Radiological manifestations of benign mesenteric lipoma that presented with acute intestinal obstruction: A case report

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Abstract

Background: Intestinal obstruction is a common surgical emergency that is presented to the hospital with various aetiologies. Among all, mesenteric lipoma is one of the uncommon extraluminal causes of intestinal obstruction. In such conditions, bowel volvulus, compression or even adhesion are the underlying pathologies.

Case presentation: We report a 69-year-old gentleman who presented with a triad of intestinal obstruction which required exploratory laparotomy. Preoperative computed tomography revealed multiple coalescing lobulated hypoattenuating lesions encircling part of a small bowel forming transitional zone. These lesions are comparatively more hypoattenuating in comparison with the surrounding mesenteric fat. Intraoperatively, a giant ileal mesenteric lipoma was identified causing compression and folding to the adjacent small bowel, leading to proximal bowel dilatation. Excision of the lipoma with a few mesenteric lymphadenectomy was done, revealing a benign mesenteric lipoma and reactive lymph nodes. Despite ileus, he made a good postoperative recovery and was discharged well.

Conclusions: Patients with recurrent abdominal pain must have a thorough endoscopic and imaging assessment. Besides common or malignant aetiology, rarities should be considered and actively sought. Mesenteric lipoma is a relatively indolent tumour for which early detection can alter clinical presentation.

Keywords: Atypical lipoma, Case report, Computed tomography, Intestinal obstruction

Background

Lipoma is a common benign tumour most frequently encountered as subcutaneous swellings, they rarely occur in deep-seated areas such as intrathoracic, intraperitoneal, retroperitoneal and paratesticular. Mesenteric lipoma is a rare example of intraperitoneal lipoma. Mesenteric lipoma is infrequently encountered benign tumours consisting of mature adipose tissue. There are scanty descriptions of this pathology in English literature so far [1–4]. They are more common in those aged above the age of 40 years old, with diabetes mellitus, hyperlipidaemia, trauma, radiation history, obesity and chromosomal translocation [5]. Most mesenteric lipomas are asymptomatic but larger lesions tend to display symptoms [2]. Hereby, we report a rare case of adult small bowel obstruction due to mesenteric lipoma.

Case presentation

A 69-year-old gentleman presented with abdominal pain and distension for 4 days, associated with vomiting and no bowel opening. He has underlying diabetes mellitus, hypertension and chronic kidney disease. He has no family history of malignancy. He had an upper and lower endoscopy 3 years ago for a similar problem which revealed no significant findings. Upon examination, the abdomen was distended but no palpable mass. There was no mass on the digital rectal examination. The biochemical examinations were unremarkable. Abdominal radiograph in a supine position (Fig. 1) showed a centrally...
distributed small bowel dilatation with prominent valvu-
lae conniventes. The large bowels are not dilated. There
is no abnormally located air suggesting pneumatosis
intestinalis or pneumothorax. Post-contrast computed
tomography (CT) scan of the abdomen in axial (Fig. 2A)
and sagittal (Fig. 2B) view revealed multiple coalesc-
ing lobulated hypoattenuating lesions encircling part of
a small bowel forming transitional zone. The proximal
small bowel loops are dilated with complete collapsed
distal small and large bowel loops. These lesions are com-
paratively more hypoattenuating in comparison with the
surrounding mesenteric fat. There was no calcification,
septations or significant contrast enhancement of these
lesions.

He then underwent exploratory laparotomy whereby
the cause of obstruction was identified as a mesenteric
lipoma (Fig. 3A) about 110 cm from the ligament of Tre-
itz, measuring 8 × 4 cm (Fig. 3B) at the ileal mesentery
causing compression and folding of the adjacent small
bowel. There was however no luminal narrowing. The
lipoma was excised and the mesenteric defect closed
with absorbable sutures. Few enlarged mesenteric lymph
nodes were excised for histopathology. He recovered
despite the initial postoperative ileus and was discharged
well. Histology assessment revealed a benign lipoma and
reactive lymph nodes. He was discharged from our clinic
follow-up in two subsequent visits after having good
postoperative recovery.

**Discussion**

Mesenteric lipoma is a rare example of intraperitoneal
lipoma. As they do not infiltrate the bowel lumen, most
of these lesions are asymptomatic. However, increasing
the size of the mass can lead to recurrent abdominal
pain. They may present in the acute setting with intes-
tinal obstruction owing to bowel volvulus, compression
or even adhesion [6, 7]. As in our case, the patient had a
classic triad of intestinal obstruction secondary to mes-
enteric lipoma. In fact, intestinal obstruction also can
occur in intramural lipoma. In this rare circumstance,
the patient will develop intestinal obstruction second-
ary to intussusception, in which the lead point will be
the intramural lipoma [4].

A radiographic examination may help identify the
mesenteric lipoma in the presence of the intestinal
obstruction, likely due to the discrepancy of contrast
in between air within the dilated bowels and lipoma,
where the air is more radiolucent than fat [5, 8]. Nev-
evertheless, an abdominal radiograph should continue
to be the initial imaging investigation for suspected
intestinal obstruction due to ease of accessibility and
cheaper cost. It is highly sensitive in detecting intesti-
nal obstruction, abnormally located air such as pneu-
moperitoneum or pneumatosis internalis, as well as
obstructing intraluminal pathology such as foreign
bodies [9, 10]. Radiographs are sensitive in detecting
small bowel obstruction ranging from 59 to 93% [11].
We were able to determine the small bowel obstruction
in our case but unfortunately unable to determine the
cause of obstruction.

Ultrasound abdomen is recommended by some writ-
ers as the primary imaging investigation, however with
the risk of misinterpretation of a mesenteric lipoma as
normal-appearing mesenteric fat and omental tissue [12].
Most writers are attributing CT scan as the best diagnos-
tic imaging modality which assists in diagnosing mesen-
teric lipoma [5, 13]. The differences of contrast between
the lipoma and normal-appearing mesenteric fat due to
radiographic attenuation discrepancy enable the radi-
ologist to locate the lesion. This radiographic attenuation
discrepancy is described as Hounsfield unit (HU) widely
used in computed tomography images [8]. Simple lipoma
typically appears as a mass of homogenous adipose tis-
sue with similar attenuation to subcutaneous fat between
-80 and -120 HU. Unlike angiomylipoma, these lesions
are not contrast-enhancing [13]. Complications caused
by extraluminal tumours, such as volvulus, which would
demonstrate the typical "vortex" pattern [14]. Besides
that, a CT scan enables further characterisation of the
lesion, which may assist in the diagnosis of liposarcoma,
where liposarcoma may demonstrate heterogeneity, adja-
cent structure infiltration and local aggressiveness [15].
However, magnetic resonance imaging (MRI) plays a
main role in differentiating benign from malignant lipo-
mas, especially in a giant type [12]. Another important
differential is liposarcoma which appears less hypodense
and has thicker septation [16]. Other than that, MRI
also has difficulties to differentiate between lipoma and
mature teratoma that contains fatty components [17].

Surgical intervention is indicated with symptomatic or
obstructed patients. There, however, is no consensus on
the treatment of incidental fat attenuating intraperito-
neal masses. Laparoscopic approach with resection is the
preferred option especially among small lipoma and non-
obstructed bowel as compared to the conventional open
surgery for the bigger tumour with intestinal obstruction,
as in our case [7]. Radioimaging cannot conclusively rule
out malignancy. In cases with multiple lesions, care-
ful assessment of each lesion is vital. Lipomas generally
display low malignant potential, and decisions for sur-
gery should be thoroughly discussed with asymptomatic
patients. Surgical intervention should aim for complete
excision especially for larger lesions due to the risk of
malignancy, besides preventing recurrence [18].

Conclusions

Patients with recurrent abdominal pain must have a thor-
ough endoscopic and radio imaging assessment. Besides
common or malignant aetiology, rarities should be con-
sidered and actively sought. Mesenteric lipoma is a rela-
tively indolent tumour for which early detection can alter
clinical presentation.
Abbreviations
CT: Computed tomography; MRI: Magnetic resonance imaging.

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Authors' contributions
DEYG involved in substantial contributions to the manuscript draft, and analysis of the data and interpretation. WWT involved in substantial contributions to the conception provided and revision of the manuscript. TDS involved in substantial contributions to the manuscript draft, and analysis of the data and interpretation. CYN involved in substantial contributions to the conception provided, design of the work, interpretation of the data, and substantial revision of the manuscript. FH involved in substantial contributions to the conception provided, design of the work, and interpretation of the data. All authors read and approved the final manuscript.

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Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The patient included in this study provided the written informed consent to participate in this research.

Consent for publication
The patient included in this research gave a written and informed consent to publish this article as a case report. In addition, we thank those who were directly or indirectly involved in managing this case throughout the recovery process.

Competing interests
The authors declare that they have no competing interests.

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References
1. Turk E, Edirne Y, Karaca F, Memetoglu ME, Unal E, Ermumcu O (2013) A rare case of childhood ileus: giant mesenteric lipoma and a review of the literature. Eurasian J Med 45(3):222–225
2. Di Buono G, Ricupati F, Amato G, Gulotta L, Romano G, Agrusa A (2020) Small bowel volvulus due to a large intestinal lipoma: a rare case report. Int J Surg Case Rep 77S:S101–S104
3. Özer M, Ulusoy S, Parmak O (2016) A rare location: a giant mesenteric lipoma. Med J Islamic World Acad Sci 24(1):24–26
4. Sharma A, Thakur A (2021) Ileocolic intussusception due to intestinal lipoma in an adult patient. Clin Case Rep 9(3):1524–1528
5. Tayeh C, Mneimneh S, El-Masri R, Daoud N, Rajab M (2015) Giant mesenteric lipoma: a case report and a review of the literature. J Pediatr Surg Case Rep 3(4):166–170
6. Cha JM, Lee JI, Joo KR, Choe JW, Jung SW, Shin HP et al. (2009) Giant mesenteric lipoma as an unusual cause of abdominal pain: a case report and a review of the literature. J Korean Med Sci 24(2):333–336
7. Watt DG, Sanjay P, Walsh SV, Young JA, Alijani A (2012) Mesenteric lipoma causing small bowel perforation: a case report and review of literature. Scott Med J 57(4):247
8. Maheesh M (2013) The essential physics of medical imaging, third edition. Med Phys 40(7):073101
9. Ng CY, Hayati F, Nadarajan C (2020) Emphysematous gastritis after metastatic malignant melanoma: a radiological surprise. BMJ Case Rep 13(9):e235174
10. Ng CY, Hayati F, Ali AA, Che Ani MF, Zakaria AD (2020) Rectal foreign bodies: sexual gratification turned misery. Brunei Int Med J 16:73–76
11. Thompson WM, Kilani RK, Smith BB, Thomas J, Jaffe TA, Delong DM et al. (2007) Accuracy of abdominal radiography in acute small-bowel obstruction: does reviewer experience matter? Am J Roentgenol 188(3):W233–W238
12. Abtar HK, Abdallah FK, Lakkis RS, Terro JJ, Ismail NH, Al Raishouni MA, Ahmad HH, Jammooul KM (2020) Giant adult mesenteric lipoma: a rare cause of chronic abdominal distention and discomfort. Case Rep Surg 2020:6010757
13. Méndez-Uriburu L, Ahualli J, Méndez-Uriburu M, Mafre L, Méndez-Uriburu F et al (2004) CT appearances of intraabdominal and intrapelvic fatty lesions. AJR Am J Roentgenol 183(4):933–943
14. Buono GD, Ricupati F, Amato G, Gulotta L, Romano G, Agrusa A (2020) Small bowel volvulus due to a large intestinal lipoma: a rare case report. Int J Surg Case Rep 77S:S101–S104
15. Nathan VMRS, Rabi MM (2020) A large mesenteric lipoma: an uncommon etiology of small bowel obstruction. Malays J Med Health Sci 16(3):319–321
16. Alsayegh RO, Almutairi R, Taqi E, Alnaqi A (2019) Mesenteric lipoma presenting as small bowel volvulus. J Pediatr Surg Case Rep 43:47–49
17. Tanabe S (2021) A case of sigmoidal mesenteric lipoma with preoperative diagnosis of ovarian tumor: a case report. Radiol Case Rep 16(8):2119–2122
18. McCoubrey AS, Thompson RL (2006) Small bowel volvulus secondary to a mesenteric lipoma: a case report and review of the literature. Ir J Med Sci 175(4):79–80

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