The Journal of Anatomical Sciences
Email: journalofanatomicalsciences@gmail.com

J. Anat Sci 15(2)
Submitted December 19th, 2023
Accepted July 18th, 2024
Published September 30th, 2024

Case Report: A Large Cadaveric Simple Hepatic Cyst

Anthony Bol Kon Giet, Olatunji Sunday Yinka, Sylvia Santos

Department of Anatomy, Adventist School of Medicine of East Central Africa, Adventist University of Central Africa, Kigali, Rwanda.

Corresponding Author: Anthony Bol Kon Giet

E-mail: anthonyg@asome.health Tel: +250790003501

ABSTRACT

Simple hepatic cysts are the most frequent forms of liver cysts, often filled with clear or yellow fluid. They are usually asymptomatic and are typically diagnosed in adulthood. Their prevalence however varies across populations. Ultrasound and serological tests are the primary diagnostic tools for distinguishing simple hepatic cysts from other liver cyst forms, such as cysticercosis. We present an exceptional case of a giant simple hepatic cyst discovered during routine cadaveric dissection in the anatomy laboratory. This ellipsoid cyst contained thick, yellow, mucus-like fluid and occupied the entire right lobe of the liver, extending partially into the left lobe. The cyst wall was thin- stimulating a simple hepatic cyst and was found in a 56-year-old male cadaver. The cyst compressed the adjacent structures and caused a significant atrophy of the right lobe of the liver. While simple hepatic cysts are usually diagnosed clinically using ultrasound and serology, their identification through cadaveric findings is rare. The unique features of this cyst include its large size, its significant impact on adjacent structures including atrophy of the right lobe of the liver, and the abnormally large stomach observed in this cadaver. This unusual case prompted our interest and led to this report. The report covers a relevant literature review on the major features of this case and no information concerning the cause of death was covered as it was a finding during dissection.

Keywords: Simple Hepatic Cysts, Cadaveric Findings

INTRODUCTION

Simple hepatic cysts are the most common type of liver cysts in the general population. They are often asymptomatic and are filled with clear or yellow fluid [1]. They occur in 2.5% of the population becoming increasingly common with age. They show a preference for women and the right lobe of the liver and are occasionally multiple [2]. Simple hepatic cysts are considered non-infectious and are congenital biliary developmental aberrations. During embryogenesis, aberrant intrahepatic bile ducts develop and dilate to form hepatic cysts. They may be due to the presence of other underlying conditions that involve kidney and pancreatic cysts [2].

Symptoms appear at times due to hemorrhagic rupture, mass effect, and other complications. The causes of liver cysts are unknown but are believed to be present at birth due to malformation which can develop later in adulthood [3]. They usually grow slowly and are not detected until adulthood. Simple hepatic cysts can grow to variable sizes ranging from a few millimeters to tens of centimeters in diameter [4]. When hepatic cysts expand in size, they compress the adjacent liver tissue, causing atrophy, and massive cysts can cause complete atrophy of a hepatic lobe that they invade [5].

Most simple hepatic cysts are generally small and can disappear slowly and spontaneously. They enlarge only in 15% of cases [6]. In the living, ultrasound and serology are the major ways to differentiate a simple hepatic cyst from other forms of cysts [7]. According to Asuquo *et al.* [5], laparoscopic deroofing is the best treatment to combat simple hepatic cysts, however, the control of hepatic cysts is still a debatable topic despite the treatment options mentioned. If not repaired at the early stages of life, simple hepatic cysts can cause biliary obstruction and other complications [8].

In this report, we present a case of a large cadaveric hepatic cyst from a 56-year-old male cadaver. Dissection revealed that the cyst occupied the right

lobe of the liver leading to compression of the adjacent structures. The size of the cyst, its impact on the adjacent structures, and a rare cadaveric finding of such large hepatic cysts prompted our interest in reporting this case. The case describes the clinical and anatomical features of this interesting and unique case we observed during our routine cadaveric dissection, highlighting its educational and clinical significance.

CASE REPORT

While we opted to remove the liver during cadaveric dissection, the right lobe of the liver was exposed and peritoneal reflections from the liver were cut. Upon pulling the liver downwards from the dome of the diaphragm, we observed a large hepatic cyst (Figures 1 - 6) in a 56-year-old male cadaver. The cyst wall was excised widely to expose the cystic fluid. The cyst was filled with yellow mucus-like fluid, and it occupied the entire right lobe of the liver, but a small part extended to the left lobe. The fluid was collected in a plastic sack and then poured into a measuring beaker for quantification. The cyst contained approximately 6 Liters of viscous fluid upon measurement. The fluid was distributed into several pouches. This massive cyst was in close connection with the liver, invading most of the quadrate lobe and caudate lobe and compressing the liver, thereby making it smaller (Figures 1 and 2).

Figure 1: Showing the cyst in situ (red arrow) and thick mucus-like fluid (blue arrow) spills out on excision.

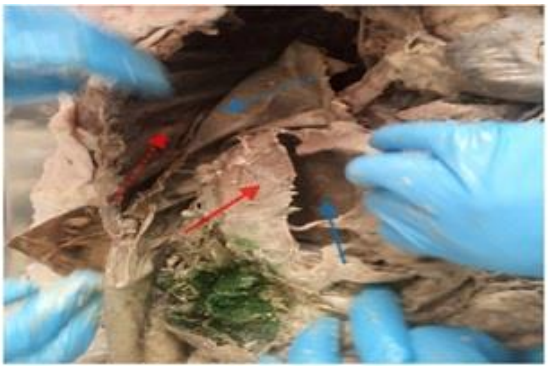

Figure 2: Showing the thin cystic wall (bold red arrow), deep cystic cavity with some fluid (bold blue arrow), right side of thoracic cavity (dotted red arrow) and right doom of the diaphragm (dotted blue arrow)

On close examination, we observed that it was divided by thin septa into several pouches that largely invaded the liver. It was observed that the cyst also had some connections with the biliary system (Figure 4), an indication that it might be of biliary origin [2]. Few studies reported some complications associated with simple hepatic cysts such as rupture, biliary obstruction, and obstruction of the inferior vena cava but they were not apparent in this case [9, 10].

Figure 3: Showing abnormally large stomach (blue arrow) and an unruptured simple hepatic cyst (red arrow).

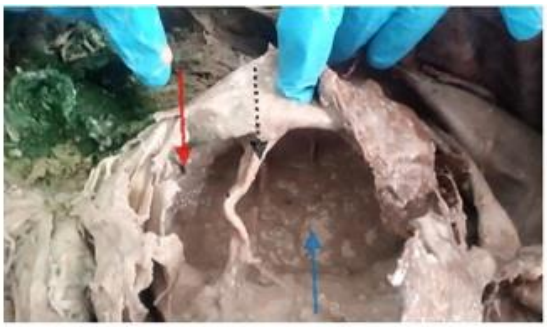

Figure 4: Showing a septum within the cyst (dotted black arrow), its relations with the biliary system (red arrow), and the thick mucus like fluid in the cystic cavity (blue arrow).

Figure 5: Showing the thin wall of the cyst (red arrow) and a teared septum (blue arrow).

Figure 6: Showing reflected wall of the cyst (red arrow), thick cystic fluid (blue arrow), and hepatic tissue (red dotted arrow)

DISCUSSION

Simple hepatic cysts are a rare finding in cadaveric dissections given the fact that it's not a widely embraced practice. The prevalence of hepatic cysts varies across populations, and this may be because of the differences in populations examined, and in diagnostic methods, techniques, and experience of the examiners [5]. In line with the study by Tsuruya *et al.* [2] the cyst covered by this report was largely embedded in the right lobe of the liver causing atrophy of the right lobe though some part extended to the left lobe. The cyst was a large ellipsoid structure containing about 6 liters of mucus-like fluid. A study by Shimizu *et al.* [7] on the management of simple hepatic cysts reported that simple hepatic cysts may cause abdominal distension because of compression of the abdominal contents. In this study, we observed an abnormally large stomach. On close examination after the rupture, we observed that it was septated with several septa extending into the left lobe. It was observed that the cyst seems to have some connections with the biliary system.

Tsuruya *et al.* [2], reported that simple hepatic cysts can be septated with thin irregular walls which we observed in this case. They enlarge only in 15% of cases and compress the adjacent structures. Although the literature reveals that massive hepatic cysts can cause heart failure by compressing the IVC, it was not clear if the cause of death had something to do with the compression of the heart by the cyst. Gaines *et al.* [9], revealed that simple hepatic cysts are a congenital abnormality that is usually asymptomatic with no clinical importance or may be associated with certain conditions or syndromes such as polycystic kidneys. The cadaver had two seemingly healthy left and right kidneys in this case.

In addition, simple hepatic cysts are said to arise when excess bile ductules, during earlier embryonic life, fail to involute and fail to communicate with the main biliary tree and if not addressed in the early stages of life, simple hepatic cysts can cause biliary obstruction and other associated complications. None of these complications was apparent in this case. This case showed a cystic structure filled with 6 liters of yellow fluid characteristic of simple hepatic cysts. Some cysts may contain larger amounts of fluid such as that reported by Asuquo *et al.* [5], with 17 liters of fluid. Though simple hepatic cyst shows preference in women and the right lobe of the liver, some forms can be found in males and the left lobe of the liver as observed in this case. In line with the study by Asuquo *et al.* [5], the cyst in this case showed an extensive compression of the liver lobe it invaded. No underlying conditions such as kidney cysts were observed in this case as the kidneys were normal which is contrary to the study by Tsuruya *et al.* [2].

REFERENCES

1. Yanai H, Tada N. A simple hepatic cyst with elevated serum and cyst fluid CA19-9 levels: a case report. J Med Case Rep. 2008;2(1):329. Available from: http://dx.doi.org/10.1186/1752-1947-2-329
2. Tsuruya K, Nishizaki Y, Tatemichi M, Mishima Y, Shimma Y, Arase Y, et al. The prevalence and natural history of hepatic cysts examined by ultrasound: a health checkup population retrospective cohort study. Sci Rep. 2022;12(1):12797. doi: 10.1038/s41598-022-16875-z
3. Banerjee R, Lakhoo K. A rare large symptomatic simple hepatic cyst. BMJ Case Reports 2013; bcr2013200094. http://dx.doi.org/10.1136/bcr-2013-200094
4. Bernshteyn MA, Masood U. Hepatic Cyst. StatPearls Publishing; 2023.
5. Asuquo M, Nwagbara V, Agbor C, Otobo F, Omotoso A. Giant simple hepatic cyst: a case report and review of relevant literature. Afr Health Sci. 2015;15(1):293–8.
6. Atimati AO, Anikoh SS. Congenital hepatic cyst with severe malnutrition in an infant: A case

report. Nig J Gastroenterol Hepatol. 2019;11(1):31–4.
7. Shimizu T, Yoshioka M, Kaneya Y, Kanda T, Aoki Y, Kondo R, et al. Management of simple hepatic cyst. J Nippon Med Sch. 2022;89(1):2–8. Available from: http://dx.doi.org/10.1272/jnms.JNMS.2022_89-115
8. Naitoh H, Fukasawa T, Fukuchi M, Kiriyama S, Tabe Y, Yamauchi H, et al. Intrahepatic biliary dilatation caused by a small simple hepatic cyst: Report of a case. Int Surg. 2014;99(6):753–6.
9. Gaines PA, Sampson MA. The prevalence and characterization of simple hepatic cysts by ultrasound examination. Br J Radiol 1989;62(736):335–7.
10. Ruano Campos A, de la Serna S, Cruz Utrilla A. Simple liver cyst presenting with clinical signs and symptoms of right-sided heart failure. Rev Esp Enferm Dig. 2019;111(11):893. URL: http://dx.doi.org/10.17235/reed.2019.6271/2019