Case Series

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Morgagni Hernia in an Infant; A Case Report

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A B S T R A C T

Congenital diaphragmatic hernia is a rare anomaly found amongst neonates. Morgagni hernia was first identified in 1761 by Giovanni Battista Morgagni, father of modern anatomical pathology. CDH is commonly asymptomatic but may present with cardiac, respiratory or nonspecific gastrointestinal symptoms. Morgagni hernia is the rarest form of congenital diaphragmatic hernia (CDH). Diaphragmatic hernias include the Bochdalek, hiatal, and paraesophageal hernias. CDH can present as Bochdalek type which commonly occurs on the left side and Morgagni type , though much rarer , on the right side. Type and size of the hernia plays a huge role in determining the manifestation of complications. Herniation of abdominal contents into thoracic cavity is a subsequent manifestation. Failure to thrive and recurrent respiratory tract infections are two most common clinical presentations. Here is the case of a nine-month-old girl initially presenting with GIT symptomology later turned out to have Morgagni type CHD on imaging.

Keywords: Herniation, Thoracic cavity, Morgagni, Complications

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Introduction

The diaphragm is a dome-like muscle located at the lowermost aspect of the rib cage, aiding in respiration. During fetal life, the diaphragm develops from the septum transversum, pleuroperitoneal folds, and somites. If the anterior pleuroperitoneal membrane fails to fuse with the sternum and costal cartilages, it results in an anatomical defect known as the foramen of Morgagni.

According to the National Library of Medicine, the estimated incidence of Morgagni hernias is between 1 in 2,000 and 1 in 5,000 live births. However, the true incidence remains unknown. Morgagni hernias account for 2% to 5% of all congenital diaphragmatic hernia (CDH) cases. CDH is often detected incidentally or in symptomatic patients presenting with respiratory, cardiac, or vague gastrointestinal symptoms. [1]

This congenital abnormality is known to cause pulmonary issues due to the pressure exerted by herniated abdominal contents. Pulmonary hypoplasia and pulmonary hypertension are two notable complications caused by this condition.[2]

Morgagni hernias can also be mistaken for tumors or masses on chest radiographs. They may present with a variety of symptoms and can be associated with misleading clinical and radiological findings. If not identified early, they can lead to misdiagnosis and serious complications such as bowel obstruction and strangulation.[3]

The operative approach to a Morgagni hernia is either transthoracic or via an abdominal route, with the majority favoring an upper midline abdominal incision. Once diagnosed, early surgical repair is recommended to avoid the risks of bowel strangulation and perforation.[4]

We present the case of a nine-month-old infant who was diagnosed with a Morgagni hernia. This report aims to educate budding pediatricians and highlight the importance of early diagnosis to prevent complications resulting from missed or delayed recognition.

Case Report

A nine-month-old infant, the second product of a consanguineous marriage, presented to the Emergency Room (ER) with a one-month history of hematemesis. She had been in her usual state of health until a month ago, when she experienced three sudden episodes of vomiting blood. The vomitus was dark brown in color and approximately two tablespoons in quantity. There

was no prior significant gastrointestinal history, and no signs of active bleeding from any site or mucosa were observed. Additionally, there were no petechiae, bruises, or purpura.

She had previously been admitted to another tertiary care hospital for the same complaint, where she remained hospitalized for 14 days. Her birth, immunization, nutritional, and developmental histories were unremarkable.

On examination, the infant was active and playful, with a Glasgow Coma Scale (GCS) score of 15/15 and no signs of distress. There were no signs of clubbing, jaundice, or rashes. She did not exhibit any lymphadenopathy or classical stigmata of chronic liver disease. Abdominal examination revealed hepatomegaly: the liver was palpable 3 cm below the right costal margin, measuring a total of 6 cm, and was soft in consistency. The spleen was not palpable.

Anthropometric measurements placed the child at the 50th percentile.

Initial laboratory investigations were performed, followed by further workup, including a celiac profile, stool occult blood, and stool for Helicobacter pylori—all of which were negative. At this point, the cause of gastrointestinal bleeding remained unexplained, prompting us to think outside the box. We proceeded with an upper gastrointestinal endoscopy, anticipating it might solve the diagnostic puzzle.

Eventually, the mystery was unraveled. The diagnosis revealed a rare congenital malformation that had been on our differential list—a Morgagni-type congenital diaphragmatic hernia (CDH).

Since the patient was hemodynamically stable there wasn't much intervention needed. The bleeding was our main concern for which we gave antifibrinolytics along with treatment for GERD.

Discussion

The most common type of CDH is through the postero-lateral foramen of Bochdalek; and only 3%–5% of congenital diaphragmatic hernias occur through the anterior foramen of Morgagni. It originates from failed fusion of the pars sternalis and the 7th costochondral arch. [5]

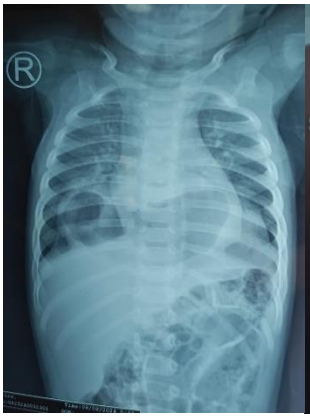

Figure 1. presence of homogenous radiolucent shadow along with absence of gut loops in right upper quadrant Chest X Ray.

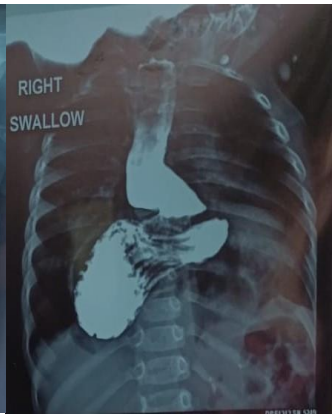

Figure 2. Barium dye Contrast shows Stomach Lying on right side of chest.

Different anatomical variants of CDH in the neonates were discussed by Giovanni Battista Morgagni in his monograph "Seats and causes of disease investigated by anatomy". [5]

Hiatal hernias may present with respiratory tract infections or a GERD like picture. The gastrointestinal bleeding associated with hiatal hernias are an atypical presentation which can result from gastric ischemia in cases of strangulation. Another etiology of gastric bleeding unique to hiatal hernias is ulcerations of the gastric mucosa. These can erode and subsequent bleeding may later manifest as an iron deficiency anemia similarly seen in our patient as well.

Associated anomalies noted in the majority of cases were particularly cardiovascular diseases, intestinal malrotation and Down syndrome.[6]

The gold standard modality used for investigating Morgagni Hernia is CT scan. It is treated by performing surgery, which be done by thoracic or abdominal approach. Abdominal approach is preferred mostly by suturing the diaphragm edge to retrosternal and retrocostal periosteum and peritoneum. The hernias are managed by reduction of the herniated contents,

CBC	LFTS	RFTS	S.E.	Clotting profile
TLC 9.98	Bilirubin total 0.7mg/dl	Creatinine 0.4mg/dl	Ca 9.1mg.dl	PT 14sec
Hb 8.1	ALT 23U/L	Urea 9.5mg.dl	Na 141.4mmol/L	aPTT 32sec
MCV 69	ALP 91.5U/L		K 4mmol/L	INR 0.4
MCH 31	Serum albumin 4mg/dl			
Platelets 227,000				

identification and excision of the sac and closure of the defect.

Although laparoscopic approach is gaining popularity in present practice for pediatric cases, the open transabdominal approach remains the gold standard.[5]

This study is an effort to not only highlight the existence of this rare anomaly but also shed light on available clinical approaches that can save thousands of precious children and help them lead normal, healthy and happy lives

Conclusion

Morgagni hernia is indeed a rare finding in the pediatric population. It can be treated surgically early on to prevent long term complications. Upcoming physicians should be timely educated on how to pick unusual findings and diagnose patients timely.

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