

CLINICAL VIGNETTE

Resolution of Idiopathic Intracranial Hypertension after Bariatric Surgery in a 12-Year-Old Girl

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Case

A twelve-year-old female presented for annual routine optometry appointment and found to have papilledema. Her past medical history is significant for obesity and mild intermittent asthma. Family history includes obesity, asthma, sleep apnea and attention deficit disorder. This patient's BMI was greater than 125% of the 95th percentile (200 lbs. at 5'5") with otherwise normal vital signs. She underwent urgent evaluation at Children's Hospital which confirmed bilateral papilledema with magnetic resonance venography (MRV) showing severe stenosis of the bilateral transverse sinuses at the junction of the transverse and sigmoid sinuses. Lumbar puncture was elevated with opening pressure of 37 mm Hg (normal 9-21mm Hg).

Neuro-ophthalmology, directed treatment for idiopathic intracranial hypertension (IIH) also known as pseudotumor cerebri with acetazolamide (Diamox) and lifestyle changes to promote weight loss. Her primary care physician referred her for a sleep study as well as a comprehensive obesity program. The program addressed nutritional/medical/psychological concerns to reduce her elevated BMI. Over six months, she had persistent papilledema with peripheral vision loss and sixth cranial nerve palsy. Her exercise tolerance was significantly decreased due to side effects of acetazolamide and headaches and dizziness from IIH. Her treatment regimen changed to topiramate and her weight increased to 207 lbs. or 134% of 95 percentile. Diet review indicated caloric intake was at least 200 calories above goal. One obstacle was difficulty increasing daily activity due to dizziness as well as simple carbohydrate intake preferences. She was referred to a tertiary care obesity program for bariatric surgery consultation. Over the next 5 months, she worked with multiple specialists and still suffered from IIH and medication side effects. In preparation for post-surgical diet, the patient was able to commit to protein shake meal replacement for breakfast and reach goal of 0.9g protein/kg/day. She also increased walking her dog 30 min daily at least 4 days a week consistently.

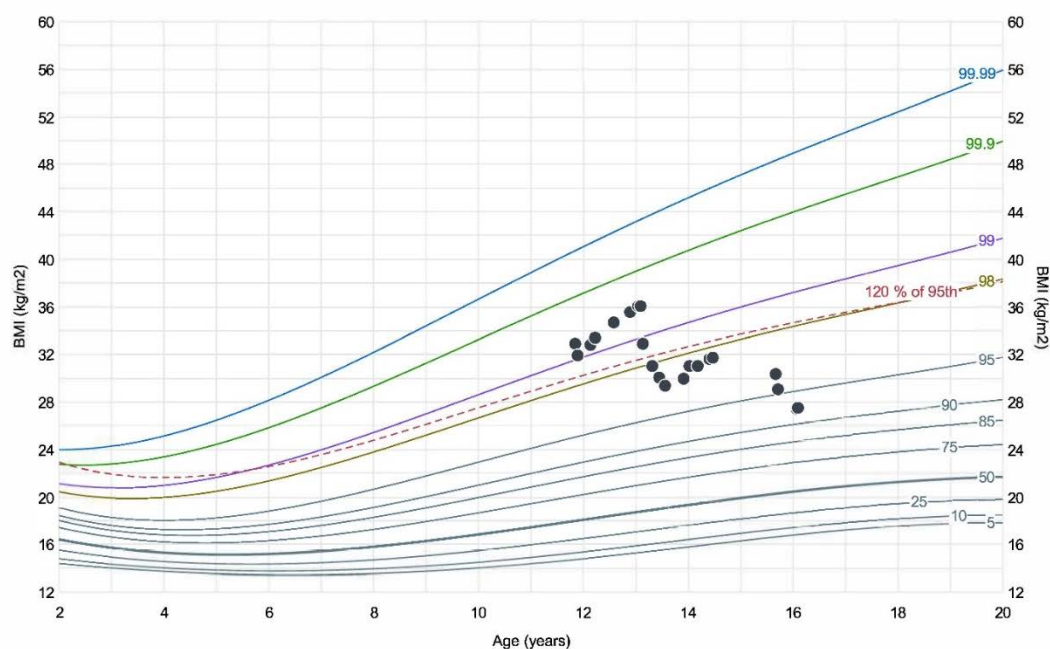
At the age of 13 she proceeded with laparoscopic sleeve gastrectomy after failed medical and intensive lifestyle treatments. At the time of her surgery, she was classified as Class 2 obesity with comorbidities at BMI of 137% of 95 percentile (221 lbs. at 5'5"). She had no complications during the procedure. Six months after the sleeve gastrectomy surgery, she lost 35 pounds to 186 lbs. Her IIH symptoms completely

resolved and she was off medication. Over the next two years, she was closely followed with multiple specialists including neuro-ophthalmology, neurology, nutrition, bariatric surgery, and psychology and she continues to be symptom free.

Ophthalmology exam and MRI/MRV shows no evidence of ICH. Three years post bariatric surgery, she continues to achieve weight loss goals with improved quality of life and good school performance (see Graph 1).

Discussion

Obesity is a growing health problem in the United States affecting more adults and children each year. One out of every five children (boys and girls ages 2-19) in the United States have obesity.¹ Obesity in children is defined as above 95% for BMI-for-age and severe obesity as at least 120% of 95 percentile or BMI 35 kg/m.² Children with obesity have increased risk for sleep apnea, hypertension, asthma, arthralgias, and Type 2 diabetes mellitus. Our patient with severe obesity had asthma and developed intracranial hypertension. Without bariatric surgery, she may have developed permanent damage from intra-cranial hypertension as a result of her obesity. More coordinated efforts across disciplines are needed to improve treatment and access to care for obesity. At least three quarters of children with obesity have severe obesity as adults.³ Ten year follow up on children who underwent sleeve gastrectomy, reported excess body weight loss remained at above 70% without significant change in growth velocity.⁴ Our patient lost 72% of excess body weight three years post sleeve gastrectomy and continues to improve on her diet and exercise regimen. As the obesity pandemic continues to grow, new treatment options are available for children ages 12 and above. Intensive lifestyle therapy is the foundation of treatment for obesity. This includes high frequency multi-modal therapy with education involving nutrition, activity, behavior and sleep with ongoing assessment of medical, psychosocial and environmental factors. There are more recent options for FDA approved weightloss pharmacotherapy for children > 12 years. These include pills such as phentermine/topiramate or injectables liraglutide (Saxenda) and semaglutide (Wegovy). Children with severe obesity that do not improve with intensive lifestyle treatment should consider bariatric surgery, especially with comorbid disease exists such as intracranial hypertension.



Graph 1: Growth Chart United States, BMI-for-age Percentiles (Girls, 2 to 20 years)

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