

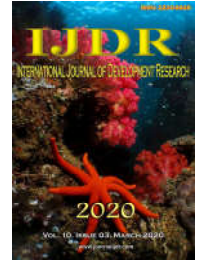


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## MORPHOLOGICAL CHARACTERISTICS OF THE IN FORMALIZED CORPS: AN OBSERVATIONAL STUDY

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### ABSTRACT

**Introduction:** The presence of a hepatic peduncle in the right lobe is characteristic of an accessory lobe called the Riedel lobe. This lobe is an anatomical anomaly prevalent in females. **Objective:** To acquire knowledge of the anatomical anomaly, the objective was to conduct a study of the morphological characteristics of the Riedel lobe in a formalized corpse. **Methods:** The work is based on a descriptive and observational study. The sample consisted of a formalized male corpse from the Human Anatomy Laboratory of the University of Brazil. A digital caliper was used to measure the hepatic and accessory lobes. The study was carried out from August to December 2019. The usual dissection of the peritoneal cavity was performed, leaving the largest gland in the human body exposed, mainly the visceral face of the liver. **Results and Conclusion:** Riedel's lobe is described as a palpable mass in the upper right quadrant below the lower ribs, it is not considered a true lobe, but rather a descending extension of the right lobe of the liver. There are not many studies on Riedel's lobe, therefore, more morphological and morphometric studies are suggested as well as histopathological studies of Riedel's lobe and right lobe parenchyma to compare liver cells and liver tissue functionality.

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## INTRODUCTION

The presence of a hepatic peduncle in the right lobe is characteristic of an accessory lobe called the Riedel lobe. This lobe is an anatomical anomaly prevalent in females. It is described as hypertrophy of the hepatic segments V and VI [1], with a rounded appearance at the lower margin, commonly in the form of a tongue, at the level of the lower costal cartilage [2]. The Riedel lobe can simulate a tumor, however, despite its elongated aspect, it maintains its usual parenchyma and other normal liver dimensions [3]. The lobe morphology is usually diagnosed incidentally and is sometimes revealed if torsion of the pedunculated lobe occurs (fixation rod that communicates the normal liver parenchyma with the Riedel lobe) [4], either during imaging exams such as ultrasound, computed tomography, magnetic resonance imaging (MRI)

and liver scintigraphy or finding during dissection in a human anatomy laboratory [5]. The clinical picture usually shows discomfort in the upper right flank, with no changes in vital signs and laboratory tests in most cases [6]. In most cases, the treatment is conservative, consisting of relative rest, cold compress, use of non-steroidal anti-inflammatory drugs and medical return of around 3 months for follow-up [7]. To acquire knowledge of the anatomical anomaly, the objective was to conduct a study of the morphological characteristics of the Riedel lobe in a formalized corpse.

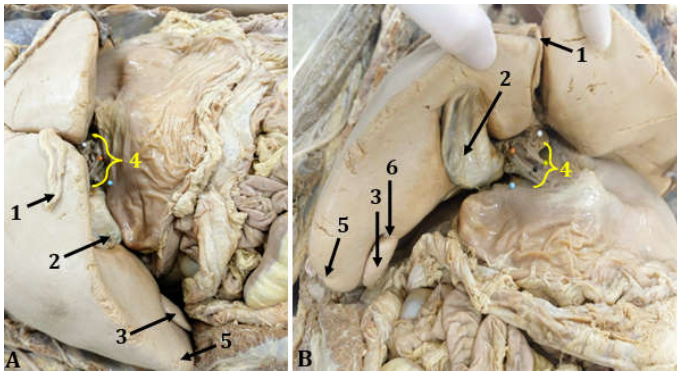
## METHODS

The work was based on a descriptive and observational study. The sample consisted of a formalized male corpse from the Human Anatomy Laboratory of the University of Brazil. A

digital caliper was used to measure the hepatic and accessory lobes. The study was carried out from August to December 2019. The usual dissection of the peritoneal cavity was performed, leaving the largest gland in the human body exposed, mainly the visceral face of the liver. The following keywords were used to search for literary data: Riedel's hepatic lobe, accessory lobe, anatomical anomaly, and cadaver.

## RESULTS

After dissection, it was possible to observe on the visceral face of the liver an anatomical anomaly in the right lobe of the liver, presenting in this segment, an accessory lobe, known as "Riedel's lobe" (Figures 1A and B), also observing other anatomical structures such as gallbladder biliary, round ligament and hepatic triad (formed by the hepatic artery, hepatic portal vein, and choledochal duct) (Figure 1B). The Riedel lobe with tongue-shaped morphology is connected to the parenchyma of the right lobe of the liver by a peduncle (Figure 1B). It was possible to measure Riedel's lobe, as shown in Figure 2, with measurements from top to bottom of 31.13 mm (Figure 2A) and right side to left 21.50 mm (Figure 2B).



**Figure 1.** Riedel's lobe in the right hepatic lobe in the visceral face of the liver. Anatomical structures of images A and B, being (1) round ligament of the liver; (2) gallbladder; (3) Riedel's wolf; (4) hepatic triad (hepatic artery [white pin], yellow [hepatic portal vein], black [bile duct]); (5) accessory cleft at the hepatic border; (6) hepatic peduncle

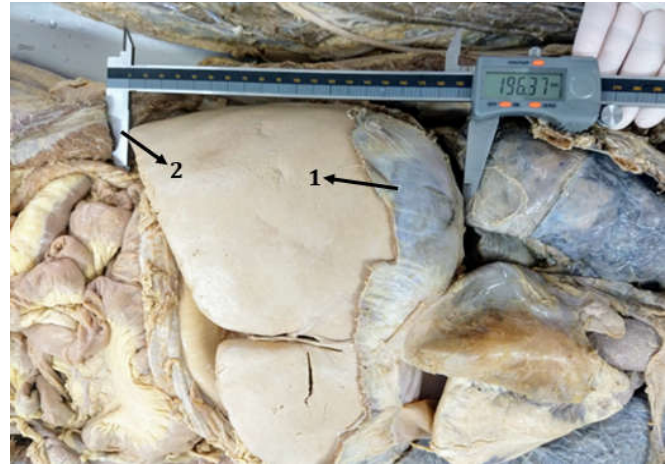


**Figure 2.** Measurements of the Riedel lobe in the visceral face of the liver; (A) from top to bottom (B) right margin with left

## DISCUSSION

During the analysis of the morphology and anatomical structures of the liver, elongation of the left hepatic lobe, Riedel's lobe and an increase in the size of the gland, characterized as hepatomegaly, were observed. To validate the size of the gland, the right hepatic lobe was measured at

196.37 mm (Figure 3) and due to the size of the liver, the hepatic border of the right lobe was close to the iliac crest (Figure 3). On the visceral face of this lobe, an accessory cleft was observed on the hepatic border (Figures 1A and B). The identification of accessory fissures in the liver is important for a radiologist, which avoids the incorrect diagnosis of cystic lesions or any macroscopic pathological lesions of the liver [6]. For GAUW *et al.* (2019) [5], the Riedel lobe can simulate hepatomegaly or tumor, however, despite its elongated aspect, it maintains its usual parenchyma and other normal liver dimensions. For the authors, Glenisson *et al.* (2014) [7], the Riedel lobe can simulate a mass in the upper right quadrant, with symptoms such as pain, vomiting, constipation or local swelling.



**Figure 3.** Measurement of the right hepatic lobe, showing an increase in "hepatomegaly", (1) diaphragmatic muscle, (2) digital caliper rod separating the iliac crest from the hepatic border of the right lobe of the liver

Generally, most accessory lobe patients have no symptoms and are rarely diagnosed in the early stages, being discovered in an unexpected way, such as in surgical interventions or autopsies. However, currently, the detection rate is increasing thanks to advances in imaging equipment and specific physical exams for clinical diagnosis of the accessory lobe [8-10]. And because of these situations, it is important to highlight the origin of the Riedel lobe. For Savopoulos *et al.*, (2015) [15], the etiology of Riedel's lobe can be in two ways "congenital or acquired". The congenital form of the lobe is provided by an anomaly called congenital dysembrioplastic in the development of a hepatic button, which can lead to the formation of an embryonic heteroplasia, known as congenital ectopic liver tissue, called the accessory lobe [11-13]. In the acquired form, the Riedel lobe is attributed to the tractions exerted by the adherent syndrome due to cholecystitis and lithiasis [13]. Still, in the acquired form, the picture of liver changes can be caused by age, whether by skeletal abnormalities, such as kyphoscoliosis with a large chest [16,17] other times secondary to intraperitoneal and intrapelvic inflammation or it can also occur after trauma or surgery [18]. Another relevant factor to highlight, patients with accessory lobe and without clinical complications, often do not present signs and symptoms, but, occasionally, they may present acute or recurrent stomach pains, chest pain, nausea and even vomiting [19]. However, patients with lobe complications, present with severe stomach pain, vascular obstruction, torsion ischemia, traumatic rupture, bleeding and even putrescence [19].

## Conclusion

Riedel's lobe is described as a palpable mass in the upper right quadrant below the lower ribs, it is not considered a true lobe, but rather a descending extension of the right lobe of the liver. There are not many studies on Riedel's lobe, therefore, more morphological and morphometric studies are suggested as well as histopathological studies of Riedel's lobe and right lobe parenchyma to compare liver cells and liver tissue functionality.

**Declaration of conflicts of Interest:** The authors declare nothing.

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