate his puberty

D. laboratory studies to assess his endocrine status should be obtained immediately

E. little can be offered to improve his growth because he probably is approaching the end of his growth phase
Item Q186A: Courtesy of L Levitsky
Critique: 186

Children who have constitutionally delayed maturation and are slow to progress through puberty but otherwise normal have appropriate increments in linear growth that parallel the normal growth curve after the age of about 2 years. They then appear to fall from the normal growth curve when they do not have a pubertal growth spurt at the usual age. In some, prolonged prepubertal growth attenuation, lasting 1 to 3 years, may lead to a perfectly reasoned medical decision to pursue further investigation. Children who have genetic short stature usually find their own growth curves by 1 to 2 years of age, and subsequently grow along those curves until they reach adult height, which although decreased, is commensurate with family heights. Children who have congenital growth hormone deficiency grow slowly in length from the age of about 9 months, but usually have normal weight and even appear a bit chubby. Acquired growth hormone deficiency leads to growth attenuation at a later age but usually is associated with weight maintenance. Children who have endocrine causes of growth attenuation (hypothyroidism, growth hormone deficiency, adrenocortical excess) generally are not underweight.

Growth attenuation (failure to grow over the past several years), as documented in the growth curve constructed for the boy described in the vignette, is a worrisome sign of hidden illness that demands immediate investigation. The investigation should look for hidden metabolic or gastrointestinal disease, including celiac disease, inflammatory bowel disease, hypothyroidism, growth hormone deficiency, and, if there is concern based on physical appearance (changes may be subtle), Cushing disease. Laboratory studies for the boy in the vignette should assess his endocrine status.

Delayed puberty rarely is associated with prolonged growth attenuation, but such attenuation requires evaluation; watchful waiting is not appropriate. Children who are underweight for height commonly have metabolic/nutritional or gastrointestinal disorders. Those who maintain weight or are slightly heavy for height more commonly have hypothyroidism, Cushing disease, or growth hormone deficiency. The child in the vignette should not be offered adjunctive therapies until a clear diagnosis has been made. Boys grow until their bones are fully fused at a bone age of about 18 years; a boy whose bone age is 12 years still has his pubertal growth spurt ahead of him.

References:

