CASE REPORT

Gallbladder volvulus and hernia through the foramen of Winslow: a case report

Toan Huy Nguyen1,*, Kinh Huy Tran1, Xuan Anh Le1, Huong Van Nguyen1 and Quyet Van Ha2

1Department of General Surgery, Nghe An General Hospital, Nghe An Province, Vietnam and 2Department of General Surgery, Ha Noi Medical University, Ha Noi City, Vietnam

*Correspondence address. Department of General Surgery, Nghe An General Hospital, Lenin Boulevard, Nghi Phu Ward, Vinh City, Nghe An Province, Vietnam. Tel: +84-946 254777; E-mail: Dhuytoan@yahoo.com

Abstract

Gallbladder hernia through the foramen of Winslow is an uncommon condition and gallbladder hernia combined with volvulus is even rarer. A 70-year-old patient was hospitalized with the clinical signs of pain in the right hypochondriac region associated with fever. The computed tomography scan images showed some signs of gallbladder herniation through the foramen of Winslow. We decided to remove the gallbladder and found the gallbladder infundibulum twisted and necrotic. This was the first case of a male patient who suffered from gallbladder herniation with volvulus after three cases of female patients reported in the literature.

INTRODUCTION

Internal hernia through the foramen of Winslow (epiploic foramen) was first recognized and reported in 1834 by Bladin. This is a very rare type of internal hernia, which only accounts for 8% of all internal hernias [1]. Gallbladder volvulus is also an uncommon disease, which was first described by Wendel in 1989 and there were only 500 reported cases in the English literature [2, 3]. Only 3 previous cases of internal herniation of the gallbladder through the foramen of Winslow with gallbladder volvulus have been reported in the literature [4–6]. Recently, although imaging modalities have been significantly improved, making an accurate diagnosis of these cases before surgery is still a challenge for clinicians.

CASE REPORT

A 70-year-old male patient, with a past medical history of chronic obstructive pulmonary disease and no previous abdominal surgery, was hospitalized with the chief complaint of pain in the right hypochondriac region, fever (38°C). The clinical examination showed that the patient was conscious and had slight jaundice. The gallbladder could not be palpated in the right hypochondriac region and abdominal guarding was present.

The blood count results were as follows: red blood cell: 4.89 T/L; white blood cell: 22.32 G/L (Neutrophil: 91%); platelet: 329G/L; hematocrit: 28.5%; prothrombin (PT): 93.4%. The biochemical analysis showed: creatinin: 70 μmol/l; albumin: 38 g/l; total bilirubin: 18.9 μmol/l; serum glutamic-oxaloacetic transaminase 256 IU/l; alkaline phosphatase 143 IU/l; alanine transaminase 33 IU/l; lactate dehydrogenase 254 IU/l.

**Received:** July 30, 2020. **Revised:** August 29, 2020. **Accepted:** September 17, 2020

Published by Oxford University Press and JSCR Publishing Ltd. © The Author(s) 2020. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.
cholecystitis. was discharged on postoperative Day 10. The histopathology was
region. The patient had an uneventful postoperative course and
omentum. A suction drain was placed in the hypochondriac
and the foramen of Winslow was narrowed with the greater
We attempted to bring the gallbladder back to the normal posi-
the whole gallbladder was necrotic with darkened color (Fig. 2).
the foramen of Winslow. The infundibulum was twisted and
was opened and the stomach was retracted superiorly. The
was not seen in its normal location. Then, the greater omentum
hernia through the foramen of Winslow was made.

An emergency operation was indicated. Initially, we approac-
the abdominal cavity with laparoscopy and the gallbladder
of the duodenum. It also pushed the stomach anteriorly and
was seen inside the lesser sac and on the left of the D2 part
was located posterior to the stomach (black arrows).

Figure 1: Abdominal CT images: A (axial view): duodenum (arrow) and the
gallbladder located on the left of the duodenum and posterior to the stomach
(arrow head), B (coronal view): the gallbladder was situated under the stomach
and far from the gallbladder bed.

Figure 2: Intra-operative photographs: A: the torsion point at the gallbladder
infundibulum (black arrow head); B: necrotic gall bladder (white arrow heads)
located posterior to the stomach (black arrows).

transaminase (SGOT): 14 U/L (< 35); serum glutamic-pyruvic
transaminase (SGPT): 42 U/L (<35); carcinoma embryonic antigen
(CEA) 2.5 ng/ml; Ca-199 38.5 U/ml.

The abdominal computed tomography (CT) showed that the
gallbladder was enlarged and distended, with 55 mm in trans-
verse diameter and 7 mm in wall thickness. The gallbladder
was seen inside the lesser sac and on the left of the D2 part
of the duodenum. It also pushed the stomach anteriorly and
superiorly (Fig. 1). The diagnosis of cholecystitis and gallbladder
hernia through the foramen of Winslow was made.

Regarding gallbladder hernia into the lesser sac via the foramen
of Winslow, since the first case reported by McCrae in 1951, there
were only 13 reports of operated cases and all of them were
females. Among these patients, only three cases were associated
with gallbladder volvulus and all of them were cholecystitis
which was confirmed by post-operative histopathology [7]. Our
patient was the fourth reported case of gallbladder volvulus
combined with herniation through the foramen of Winslow.

Because of the difficulty in making a diagnosis of internal
hernia, the role of imaging modalities is very important. In the
past, these herniations were often assessed with conventional
abdominal X-ray with contrast. Recently, CT scan has become
the first choice of imaging for these patients thanks to its fea-
sibility, short processing time and its ability to reconstruct the
abdominal organs [8]. The typical findings of gallbladder hernia
through the foramen of Winslow in CT scan are as follows: the
presence of the gallbladder in the lesser sac, between the inferior
vena cava and the hepatoduodenal ligament; the image fluid-
filled cyst in the lesser sac with an end near the anterior aspect
of the foramen of Winslow [7].

In our particular patient's case, the clinical findings did not
show anything special. There was only continuous pain in the
right hypochondriac, in combination with sepsis syndrome. On
imaging, the radiologists suggested the image of gallbladder her-
nia through the foramen of Winslow. Nevertheless, the diagnosis
of gallbladder volvulus could only be made intra-operatively. Not
all cases of torsion can be identified in pre-operative CT scan
images, even when there is no herniation. It was suggested that
it would be more feasible to diagnose gallbladder volvulus if CT-
guided puncture with contrast injection was used [6] because
the contrast agent could not enter the main bile duct or the
infra-hepatic bile duct and would be stuck at the infundibulum.
However, in case when the patient comes to see clinicians with
acute abdominal pain and requires surgically intervened as soon
as possible, the use of these sophisticated diagnostic measures
is not practical. Furthermore, the data also showed that only 1%
of all volvulus cases was diagnosed pre-operatively [9].

CONCLUSIONS
CT scan is the first tool of choice in diagnosing gallbladder
hernia. However, a clear view of the gallbladder infundibulum
is not always achieved. Preoperative CT-guided puncture
with contrast injection of the biliary tract could be a helpful
method to accurately determine the torsion of the gallbladder
infundibulum.

SUPPLEMENTARY MATERIAL
Supplementary material is available at JSCR Journal online.

CONFLICT OF INTEREST STATEMENT
None declared.

REFERENCES
1. Harnsberger CR, McLemore EC, Broderick RC, Fuchs HF, Yu PT,
Berducci M, et al. Foramen of Winslow hernia: a minimally
invasive approach. Surg Endosc 2015;29:2385–8.
2. Wendel AV. VI. A case of floating gall-bladder and kidney
complicated by cholelithiasis, with perforation of the gall-
bladder. Ann Surg 1898;27:199–202.
3. Pu T-W, Fu C-Y, Lu H-E, Cheng W-T. Complete body-neck
torsion of the gallbladder: a case report. World J Gastroenterol:
WJG 2014;20:14068–72.
4. Nagahori J. Herniation of the gallbladder through the foramen of Winslow. Ryokibetsu Shokogun Shirizu 1996;9:432–5.
5. McGrea AN. Herniation of the gall-bladder through the foramen of Winslow. BJS Br J Surg 1951;38:386–7.
6. Bach D, Satin R, Palayew M, Lisbona R, Tessler F. Herniation and strangulation of the gallbladder through the foramen of Winslow. Am J Roentgenol 1984;142:541–2.
7. Numata K, Kunishi Y, Kurakami Y, Tsuchida K, Yoshida T, Osaragi T, et al. Gallbladder herniation into the lesser sac through the foramen of Winslow: report of a case. Surg Today 2013;43:1194–8.
8. Martin LC, Merkle EM, Thompson WM. Review of internal hernias: radiographic and clinical findings. Am J Roentgenol 2006;186:703–17.
9. Bhama A, Ahari A, Chong H. The diagnostic dilemma of gallbladder volvulus: report of a case. Gen Intern Med Clin Innov 2016;1:30–5.