

# Accessory Hepatic Lobe Strangulated In Post-Traumatic Diaphragmatic Hernia

## Case Report

### Abstract :

The accessory lobe of the liver is a rare morphological variation. It is frequently found in the lower segments. Riedel's lobe is the best known of the accessory lobes of the liver and corresponds to an enlargement of segments V and VI with an incidence of 3.3% to 14.5%. It is often diagnosed incidentally and sometimes revealed by a complication, the association of a strangulated post-traumatic diaphragmatic hernia containing the Riedel's lobe is an unusual situation.

We report the first case of this association in a patient, admitted in emergency after a violent closed thoraco-abdominal trauma following a public road accident four days earlier. The physical examination was poor and the symptoms were non-specific. The diagnosis was made by preoperative imaging, the chest X-ray found the digestive gas into the thoracic cavity, The thorax and abdominal CT scan showed a solution of continuity of the right anteromedial part of the diaphragm through which protrudes in the intrathoracic the segment of the liver with parenchyma perfusion disorders and a dilated colonic segment in the right hemi thoracic cavity without signs of pneumatosis. There was a repression of the mediastinum organs to the left thoracic cavity. The surgical treatment consisted in a reduction of the hernia content, which was viable with the diaphragmatic defect closure with non absorbable interrupted suture. The post operative was uneventful. The aim of this study is to show the possibility of this association which must be kept in mind in case of violent closed thoraco-abdominal trauma or basithoracic injury.

**Keywords:** Accessory lobe of the liver, Diaphragmatic Hernia, Strangulated Riedel's lobe.

### Introduction.

The accessory lobe of the liver is a rare morphological variation and appears to be linked to excessive development of the liver. The presence of an accessory hepatic lobe is often incidentally diagnosed and sometimes revealed by torsion, especially in pedunculated forms. The incidence of Riedel's lobe in the literature varies from 3.3% to 14.5% (1). Post-traumatic diaphragmatic hernia (PTDH) is a particularly rare lesion that risks going unnoticed. The diagnosis of Riedel's lobe and PTDH is made incidentally or by a complication (2) (3). Thus, the association of a strangulated post traumatic diaphragmatic hernia containing the Riedel's lobe is an exceptional possibility. We report the case of a strangulated diaphragmatic hernia, with Riedel's lobe and the transverse colon contents in a patient admitted in emergency following an a traumatic blunt after an accident.

### Observation:

A 16-year-old woman patient without past medical history or surgical intervention, victim of a blunt traumatism after an accident with thoraco-abdominal impact 4 days ago, and who presents generalized abdominal pain with distension, with occlusive syndrome caused by discontinuation of matter and gas with vomiting, without externalized digestive hemorrhage, without fever, with a good overall health. On admission, the Glasgow coma scale was 15/15, pressure: 125/75 mmHg, Pulse: 85 bpm, respiratory rate of 28cpm, temperature: 37.5 ° C, sensitivity in the right upper quadrant, abdominal distension with dullness, and the hernia areas were free, rectal examination without any particularity.

The abdomen and chest X ray showed intra-thoracic digestive gas. The thoraco-abdominal CT and showed a defect in the anteromedial right area of the diaphragm muscle measuring 42X48 mm through which protrudes in the thoracic cavity from the supernumerary segment of the liver measuring 40X57 mm, with associated wide ranges of hepatic hypodensity probably related to parenchymal hypoperfusion. Visualization of a colic segment dilated to 77 mm without signs of pneumatosis in the right hemi thorax with repression of the mediastinum organs to the left thoracic cavity, with peritoneal effusion of low abundance (Figure 1). An emergency intervention was indicated, the surgical exploration by median laparotomy under supine position found a strangulated hernia in the anterolateral diaphragmatic defect of 4cm in diameter in the right with transverse colon content and great omentum viable (Figure 2), with a supernumerary lobe of the liver of the fifth segment: viable Riedel lobe (Figure3), with pleural effusion. The surgical procedure consisted in a reduction of the hernia content in the abdominal cavity after enlargement of the defect, and suturing of the diaphragmatic muscle solution with interrupted X sutures and drainage of the right thoracic cavity by jolly's Drain. The accessory lobe liver was preserved and turned back in the abdomen. The postoperative follow-ups were simple and uneventful with transit retake and feeding at D2. Thoracic drain removed at D4 postoperative and patient was discharged from hospital D5 postoperative.

## Results and discussion:

The accessory lobe of the liver is a rare morphological variation and a congenital anomalie (4). It is frequently found in the lower segments, embedded to the gallbladder or in the hepato-gastric ligament (4) (5). Described in 1888 by Carl Ludwig RIEDEL in a series of ten patients observations. It is a supernumerary ectopic lobe of the liver due to an excess morphological variation, known by several names: hepatic tongue, constriction lobe, floating lobe (3). Riedel's lobe is the best known of the accessory lobes of the liver and corresponds to an enlargement of segments V and VI (6). The incidence of Riedel's lobe in the literature varies from 3.3% to 14.5%. The prevalence is higher in women (4,5-19,4%), than in men (2,1-6,1%) (1) (6). The presence of an accessory hepatic lobe is often diagnosed incidentally, or rarely revealed by a complication, especially the torsion of the lobe around its pedicle (2) (3). For post traumatic diaphragmatic hernia, diaphragm rupture occurs in 1% to 7% of cases in patients after closed trauma or penetrating thoraco-abdominal wounds (7). A diaphragmatic hernia by migration of abdominal contents in the thoracic cavity has been reported in 60% of post traumatic diaphragmatic ruptures, and several clinical signs can follow. (7). The presence of the cardiac mass plays a role of protecting barrier against the occurrence of the left diaphragmatic hernias (8).

In our case, it is a 16-year-old patient, admitted in emergency for a strangulated diaphragmatic hernia following an abdominal Traumatism. The preoperative diagnosis by imaging objectived a diaphragmatic hernia with transverse colon and the lobe liver content complicated with perfusion disorders. This diagnosis was confirmed by surgical exploration which found a diaphragmatic hernia through the right dome of the diaphragm with transverse colon and the accessory lobe of the liver (Riedel lobe) strangulated but viable. The association of strangulation of Riedel's lobe in a post-traumatic diaphragmatic hernia has never been described in the literature. Most patients with a supernumerary lobe of the liver have a surgical history for congenital abnormality of the abdominal wall such as omphalocele or laparoschisis (6) (1).

Apart from the Riedel's lobe complication, the symptomatology is non-specific and variable depending on the location with a poor clinical signs. It can manifest as minor symptoms such as dyspeptic syndrome, nausea, vomiting or bloating caused by extrinsic compression or episodes of torsion (1). On physical examination in some patients, the existence of

an accessory lobe and in particular a Riedel's lobe can simulate a mass of the right upper quadrant, hepatomegaly, with abnormal liver function test. For our patient, it involves two major risks: the first one is the post traumatic diaphragmatic rupture to which is added the complication of hernia with risk of strangulation and stercoral pleural effusion as described by Kafih (2) the second is the torsion of the accessory liver lobe which is the most complication often described in the literature for Riedel's lobe as it is **for our patient**, simulating an acute abdomen (3) (9). Other complications that have been described in Riedel's lobe are traumatic rupture, infarction and hepatocellular carcinoma (10). The differential diagnosis of these symptoms are large kidneys, large vesicles, and liver tumors (3).

In general, the diagnosis is established by imaging assessments, notably abdominal ultrasound with or without color Doppler, abdominal CT, MRI, scintigraphy and arteriography. The abdominal CT is the most effective exam because of its rapidity of accessibility and its ease of realization as well as its effectiveness in emergencies (8). By the way, it has been observed that the CT scan can confuse certain small supernumerary lobes with retroportal lymph nodes. (4)

The asymptomatic or uncomplicated Riedel lobe does not require any special treatment, especially for the non-pedunculated. Surgical treatment with or without cholecystectomy may be indicated in cases of hepatomegaly or torsion with acute symptoms, metastatic lesion, hydatid cyst of the Riedel lobe (4). Some literatures suggest making a resection because of the frequency of tumors of the Riedel's lobe which is often difficult to differentiate on imaging and that the confirmation of the diagnosis is only made on pathophysiology of the specimen (1). The standard DH treatment is surgical. For symptomatic hernias, emergency surgery is necessary for both congenital and traumatic hernias. Surgical treatment for asymptomatic hernias may be delayed depending on the patient's condition (8). The repair of the diaphragm must be carried out by interrupted notch with non-absorbable coated sutures. However, in the case of a major defect in the diaphragmatic dome, the use of prosthetic mesh can prove useful in reinforcing the sutures after rolling out infection (11).

### **Conclusion:**

Riedel's lobe is a rare anatomical variation of the liver. Its strangulation during a post traumatic diaphragmatic hernia has never been described in the literature. It emerges from this **case report** that the possibility of this association must be kept in mind in the event of a violent closed thoraco-abdominal trauma or a basithoracic wound.

### **ETHICAL APPROVAL:**

As per international standard guideline, written ethical approval has been collected and preserved by the author(s).

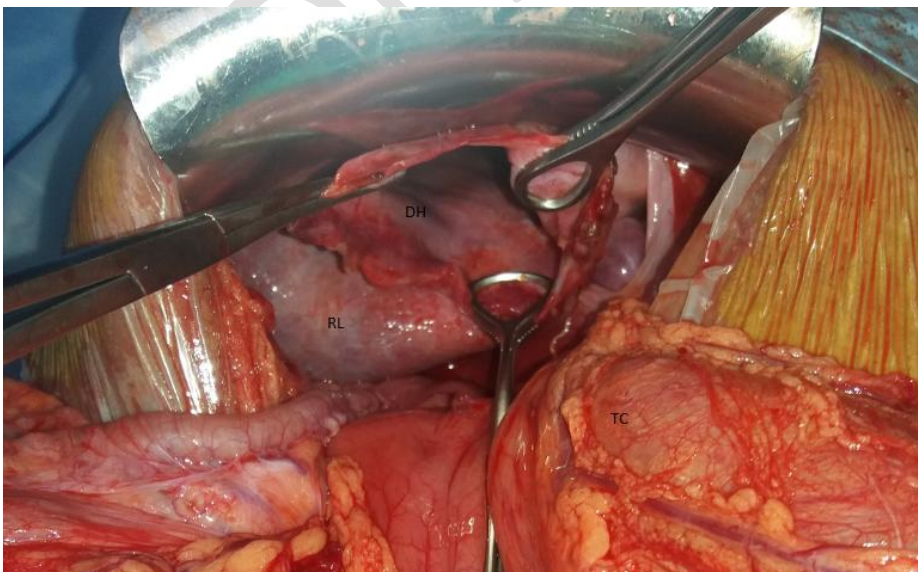
### **Consent Disclaimer:**

As per international standard or university standard, patient's consent has been collected and preserved by the authors.

Figure:



**Figure 1:** The thorax and abdominal CT scan: solution of continuity of the anteromedian right area of the diaphragm muscle through which protrudes in intrathoracic from the supernumerary segment of the liver (parenchymal hypoperfusion), and a colic segment dilated (C). Reidel's Lobe (RL), Liver (L).



**Figure 2 :** Right and anterolateral diaphragmatic hernia (DH) with transverse colic (TC) and Riedel's Lobe (RL)



**Figure 3 :** Supernumerary lobe of the liver at the expense of segment V: viable Riedel lobe (RL) And gallbladder (GB).

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