INTRODUCTION

Hiatus hernia refers to conditions in which elements of the abdominal cavity, most commonly the stomach, herniate through the esophageal hiatus into the mediastinum. With the most common type (type I or sliding hiatus hernia) this is associated with laxity of the phrenoesophageal membrane and the gastric cardia herniates. Sliding hiatus hernia is readily diagnosed by barium swallow radiography, endoscopy, or manometry when greater than 2 cm in axial span. However, the mobility of the esophagogastric junction precludes the reliable detection of more subtle disruption by endoscopy or radiography. Detecting lesser degrees of axial separation between the lower esophageal sphincter and crural diaphragm can only be reliably accomplished with high-resolution manometry, a technique that permits real time localization of these esophagogastric junction components without swallow or distention related artifact **(Kahrilas et al., 2008).**

The esophageal hiatal orifice is an eliptically shaped opening through the diaphragm with its long axis in the sagittal plane through which the esophagus and vagus nerves gain access to the abdomen. Of the openings through the diaphragm, it is only the esophageal hiatus that is vulnerable to visceral herniation because it faces directly into the abdominal cavity and, hence, is directly

subjected to the pressure stresses between the two cavities. Notably, the esophagus does not tightly fill the hiatus because it needs to expand to accommodate luminal contents. Thus, the integrity of the hiatus depends upon the structures bridging the gap between the esophagus and the surrounding crural diaphragm making the detailed anatomy of this area of prime importance (Kahrilas et al., 2008).

The mechanism of hiatus hernia formation is poorly understood. Esophageal shortening during swallowing or retching, as a result of longitudinal muscle contraction, causes lower esophageal sphincter movement into the thorax with a portion of stomach. All structures return to their original position because of the elasticity of the phreno-oesophageal ligaments. Hiatus hernia is probably consequent on loss of elasticity of these ligaments, occurring with age, pregnancy and obesity (Cram and de Caestecker, 2010).

The lower esophageal sphincter (LES) has the primary role of preventing reflux of the gastric contents into the esophagus. The sphincter is a unique physiologic entity, as opposed to an anatomic structure, that is located just cephalad to the gastroesophageal junction and is clearly identifiable as a zone of high pressure during manometric evaluation as the sensing device passes from the stomach into the esophagus (Oelschlager et al., 2008).

Several factors contribute to the high-pressure zone. The first is the intrinsic musculature of the distal esophagus. The second contributing factor to LES pressure is the sling fibers of the cardia. The third contributing factor to the maintenance of the high-pressure zone in the distal esophagus is the diaphragm. The last component of the pressure generated at the lower esophageal high-pressure zone is the transmitted pressure of the abdominal cavity. The abdominal compartment has a relatively higher pressure than does the thoracic cavity. A gastroesophageal junction that is firmly anchored in the abdominal cavity will be exposed to a greater transmural pressure than one that is in the posterior mediastinum (Oelschlager et al., 2008).

The hiatal hernia can be classified into 3 groups; the sliding hiatal hernia or type I, the paraesophageal hiatal hernia or type II, and the mixed hernia or type III. This last type, depending on the content (bowel, omentum, spleen...), could form a fourth group in this classification. Type I is by far the most frequent one, types II and III constituting less than 5% of all hiatal hernias. When there is a long evolution, the difference in pressure between the thoracic and the abdominal cavity, and the laxity of the phrenoesphageal membrane and the gastroesophageal attachment elements cause an increase in hernia volume. This may also be accompanied by a gastric slide and the eventual formation of a mesentericaxial