

Rutland, MD, Allen L, Ball A, Morris A, Westbrook M. *The Possibility of Saint's Triad and the Diagnostic Implications for a Physical Therapy Student (poster)*. American Association of Clinical Anatomists Annual Conference. (poster) Atlanta, GA. 7-11-2018

**BACKGROUND AND PURPOSE:** Doctor of physical therapy (DPT) students dissect the human cadaver during their graduate PT program. Since only the cause of death is listed on the death certificate when the cadavers are received, no further medical history is known by the students. When unique abnormalities are noted, students are challenged with knowledge of expected symptoms one might observe in a clinical situation. Thus, students develop a thirst for diagnostic implications. Upon finding a large hiatal hernia, and other abnormalities, students were able to develop a working knowledge of clinical manifestations that might be demonstrated. Through this discovery, pathophysiology of disease processes was reinforced. **CASE DESCRIPTION:** An embalmed overweight 94 year-old female cadaver (of 1 year) in a PT anatomy lab was dissected over an 8 month period. The listed cause of death was dementia. Upon further dissection, multiple anomalies were found. A large hiatal hernia grade 4 was found measuring 11cm length by 10 cm width and lying anterior to the heart. Hypertrophy of the heart was noted. The patient also exhibited an umbilical hernia, bilateral inguinal hernias and an abdominal aortic aneurysm (AAA). In addition, extreme thoracic kyphosis and scoliosis was present. Evidence of diverticulosis and a previous cholecystectomy were found. **OUTCOMES:** The presentation of a combination of findings, including hiatal hernia, umbilical hernia, and a previous cholecystectomy, in an overweight female cadaver suggests a clinical condition of Saint's triad. A history of pregnancy was unknown. Upward migration of the gastroesophageal junction may occur from a weakening of the phrenoesophageal ligament. Patients with diverticulosis and gallbladder disease are more prone to hiatal hernias, AAA, and diabetes. Students researched and found that herniosis, a systemic connective tissue disease, can cause diverticulosis and hernias and may be responsible for Saint's triad. Hiatal hernias occur more often in overweight females over 50 years of age. Clinically, students associated symptoms they may see in the clinic with diseases that may result in patients. A giant hiatal hernia in a patient could lead to dyspnea and /or symptoms associated with pneumothorax. Discussion of symptoms and needed patient education led students to conclude the patient may have had gastroesophageal reflux disease with positioning adjustments required such as raising the head of the bed. Additionally, posture training and proper lifting techniques, including avoidance of heavy lifting or frequent violent coughing would need to be emphasized. Students hypothesized that this patient may have had low back pain, as a referral pattern from visceral dysfunction. **DISCUSSION:** Because a cadaver is a DPT student's first patient, it is essential that students understand underlying disease processes. The presentation of this cadaver resulted in critical thinking and encouraged differential diagnosis and an understanding of pathophysiology of diseases. It is important for students to relate anatomical findings with diseases that cause the types of physical disabilities they will encounter in their future practice.

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# Approaches to the Diagnosis and Grading of Hiatal Hernia

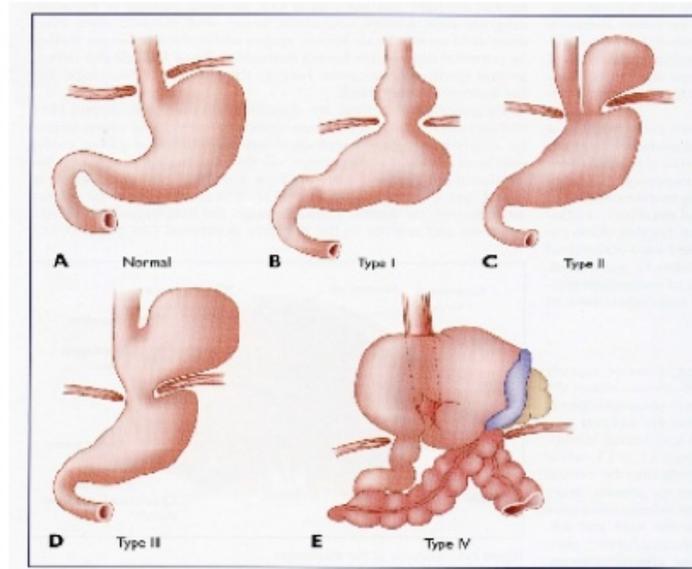
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## Hiatal hernias.[Dean C](#)<sup>1</sup>, [Etienne D](#), [Carpentier B](#), [Gielecki J](#), [Tubbs RS](#), [Loukas M](#).

Esophageal hiatal hernias have been reported to affect anywhere from 10 to 50% of the population. Hiatal hernias are characterized by a protrusion of the stomach into the thoracic cavity through a widening of the right crus of the diaphragm. There are four types of esophageal hiatal hernias: sliding (type I), paraesophageal (type II), and combined (type III), which include elements of types I and II, and giant paraesophageal (type IV). Each type may present with different symptoms and complications. The potential severity of symptoms necessitates proper and prompt diagnosis. Diagnosis is established with the use of barium swallow on chest radiographs. Treatment for sliding hernias involves laparoscopic fundoplication. The aim of our paper is to review the extensive literature regarding hiatal hernias in an effort to enhance awareness and diagnosis of this pathology.

# Hiatal Hernia Classification



*Personalized Care*

