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Case Report

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Portal Vein Thrombosis Associated With Omental Leiomyoma

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1. Abstract

Parasitic Leiomyomas (PL) are known to be rare intraabdominal tumors mostly encountered in young women and are considered a type of uterine leiomyoma. PL often manifest themselves with abdominal pain, palpable mass as well as bloating. Treatment often requires enbloc removal of the mass after dividing its blood supply from the host organ. In this report, we describe a case of a middle-aged woman who required emergency surgical intervention due to portal vein and superior mesenteric vein thrombosis caused by a giant PL supplied by the greater omentum. The patient underwent surgical resection of PL. Surgical exploration revealed total thrombus in the superior mesenteric vein, portal vein and intraabdominal ascites. Liver parenchyma was noted to be intact due to the resultant collateral vascular structures. Life-threatening portal vein thrombosis associated with omental leiomyoma is extremely rare and should be resected immediately after diagnosis.

2. Introduction

Parasitic Leiomyomas (PL) are known to be rare intraabdominal tumors usually seen in women of reproductive age. PL have mostly been reported after laparoscopic fibroid morcellation, and often present with symptoms such as abdominal pain and bloating [1, 2]. In PL, thrombosis may develop in the portal vein, supplying 75% of total liver blood flow, as in lower extremity venous structures. PL may arise from conditions such as hypercoagulability, stasis, and endothelial damage [3]. Malignancies commonly accused of Portal Vein Thrombosis (PVT) include hepatocellular, pancreatic, and gastric cancer, cholangiocellular carcinoma, lymphoma, and advanced colorectal cancer [4]. To the best of our knowledge, no case of PVT associated with omental leiomyoma has earlier been reported in the literature. In this study, we present a patient with PL, who was diagnosed with an intraabdominal mass and was scheduled for surgery; however, she developed PVT during the waiting period and was urgently operated on.

3. Case Report

A 40-year-old female patient was admitted to our outpatient clinic with a five-month history of palpable abdominal mass, abdominal pain and distension. Patient's history indicated that she had been taking oral antidiabetic drugs for the last seven years due to the diagnosis of Type 2 diabetes and that she had been switched to insulin for the last two months due to non-regulated diabetes. The patient did not have any history of prior abdomino-pelvic surgery.

In physical examination, a mass filling the periumbilical area, the right upper and lower quadrants were palpable. In laboratory tests, tumor markers were within the normal range: fasting blood glucose level was 214 mg/dL, and HbA1c was 10.7% (normal range, 4-5.6%). Endoscopic, colonoscopic, and gynecological examinations were unremarkable. Intravenous contrast-enhanced abdomino-pelvic Computed Tomography (CT) showed a heterogeneous contrast-enhancing solid mass filling the right middle quadrant of the abdomen, extending to the left aspect of the midline, measuring 145x165 mm, with relatively smooth borders and increasing contrast towards the late phases (Figure 1). The mass had displaced the ascending colon laterally and was initially evaluated as a gastrointestinal stromal tumor since it was in close proximity to the inferior border of the right lobe of the liver superiorly and could not be clearly differentiated from the small intestine loop. There was no evidence of metastasis in 18F-fluorodeoxyglucose-based Positron Emission Tomography (PET) performed in order to rule out metastasis. Both the patient

and her relatives were informed about the clinical procedure to be followed, and a curative surgery decision was made. The patient did not show up on the scheduled appointment. However, four weeks after the diagnosis, she was re-admitted to our clinic due to sudden onset of abdominal pain and increased bloating. On examination, there was moderate distension and dullness suggestive of ascites. Control CT showed thrombosis extending from the portal vein to the superior mesenteric vein, suspicious torsion in the vascular pedicle of the mass, and ascites (Figure 2). Liver function tests, İnternational Normalized Ratio (INR), lactate, ammonia, and platelet values were normal. A Low-Molecular-Weight-Heparin (LMWH) therapy was initiated, and a consultation was held with the hepatology department. The patient was taken to emergency surgery due to the presence of suspicious torsion and the absence of hepatic failure.

During laparotomy procedure, we detected a torsioned giant mass measured approximately 25x15 cm, originating from the greater omentum. The mass was fed from the greater omentum and large vascular structures and had soft adhesions to the small intestine segments (Figure 3, 4). Starting from the gastroepiploic vein, a near-total thrombus was observed in the superior mesenteric vein and the portal vein. It was revealed that the liver parenchyma was intact due to the resultant collateral vascular structures. Resection was successfully performed with vascular pedicle ligation. A soft drain was placed in the abdomen, and the procedure was completed.

In postoperative follow-up, ascites drainage of 1000-1500 ml/day to the rectovesical drain was observed. However, no abnormality was noted in hepatic function tests, and any hepatic failure did not develop. On postoperative day 5, medical treatment was arranged, and the patient was discharged with a drain tube. At her first postoperative visit on day 15, the drain was removed due to the absence of ascites. A second consultation was held with the hepatology department regarding the cause of PVT. After a detailed evaluation, the clinical features of the patient were attributed to omental leiomyoma since no cause of PVT was found.

In pathological evaluation, the mass was measured as 24x18x15 cm in size, surrounded by the omentum containing fat and vascular structures. When its outer surface was stained and sectioned, it was established to be encapsulated and solid. Microscopic examination was consistent with spindle cell mesenchymal tumor. In immunohistochemical examination, the tissue was positive for desmin, SMA, and vimentin, and was negative for CD34, S100, CD117, EMA, SOX-10, MYO D1, CD68 and Myogenin. Pathological diagnosis was established as leiomyoma. The patient was administered warfarin for six months. She is now in the 10th month of follow-up and has no signs of disease.

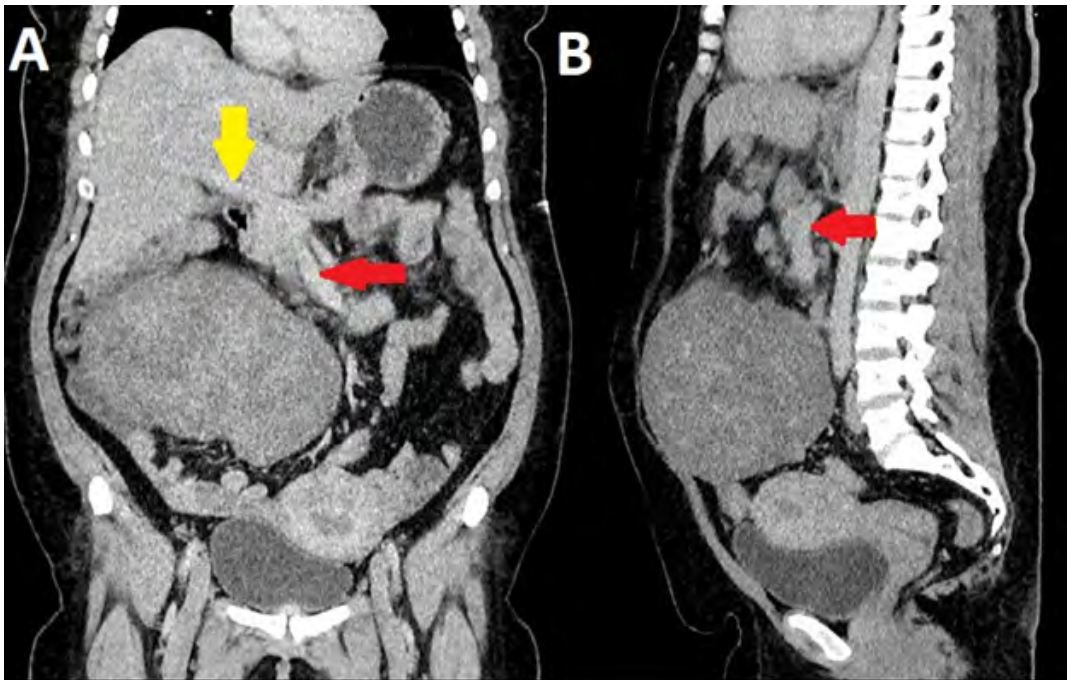

Figure 1: In the diagnosis, coronal (A) and sagittal (B) contrast-enhanced computed tomography images show a large intraabdominal mass and contrasted portal vein (yellow arrow) and superior mesenteric vein (red arrow).

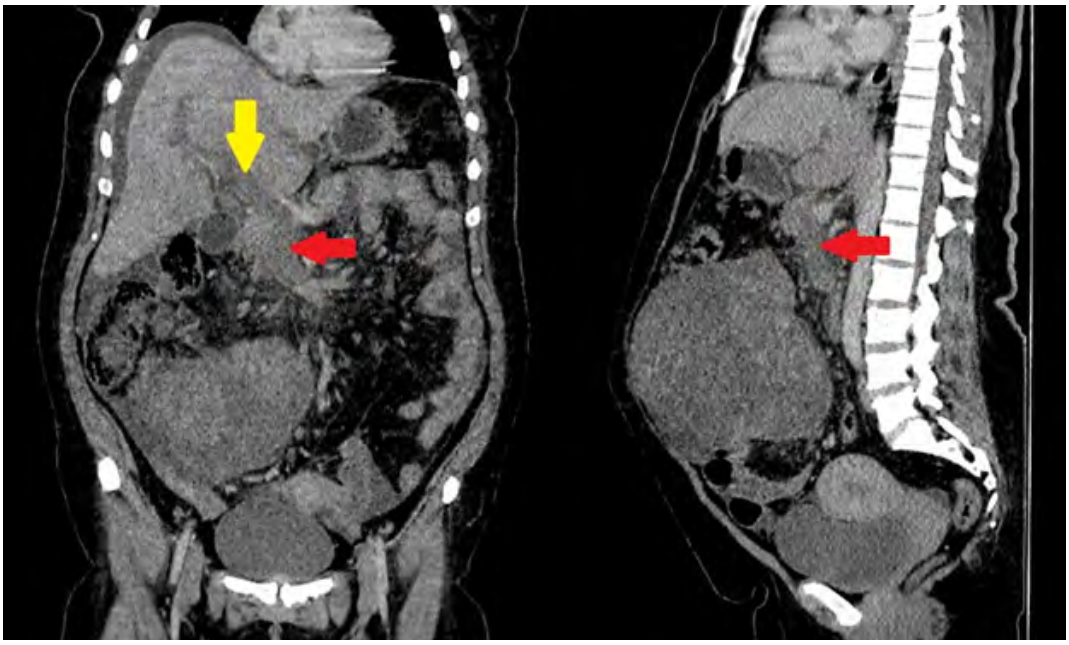

Figure 2: Preoperative contrast-enhanced computed tomography shows prominent thrombus in the portal vein (yellow arrow) and superior mesenteric vein (red arrow).

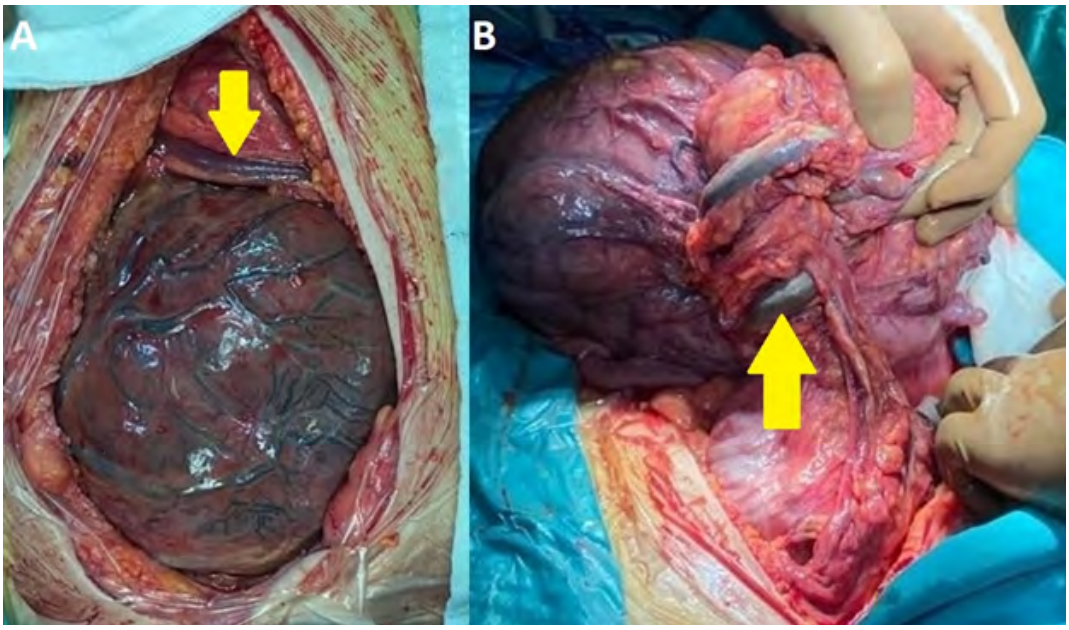

Figure 3: The appearance of the mass in median laparotomy (A). The gastroepiploic vein was dilated and thrombosed (yellow arrow). It is seen that two large veins (B) that provide the drainage of the mass are thrombosed.

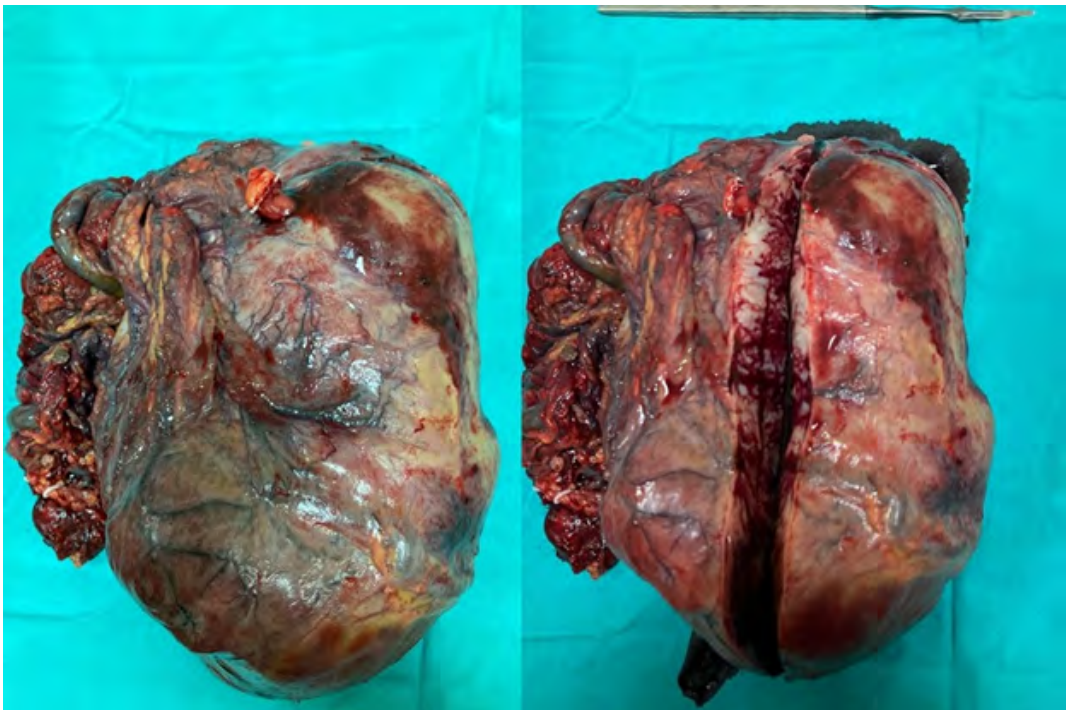

Figure 4: Thrombosed and dilated veins are observed in the pedicle of the piece after resection.

4. Discussion

Giant masses originating from the omentum can be confused with intraabdominal malignancies since they cause similar symptoms, and their preoperative clinical diagnosis may be challenging. Nonmalignant large masses are usually diagnosed during the investigation of the symptoms resulting from interactions among abdominal organs. Use of advanced imaging techniques for the diagnosis reveals the possibility of malignancy, guides the choice of surgical approach and reduces the possibility of misdiagnosis [5, 6]. Although the etiology of PL is unknown, an iatrogenic cause is suggested. Several authors have earlier reported the occurrence of PL after laparoscopic removal of the uterine leiomyoma or uterine myomectomy, which is explained through the implantation of fragments during the procedure. However, PL occurring in the virgin abdomen cannot be explained by this etiology [7]. According to another theory, it is assumed that the blood flow in the pedicle of the subserosal myoma is completely stopped after torsion, thereby leading to the interruption of the peduncular connection, and ultimately resulting in a free nodule re-supplied by the abdominal organs [8].

Among the major causes of PVT in adults, cirrhosis is generally referred to as the most common, followed by neoplasia and hepatobiliary, pancreatic, gastric, and colorectal cancers [9]. While LMWH is commonly preferred for anticoagulant therapy in cirrhotic and malignant cases, warfarin can be safely used in noncirrhotic and non-malignant cases [3, 10]. To our knowledge, there has been no case of PVT caused by leiomyoma originating from the greater omentum in the literature. In our case, we consider that stasis caused by torsion or mass compression on the large venous structures draining the mass, local damage to the vein wall, or direct involvement of the vein wall by leiomyoma led to thrombosis, whose proximal progression ultimately resulted in PVT.

5. Conclusion

In conclusion, portal vein thrombosis due to omental parasitic leiomyoma is extremely rare. Since the clinical manifestations of portal vein thrombosis may cause life-threatening liver failure, resection should be performed immediately after diagnosis.

7. Ethical Statement

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institution and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient.

8. Data Availability

All of the data provided and analyzed during this case report are included into this article. Further enquiries should be addressed to the corresponding author

9. Authors' Contributions

U.A, F.T, and F.V.A the concept and design of the study; F.T, U.A, and F.V.A data acquisition and interpretation of the data; U.A, F.T, and F.V.A literature review, and drafted the manuscript. All authors critically revised the manuscript, approved the final version to be published, and agree to be accountable for all aspects of the work.

10. Informed Consent

This study was a case report study, patient identity remained anonymous, and the informed consent was obtained.

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