Scientific Research Publishing

Surgical Science, 2025, 16(9), 403-408
https://www.scirp.org/journal/ss
ISSN Online: 2157-9415
ISSN Print: 2157-9407

A Rare Diaphragmatic Hernia in Adults: Larrey's Hernia

Mamadou Traore*, Kalou Ismaël Leh Bi, Ahou Bernadette N'Dri, Blaise Amos Kouakou, Serges Amos Ekra, Inza Bamba, Djahou Ezeckiel Akowendo, Kouamé Bernadin Kouakou, Kouakou Ibrahim Anzoua, Roger Lebeau, Bamourou Diane

Department of General and Digestive Surgery, University Hospital of Bouaké, Bouaké, Ivory Coast
Email: *traorefallstam2000@yahoo.fr

How to cite this paper: Traore, M., Leh Bi, K.I., N'Dri, A.B., Kouakou, B.A., Ekra, S.A., Bamba, I., Akowendo, D.E., Kouakou, K.B., Anzoua, K.I., Lebeau, R. and Diane, B. (2025) A Rare Diaphragmatic Hernia in Adults: Larrey's Hernia. *Surgical Science*, **16**, 403-408.
https://doi.org/10.4236/ss.2025.169041

Received: August 19, 2025
Accepted: September 12, 2025
Published: September 15, 2025

Abstract

Congenital diaphragmatic hernia is a rare condition characterised by an embryonic defect in the diaphragmatic dome, causing the abdominal viscera to ascend into the thorax. Larrey's diaphragmatic hernia is a rare condition, mainly diagnosed in the prenatal and neonatal periods. Its diagnosis in adults is exceptional. There are few cases reported in the literature in adults. Its symptoms are non-specific. We report a case of Larrey's hernia in a 72-year-old patient revealed by digestive symptoms, and through a review of the literature, we highlight data on the diagnosis, surgical treatment and prognosis of this condition.

Keywords

Adults, Congenital Defect, Diaphragmatic Hernia, Larrey's Hernia, Surgery

1. Introduction

Diaphragmatic hernias are rare conditions, most often congenital. They are due to a congenital defect in the diaphragm, leading to the protrusion of abdominal viscera into the thoracic cavity. They typically present at the neonatal age and rarely in adulthood. They can be located posterolaterally in 85% of cases (Bochdalek hernia) and, less commonly, anterolaterally (Morgagni-Larrey hernia) [1]. Morgagni-Larrey hernias refer to anterolateral defects, with Larrey's hernia being the specific left-sided variant and Morgagni's hernia the more common right-sided variant. Morgagni-Larrey hernias account for 3% of all diaphragmatic hernias [2]. They often remain asymptomatic and, when symptomatic, signs are most often respiratory but can also be digestive (pyrosis, vomiting, obstructive syndrome) or cardiac (atypical chest pain, tamponade) [1] [3].

We report the case of a 72-year-old patient with a Larrey's hernia revealed by

digestive symptoms.

2. Observation

He was a 72-year-old patient with a history of chronic constipation, without known congenital malformations or comorbidities, and without a history of thoraco-abdominal trauma, presented with epigastric pain associated with gastroesophageal reflux and episodes of vomiting. These signs had persisted for 6 months. The physical examination revealed that the patient was in good general health. The abdomen was soft and painless. Clinical examination of the chest revealed left-sided pulmonary condensation syndrome with no signs of respiratory distress. An upper endoscopy concluded with a rolling hiatal hernia and erythematous pangastropathy. A thoraco-abdominal CT scan revealed numerous hydroaeric images in the thorax (see Figure 1), leading to the conclusion of a diaphragmatic hernia, specifically a rolling hiatal hernia with protrusion of the stomach and transverse colon. Surgery was proposed. Intraoperatively, it was identified as a Larrey hernia containing part of the stomach, transverse colon, and the internal thoracic vascular pedicle (see Figure 2). The defect was located on

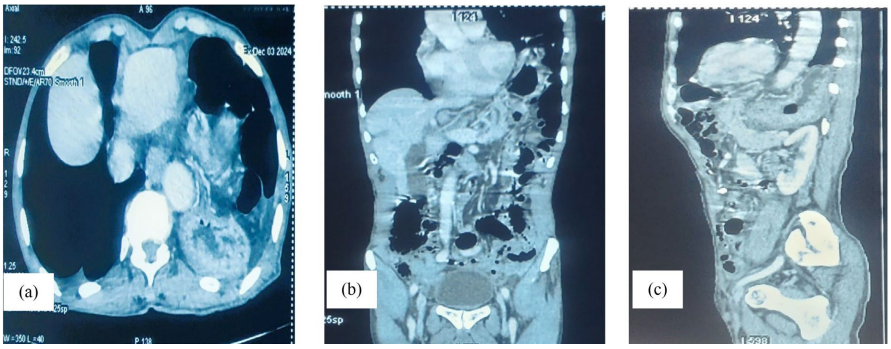

Figure 1. Transverse (a), Frontal (b) and Sagittal (c) scans showing intrathoracic images of abdominal viscera.

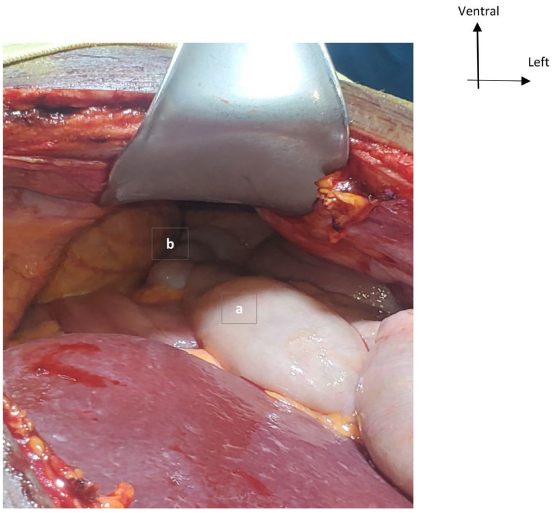

Figure 2. Incarceration of the Stomach (a) and Colon (b) in the hernial orifice.

the anterior border of the left diaphragm dome and measured 5 cm in diameter (see Figure 3). We proceeded with the reintegration of the viscera, a chest drain placement, and closure of the diaphragmatic defect with separate suture points using 2/0 prolene. Immediate postoperative recovery was uncomplicated. The patient was discharged on postoperative day 2, and the recovery has continued smoothly with a follow-up of 10 months.

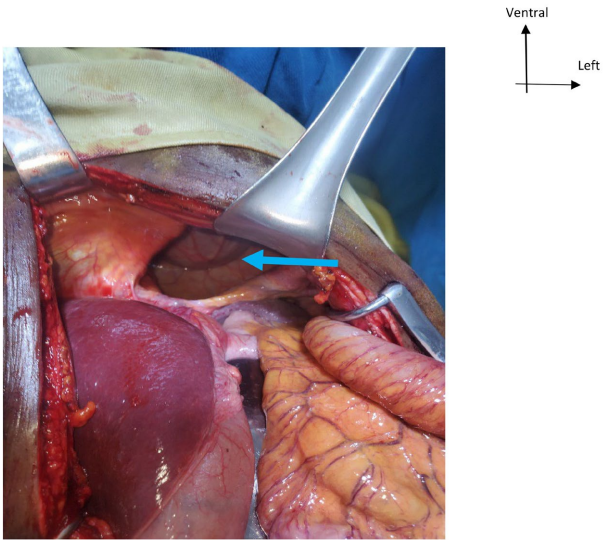

Figure 3. Diaphragmatic hernia (Larrey's slot).

3. Comment

Congenital diaphragmatic hernia is a rare pathology characterized by an embryonic defect in a diaphragmatic dome, responsible for the ascent of abdominal organs into the thorax. It can present as an isolated lesion in most cases or, in 40%, associated with malformations and/or chromosomal abnormalities [2]-[4].

The hernias are located posterolaterally in 85% of cases (Bochdalek hernia) and less often anterolaterally or retro-costoxiphoid (Morgagni on the right and Larrey on the left) [2].

Morgagni-Larrey hernias develop through a defect described by Morgagni and Larrey, a triangular space resulting from incomplete fusion of the musculo-fibrotendinous tracts of the diaphragm, which insert near the xiphoid process and anterior costal margin. This space, called Morgagni's foramen or Larrey's fissure, allows passage of the internal thoracic (mammary) artery, accompanied by veins and lymphatics, which eventually becomes the epigastric artery.

Pregnancy, chronic cough, trauma, obesity, and chronic constipation are predisposing factors cited in the literature. We noted constipation as a contributing factor in our patient.

This condition primarily affects neonates, with diagnosis typically made before birth via prenatal ultrasound, showing upward displaced abdominal organs and cardiac deviation [3].

Rarely, it is diagnosed in adults [2] [5], usually incidentally, with no specific

clinical signs or triggers [2]. When symptomatic, signs are often respiratory but may also be digestive (pyrosis, vomiting, obstructive syndrome) or cardiac (atypical chest pain, tamponade) [1] [5].

The non-specificity of symptoms can delay diagnosis. Rare complications include strangulation of the herniated colon or stomach due to constriction [2] [5].

Diagnosis is suggested by chest radiography showing opacity with gaseous images above the right hemidiaphragm. The presence of these gaseous lucencies indicates intra-thoracic migration of abdominal viscera. In most cases, the greater gastric tuberosity and cardia are in place. This allows us to rule out a hiatal hernia. CT scan and occasionally MRI reveal a fat mass in the cardiophrenic angle, distinguished from physiological epicardial fat by discontinuity of the diaphragm and displaced omental vessels [2] [6].

The differential diagnosis of congenital diaphragmatic hernias includes anterior mediastinal tumours, pleuropericardial cysts, incomplete pneumothorax, pulmonary atelectasis or simple lipoma, as well as interhepatic-diaphragmatic colonic interpositions, bumps and diaphragmatic hernias [7]. In our case, it was discovered due to digestive symptoms, particularly epigastric pain and signs of GERD. When digestive symptoms are prominent, a diagnosis of hiatal hernia is very often considered. The proximity of the hiatal orifice and Larrey's cleft can lead to misdiagnosis of Larrey's hernia instead of hiatal hernia by rolling, both on endoscopy and CT scan. This was the case with our patient. The fundamental difference is that Larrey's hernia is a diaphragmatic (ventral) hernia, whereas hiatal hernia is a specific hernia of the diaphragm, located in the oesophageal hiatus. On CT scan, Larrey's hernia, or Morgagni's hernia, is characterised by the protrusion of an abdominal organ through a weakness in the anterior diaphragmatic wall, whereas a hiatal hernia shows part of the stomach rising into the thorax through the oesophageal opening. The diagnosis of Larrey's hernia was made intraoperatively. Almost all abdominal organs in the peritoneal cavity can be found in a Larrey hernia, but the greater omentum alone (31% of cases) or accompanied by the colon (29%) is the most common content. The stomach (11%) and liver (4%) can also be found in the hernial sac. Patients with a herniated stomach are considered to be at greater risk of serious symptoms than others.

Surgical treatment is always recommended for Larrey hernia, whether symptomatic or not, due to the risk of severe complications, except in the case of asymptomatic hernia in a high-risk elderly patient [2] [8]. The aim is to repair the diaphragmatic dome while preserving lung compliance as much as possible, to reintegrate the elements of the digestive tract into the abdomen and to avoid complications. This can be done laparoscopically or thoracoscopically, or even robotically; these are safe, minimally invasive approaches with low morbidity and shorter hospital stays [3] [9], or by open surgery (laparotomy or thoracotomy). Although many surgical approaches have been described, there is no consensus on a standard surgical approach, mainly due to the rarity of this condition [8]. We decided on a laparotomy rather than laparoscopy because of the risk of respiratory

distress due to pneumoperitoneum. The surgical procedure involves reinserting the hernia contents (stomach and transverse colon). This manoeuvre makes it possible to explore the hernial cavity, allowing the intrathoracic organs to be seen. The edges of the hernia are completely freed. The opening can be closed by suturing with separate stitches or a non-absorbable thread. This suture can be reinforced with a prosthesis. The opening can be closed by directly placing a Dual Mesh-type prosthesis secured with prolene stitches or staples. In cases of severe diaphragmatic hypoplasia, diaphragmatic reconstruction using a muscle flap (latissimus dorsi) may be necessary. Aspiration drainage of the chest cavity may be necessary [9]. We performed a diaphragmatic suture with 2/0 prolene and chest drainage. Postoperative complications are rare in hernias. The prognosis is generally favourable. However, mortality is 20% - 32% in cases of complications requiring emergency surgery [10].

4. Conclusion

Larrey's hernia is a very rare diaphragmatic hernia in adults. Its non-specific symptoms are responsible for delayed diagnosis. Diagnosis is based primarily on computed tomography. Treatment is surgical. The prognosis is generally favourable.

Ethics and Deontology

The patient has given his informed consent.

Conflicts of Interest

We declare no conflict of interest.

References

[1] McGivern, M.R., Best, K.E., Rankin, J., Wellesley, D., Greenlees, R., Addor, M., *et al.* (2014) Epidemiology of Congenital Diaphragmatic Hernia in Europe: A Register-Based Study. *Archives of Disease in Childhood—Fetal and Neonatal Edition*, **100**, F137-F144. https://doi.org/10.1136/archdischild-2014-306174

[2] Gdoura, H., Ammar, N., Chtourou, L., Moalla, M., Mnif, L., Amouri, A., Boudabous, M. and Tahri, N. (2023) Hernie de Morgagni de l'adulte. *Journal de l'information médicale de Sfax*, **44**, 50-53.

[3] Kovler, M.L. and Jelin, E.B. (2019) Fetal Intervention for Congenital Diaphragmatic Hernia. *Seminars in Pediatric Surgery*, **28**, Article ID: 150818. https://doi.org/10.1053/j.sempedsurg.2019.07.001

[4] Horton, J.D., Hofmann, L.J. and Hetz, S.P. (2008) Presentation and Management of Morgagni Hernias in Adults: A Review of 298 Cases. *Surgical Endoscopy*, **22**, 1413-1420. https://doi.org/10.1007/s00464-008-9754-x

[5] Le Roy, G., Petitprez, B. and Ammirati, C. (2013) Hernie diaphragmatique de Morgagni-Larrey. *Annales françaises de médecine d'urgence*, **3**, 250-250. https://doi.org/10.1007/s13341-013-0285-2

[6] Dingeldein, M. (2018) Congenital Diaphragmatic Hernia. *Advances in Pediatrics*, **65**, 241-247. https://doi.org/10.1016/j.yapd.2018.05.001

[7] Mohamed, F., Abdesslam, B., Abdelmalek, O., Hicham, E.B., Mouaqit, O., Benjeloun,

E.B., *et al.* (2022) Hernie de Morgagni: Forme exceptionnelle d'hernie diaphragmatique congenitale chez l'adulte (à propos d'un cas). *PAMJ Clinical Medicine*, **8**, Article 36. https://doi.org/10.11604/pamj-cm.2022.8.36.33031

[8] Abraham, V., Myla, Y., Verghese, S. and Chandran, B.S. (2012) Morgagni-Larrey Hernia—A Review of 20 Cases. *Indian Journal of Surgery*, **74**, 391-395. https://doi.org/10.1007/s12262-012-0431-x

[9] Favre, J.P., Hagry, O. and Cheynel, N. (2006) Traitement chirurgical des hernies diaphragma-tiques rares. *Encycl Méd Chir Techniques Chirurgicales-Appareil Digestif*, 40-247.

[10] Beyrouti, M.I., Beyrouti, R., Benamar, M., Affes, N., Dhieb, N., Bensalah, K., *et al.* (2009) Les hernies diaphragmatiques congénitales de l'adulte—À propos de 8 cas. *Médecine du Maghreb*, **12**, 74-81.