

Congenital Morgagni Hernia

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Abstract

A rare congenital diaphragmatic hernia was discovered upon routine dissection of a female cadaver. Given the hernia's location in the chest cavity, it was identified as a Morgagni hernia. As the least common type of diaphragmatic hernia, the exact mechanism of development is unknown. However, this hernia has previously been associated with both longstanding, congenital conditions and acute, health conditions requiring intervention.



Figure 1. Anterior view of thoracic cavity with the sternum (S) and ribs (R) reflected. Right Lung (RL) Pericardium (P) Left Lung (LL). Herniated portion of transverse colon (solid arrow) into thorax through the diaphragm (dashed arrow).

Background

A hernia is the movement of tissue outside of its typical area of occupation often through a weakness in the wall of its compartment. For example, a hiatal hernia occurs when a portion of the stomach moves from the abdominal cavity through the diaphragm and into the chest cavity. Common areas of herniation include the groin, the umbilical region, and surgical sites. Some hernias are congenital (i.e. present at birth) while others are created and/or exacerbated by muscle weakness and strenuous physical movements. Among congenital hernias, diaphragmatic hernias are common. The least common of these hernias is the Congenital Morgagni's Hernia (CMH). Accounting for less than 5% of all congenital diaphragmatic hernias, CMH is a rare anatomical defect of the diaphragm that may allow abdominal viscera to enter the thorax. It is differentiated from other diaphragmatic hernias by its anterior location at the foramen of Morgagni. While the exact mechanism for developing this type of defect is unknown, it is thought that there is a genetic component given the rate of occurrence with other congenital conditions (e.g. congenital heart disease and Trisomy 21). Additionally, environmental factors including exposure to specific teratogens and a Vitamin A deficient diet during gestation have been associated with congenital diaphragmatic hernias. While some individuals with this defect remain asymptomatic, CMH can lead to life threatening conditions such as bowel strangulation and respiratory failure.

Method and Results

The hernia was found upon routine dissection of the thorax of a geriatric, female cadaver. A portion of transverse colon was observed to have pushed through the peritoneum creating a pocket-like deformity inside of the chest cavity (Figure 1 and 2). The hernia was located right of the midline, adjacent to the pericardium, and just deep to the parietal pleura. Once the herniated bowel was moved aside, pulmonary hypoplasia was noted on the right lung (not shown); the anomaly was most pronounced in the lung tissue proximal to the site of the hernia.



Figure 2. Magnified view of Figure 1. Anterior thoracic cavity. Right Lung (RL) Pericardium (P) Left Lung (LL). Herniated portion of transverse colon (solid arrow) into thorax through the diaphragm (dashed arrow).

Conclusion

Presence of CMH has been associated with life threatening conditions including pulmonary hypoplasia, pulmonary hypertension, recurrent chest infections, bowel strangulation, etc. Often this defect is found in infants and children with respiratory symptoms. Less frequently, CMH is found in adults and/or those with abdominal symptoms. In some instances, individuals with CMH can remain asymptomatic or may be diagnosed after years of experiencing vague symptoms. Treatment for CMH is usually surgical and is most frequently performed by laparotomy, especially in emergent cases where conditions of bowel strangulation or necrosis are present. Laparoscopic approaches are also taken with increasing frequency and are said to be associated with shorter operative time and hospital stay, among other benefits.



Figure 3. Barium-contrast radiograph of a 48-hour-old neonate. Physical exam revealed asymmetric lung sounds. Imaging revealed a Congenital Morgagni Hernia (arrow). (Virginia Commonwealth University) <http://www.pedsradiology.com>