

**Case 31 (October 12 2006):** [N Engl J Med 2006;355:1593-602](#)

**Demographic:** Female, 15 yrs, Not-pregnant, America North, General Speciality

***Clinical features extracted from the case and entered into the query box:***

obese  
hypertension  
severe acanthosis nigricans on neck and axillae  
moderate acne on face  
slightly android pattern of hair growth on abdomen  
intermittent hypoxemia  
hypercapnia  
electroencephalographic arousal  
hypertriglyceridemia  
high fasting insulin levels  
daytime somnolence  
intermittent oxygen desaturation  
periodic leg movements  
sleep disruption  
snoring  
hyperpigmentation of the thighs  
high alanine aminotransferase

***Synonyms used by Isabel (optional) for the above query:***

Obese  
Hypertriglyceridemia  
Hypertension  
Sleep disruption

**STOP !**

**Before you read further you might want to construct your own:**

- Complete differential diagnosis
- Final diagnosis

**In the following section you will find:**

- The differential diagnosis constructed by the MGH panel
- The final diagnosis of the case
- Which of the MGH panel differential diagnoses did Isabel contain
- Did Isabel suggest the Final diagnosis

**NEJM Table 2. Important Health Effects of Obesity in Children and Adolescents.**

Obstructive sleep apnea  
Diabetes - Type 2 diabetes mellitus, Impaired fasting glucose level  
Hypertension  
Dyslipidemia - Triglycerides, High-density lipoprotein cholesterol  
Polycystic ovary syndrome  
Fatty liver disease - Steatosis (by ultrasonography), Inflammation  
Depression, social exclusion  
Orthopedic problems - Slipped capital femoral epiphysis, Blount's disease  
Asthma  
Pseudotumor cerebri in adolescents

***Final Diagnoses of the case according to NEJM:***

Severe childhood obesity with obstructive sleep apnea, hypertension, impaired glucose tolerance progressing to type 2 diabetes mellitus, the polycystic ovary syndrome, and nonalcoholic steatohepatitis

***Differential Diagnoses of the case as given by Isabel:***

Obstructive Sleep Apnea – Isabel 1<sup>st</sup> page  
Type 2 Diabetes Mellitus – Isabel 1<sup>st</sup> page  
Polycystic Ovary Syndrome – Isabel 1<sup>st</sup> page  
Systemic Hypertension – click on a heading

***Was the final diagnosis given by Isabel:***

Yes, Isabel 1<sup>st</sup> page

***Entire presentation cut and pasted into the Isabel query box:***

Type 2 Diabetes Mellitus – click on a heading  
Polycystic Ovary Syndrome – click on a heading  
Systemic Hypertension – click on a heading  
Obstructive Sleep Apnea – click on a heading

**Isabel differential:**

<p><b>GYNECOLOGICAL DISORDERS</b> &lt;&lt; Click here</p> <p><u>Polycystic Ovarian Syndrome</u> ♀ <b>RD</b></p> <p><u>Hirsutism</u> <b>RD</b></p>	<p><b>NERVOUS SYSTEM DISORDERS</b> &lt;&lt; Click here</p> <p><u>Neurofibromatosis</u> <b>RD</b></p> <p><u>Intracranial Hypertension</u> <b>RD</b></p> <p><u>Cerebral Palsy</u> <b>RD</b></p>
<p><b>DERMATOLOGY</b> &lt;&lt; Click here</p> <p>↳ <u>Skin Pigmentation Disorders</u> <b>RD</b></p> <p>↳ <u>Lipodystrophy</u> <b>RD</b></p> <p><u>Pseudoxanthoma Elasticum</u> <b>RD</b></p> <p><u>Acne Disorders</u> <b>RD</b></p>	<p><b>NUTRITIONAL DISORDERS</b> &lt;&lt; Click here</p> <p><u>Obesity-Hypoventilation Syndrome</u> <b>RD</b></p>
<p><b>ENDOCRINE SYSTEM</b> &lt;&lt; Click here</p> <p><u>Type 2 Diabetes</u> <b>RD</b></p> <p><u>Cushing's Syndrome</u> <b>RD</b></p> <p><u>Type 1 Diabetes</u> <b>RD</b></p>	<p><b>RESPIRATORY SYSTEM DISORDERS</b> &lt;&lt; Click here</p> <p>↳ <u>Sleep Apnea</u> <b>RD</b></p> <p>↳ <u>Asthma</u> <b>RD</b></p> <p><u>Adenoid Hypertrophy</u> <b>RD</b></p> <p><u>Central Hypoventilation</u> <b>RD</b></p>
<p><b>INFECTIOUS DISEASES</b> &lt;&lt; Click here</p> <p><u>Lyme Disease</u> <b>RD</b></p> <p><u>Candidal Infection</u> <b>RD</b></p> <p><u>HIV / AIDS</u> <b>RD</b></p> <p><u>Measles Infection</u> <b>RD</b></p> <p>↳ <u>Syphilis</u> <b>RD</b></p> <p><u>Tetanus</u> <b>RD</b></p>	<p><b>SOCIAL ISSUES</b> &lt;&lt; Click here</p> <p><u>Abuse and Neglect</u> <b>RD</b></p>
<p><b>CARDIAC DISORDERS</b> &lt;&lt; Click here</p> <p><u>Systemic Hypertension Disorders</u> <b>RD</b></p>	<p><b>ORTHOPEDIC DISORDERS</b> &lt;&lt; Click here</p> <p><u>Kyphoscoliosis Disorders</u> <b>RD</b></p>
	<p><b>PSYCHOLOGIC DISORDERS</b> &lt;&lt; Click here</p> <p><u>Narcolepsy</u> <b>RD</b></p>
	<p><b>HUMAN GENETICS</b> &lt;&lt; Click here</p> <p><u>Alström Syndrome</u> <b>RD</b></p>
	<p><b>METABOLIC DISEASES</b> &lt;&lt; Click here</p> <p><u>Acute Porphyria</u> <b>RD</b></p> <p>↳ <u>Glycoqen Storage Diseases</u> <b>RD</b></p> <p><u>Conqen Glycosylation Disorder</u> <b>RD</b></p> <p><u>Fanconi Syndrome</u> <b>RD</b></p> <p><u>Pyruvate Dehydrogenase Complex Deficiency</u> <b>RD</b></p>