



Greater Omental Torsion Secondary to a Right Inguinal Hernia: A Case and Literature Review

Luvo Gaxa*, Christiaan Elsenbroek, Ferdinand Jonkers, Nonjabulo Makhanya, Zarina Lockhat, Betsie van der Walt, Farhana Suleman and Meshack Ndweleni Bida

Department of Radiology, University of Pretoria, South Africa

Abstract

Thirty nine year old male patient presented to the emergency department with a one week history of right iliac fossa pain and constipation.

The clinical differential diagnosis included: Appendix mass/abscess, incarcerated inguinal hernia, Amyand's hernia (incarcerated appendix in an inguinal hernia) and a right iliac fossa tumor. Initial treatment included analgesia with intravenous fluids, nasogastric tube on free drainage and intravenous antibiotics.

CT scan showed a right inguinal hernia with the inferior tip of the greater omentum incarcerated in the right inguinal canal.

Keywords: Greater omental torsion; Right inguinal hernia; Laparotomy

Introduction

Greater omental torsion is an extremely rare acute abdominal condition that is not commonly diagnosed pre-operatively. We report a case of a radiological, histological and a surgically proven right sided omental torsion that occurred secondary to a right inguinal hernia.

Greater omental torsion was diagnosed on contrast enhanced Computed Tomography (CT) scan, and it was continuous with the right inguinal hernia. Omental torsion should be included in the differential diagnosis of acute abdomen with a mass although it is rare (especially in patients with a right inguinal hernia).

OPEN ACCESS

*Correspondence:

Luvo Gaxa, Department of Radiology,
University of Pretoria, Private Bag x323,

Arcadia 0007, South Africa,

E-mail: luvogaxa@yahoo.com

Received Date: 25 Nov 2019

Accepted Date: 17 Jan 2020

Published Date: 23 Jan 2020

Citation:

Gaxa L, Elsenbroek C, Jonkers F,
Makhanya N, Lockhat Z, van der Walt
B, et al. Greater Omental Torsion
Secondary to a Right Inguinal Hernia:
A Case and Literature Review. *World J
Surg Surg Res.* 2020; 3: 1187.

Copyright © 2020 Luvo Gaxa. This is
an open access article distributed under
the Creative Commons Attribution
License, which permits unrestricted
use, distribution, and reproduction in
any medium, provided the original work
is properly cited.

Case Presentation

A 39-year-old male patient presented to the emergency department with a 1-week history of right iliac fossa pain and constipation. There was no previous medical or surgical history, and no history of alcohol intake or smoking.

On examination the patient was well with a GCS of 15/15, alert and awake. The patient had a fever of 37.8 degrees and the blood pressure was 120/78 mmHg. The lungs were clear and the heart was normal.

The abdomen was distended, generally tender with peritonism, with a clear mass in the right iliac fossa/right flank. The rectal examination was normal.

The white cell count was elevated at $15.68 \times 10^9/L$, and C Reactive Protein (CRP) was 398 mg/L.

The clinical differential diagnosis included: Appendix mass/abscess, incarcerated inguinal hernia, amyand's hernia (incarcerated appendix in an inguinal hernia) and a right iliac fossa tumor. Initial treatment included analgesia with intravenous fluids, nasogastric tube on free drainage and intravenous antibiotics (Augmentin 1.2 g 12 hourly).

Computed Tomography (CT) scan showed a right inguinal hernia with the inferior tip of the greater omentum incarcerated in the right inguinal canal. The rest of the greater omentum was thickened with marked fat stranding presenting as a mass in the right flank. The greater omentum was twisted on itself, with the vascular pedicle at the transverse colon/stomach greater curve free edge and the right inguinal hernia serving as anchors. There was a greater omental whirling sign in-keeping with omental torsion with a visible axis of torsion. There was decreased arterial blood flow with cut-off at the greater curve of the stomach vascular pedicle (descending gastroepiploic branches) and venous congestion of the twisted omentum (Figure 1 and 2).



Figure 1: Axial contrast enhanced CT slices-Arterial phase (superior to inferior): Right flank omental mass with fat stranding and decreased arterial flow. (a) Arrow shows twisted pedicle inferior transverse colon. (b) Arrow shows axis of torsion. (c) Arrow shows right inguinal hernia with omentum.

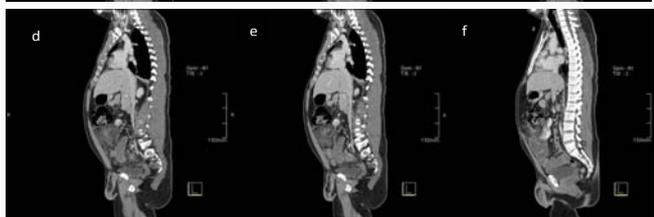


Figure 2: Sagittal contrast enhanced CT slices-Venous phase (right to left): (a-f) Right flank omental mass with fat standing and whirling vessels. (b) Arrow shows extension into right inguinal hernia. (f) Twisted vascular pedicle (arrow).

Emergency surgery was performed and this showed a right indirect inguinal hernia containing necrotic omentum, with necrotic omentum up to the transverse colon; stomach. Small bowel and the large bowel were grossly normal. No other masses noted. Solid organs were all normal.

The necrotic omentum was resected, inguinal hernia repaired using tissue closure technique (no mesh), and sheath closed with PDS loop 0 and skin using Nylon 2-0.

The patient was discharged on day 3 post operatively without complications (Figure 3).

Histology showed omentum with fat necrosis and vascular congestion (Figure 4a and 4b).

Discussion

Embryologically, the greater omentum is derived from the dorsal mesentery as a sheet consisting of four peritoneal layers suspended from the greater curvature of the stomach to cover the abdominal viscera [1].

The term torsion refers to the process whereby there is vascular compromise of an organ resulting from the organ twisting in its long axis [2]. Omental torsion may be either primary or secondary in presentation [3]. Omental torsion is recognized as “unipolar” and “bi-polar” types. A unipolar type is characterized by the proximal fixation of the omentum and the other tongues remain free. Bi-polar omental torsion is characterized by fixation of both the proximal and the distal omentum.



Figure 3: Surgical specimen showing omental necrosis.

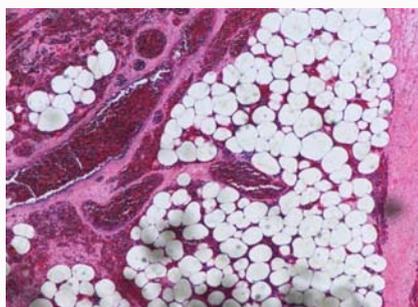


Figure 4a: Hematoxylin and Eosin section of the omentum showing vascular congestion, x40 magnification.

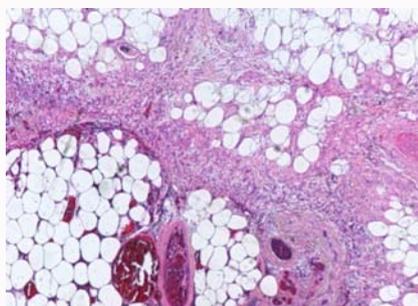


Figure 4b: Hematoxylin and Eosin section of the omentum showing ischemic fat necrosis, x40 magnification.

According to the hypothesis, unevenly distributed fat in the omentum acts as a lead point [3]. Secondary torsion may result from tumor, hernia, adhesion and cysts [3]. Omental torsion is more common on the right side because of three reasons [4]:

1. Right omentum is less vascularized and has a poor collateral system compared to the left.
2. More mobile than the left.
3. Longer than the left.

The predisposing factors to the primary omental torsion are:

- (a) Bifid or accessory omentum leading to a spontaneous torsion
- (b) Violent exercise
- (c) Sudden movements

- (d) Hyper-peristalsis
- (e) Obesity

Omental torsion is very rare and it is very difficult to diagnose pre-operatively due to ambiguity of clinical presentation [5]. The clinical features mimic the features of appendicitis, which are nausea and vomiting, right iliac fossa pain or generalized abdominal pains, leukocytosis and fever [5]. Comparing the probability of diagnosing a case of omental torsion vs. a case of appendicitis the prevalence is 0.0016% to 0.37% (ratio of 4:1000) [5].

The first case of omental torsion was described by Eitel in 1899, and since then there are less than 250 cases described in the literature worldwide [6].

Omental torsion is commonly seen in obese adult male patients in the third to fifth decade. The prevalence in children is also reported and is seen in 0.1% to 0.5% of children undergoing surgery for presumed appendicitis [7].

On ultrasound omental torsion presents as a solid hyper-echoic lesion in most instances [8].

On Computed Tomography (CT) omental torsion presents as a whirl-pool sign in a fatty mass that has an appearance of concentric strands [7]. Performing an abdominal CT scan also aids in excluding other pathologies such as appendicitis, diverticulitis and cholecystitis which are the important clinical differential diagnoses for omental torsion [7].

Radiologically, the differential diagnoses for the appearance of omental torsion are: lipoma; liposarcoma; fat necrosis secondary to pancreatitis; angiomyolipoma; mesenteric lipodystrophy; teratoma and abdominal panniculitis [8].

The histological findings of omental torsion are fat necrosis with areas of fibrosis indicative of a long standing process [9].

Conclusion

The clinical symptoms of greater omental torsion are non-specific and the diagnosis is usually made intra-operatively. Awareness and inclusion of greater omental torsion as one of the differential diagnoses is of utmost importance especially in patients who present with acute abdomen and inguinal hernia.

The diagnosis of greater omental torsion needs multi-disciplinary co-operation as the diagnosis is based on the clinical and surgical history, radiological investigations and pathology findings. The ultimate management of greater omental torsion is surgical.

Authors Contribution

Luvo Gaxa, NonjabuloMakhanya: Substantial contributions to conception and design, drafting the article, revising the article critically for important intellectual content and final approval of the version to be published.

Christiaan Elsenbroek, Ferdinand Jonkers, Zarina Lockhat, Betsie Van Der Walt, Farhana Suleman, Meshack NdwelaniBida: Analysis, revising the article critically for important intellectual content and final approval of the version to be published.

References

1. Joshi S, Cuthbert GA, Kerwat R. Omental torsion, a rare cause of acute abdomen. *BMJ Case Rep.* 2016;2016.
2. Jain P, Chhabra S, Parikh K, Vaidya A. Omental torsion. *J Indian Assoc Pediatr Surg.* 2008;13(4):151-2.
3. Occhionorelli S, Zese M, Cappellari L, Stano S, Vasquez G. Acute Abdomen due to Primary Omental Torsion and Infarction. *Case Rep Surg.* 2014;2014:208382.
4. Kim SY, Kim HT. Omental torsion and infarction with right inguinal hernia: A case report. *J Korean Soc Radiol.* 2017;77(3):183-6.
5. Zaleta-Cruz JL, Rojas-Mendez J, Garza-serna U, Gonzalez-Ruvalcaba R, de Elguea-Lizarraga OJ, Flores-Villalba E. Omental torsion. *Case report. CirugíayCirujano.* 2017;85(1):49-53.
6. Dhooge V, Reynders D, Cools P. Torsion of a bifid omentum as a rare cause of acute abdomen: A case report. *J Med Case Rep.* 2016;10(1):289.
7. Tasleem A, Zaman Q, Thomas DA, Payne JG, Kerwat R, Khan AA. Omental torsion: An unusual cause of right iliac fossa pain and role of laparoscopic management. *Gastroenterol Res.* 2013;6(6):237-9.
8. Issar P, Issar SK. Torsion of greater omentum-characteristic CT finding. *Tropical Gastroenterol.* 2017;38(2):143-4.
9. Ali SD, Sheeraz-ur-Rahman S. Common presentation uncommon diagnosis primary omental torsion. *J Pak Med Assoc.* 2013;63(1):117-9.