

Peritoneal Carcinomatosis Presenting as a Mimic for DVT. A case report.

Patrick Nasrallah ¹, Cima Hamieh ², Yara Mouawad ¹, Eric Revue ³, Mahmoud El-Hussein ^{4*}

1. Lebanese American University Medical Center, Beirut – Lebanon

2. Groupe Hospitalier Intercommunal Le Raincy - Montfermeil, Geriatrics department - Montfermeil – France

3. APHP – Lariboisiere Hospital, Emergency Medicine department, Paris – France

4. Grand Hopital de l'Est Francilien - France

Corresponding Author:

Mahmoud El-Hussein, M.D., M.P.H., M.H.A

Emergency Medicine / Emergency Medical Services (SAMU) department

Email: Mahmoud.el-hussein@hotmail.com

DOI: <http://doi.org/10.26738/poem.v3i1.45>

Copyright: This is an Open Access article, distributed under the terms of the Creative Commons Attribution 4.0 International license <https://creativecommons.org/licenses/by/4.0>, which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received: Sep 30, 2024

Revised: 21 February 2025

Accepted: 2 April 2025

ABSTRACT

Unilateral leg swelling poses a diagnostic challenge with a myriad of potential differential diagnosis, including deep vein thrombosis (DVT), Baker's cyst, and cellulitis. As some of these causes can be benign and easily treatable, other causes may be more severe and even life threatening. This article highlights the critical need for healthcare professionals to expand their differential diagnosis when common causes have been excluded, recognizing that some rare etiologies may signify severe underlying conditions. We present the case of a 55-year-old female with a two-month history of right leg swelling, initially attributed to erysipelas due to negative DVT findings. Upon closer examination, an abdomino-pelvic CT scan revealed diffuse peritoneal carcinomatosis, obstructing the right external iliac vein and elucidating the unilateral lower limb edema. This case focuses the importance of considering atypical causes, especially in patients with a history of cancer, and the potential life-threatening nature of rare etiologies. The article emphasizes the significance of a multidisciplinary approach, comprehensive laboratory assessments, and advanced imaging techniques in achieving accurate and timely diagnoses, ultimately guiding effective patient management.

Introduction:

Unilateral leg swelling can be attributed to various factors, with deep vein thrombosis (DVT), Baker's cyst, and cellulitis being the most prevalent causes. It is particularly crucial for healthcare professionals to promptly diagnose DVT, due to its potential life-threatening complication of pulmonary embolism¹.

When ruling out these more common etiologies, it is important to recognize that numerous less common causes of unilateral leg swelling exist, spanning a spectrum from benign to potentially serious conditions. Therefore, clinicians should be mindful of rare etiologies, such as arterial insufficiency, lymphatic or venous obstruction, or systemic diseases

like vasculitis². Conditions like popliteal artery entrapment syndrome, lymphangioleiomyomatosis, or Behçet's disease may present with unilateral leg swelling, posing diagnostic challenges due to their infrequent occurrence³. Furthermore, certain rare genetic disorders, such as hereditary angioedema or Milroy's disease, can manifest as unilateral leg swelling⁴. These conditions, though infrequent, underscore the importance of considering a broad differential diagnosis.

In fact, any lesion or disease process that mechanically obstruct major abdominal veins, can potentially present as unilateral or bilateral leg swelling, mimicking DVT,

ranging from cysts, malignancies, even abscesses⁵. This article presents a never yet reported case of upstream venous obstruction, due to diffuse peritoneal carcinomatosis obstructing at the level of the right external vein, in a patient with 2-month history of unilateral leg swelling, with negative workup for DVT and no improvement with antibiotics.

Case presentation:

This is the case of a 55-year-old female patient, known to have breast carcinoma in 2010 status post remission after chemotherapy and radiotherapy, and endometrial cancer in 2019 status post hysterectomy and bilateral oophorectomy, presented to the emergency room for unilateral right leg pain and swelling of two months duration.

The history goes back to multiple visits to her primary care physician for the same complaint; ultrasound was conducted at that time and eliminated a DVT of the lower extremity, or the presence of a cyst. The patient was then prescribed antibiotics, assuming erysipelas was the etiology of the clinical presentation. After a 7 days course of treatment, the patient noticed no amelioration, therefore she presented to the emergency department.

Upon presentation, the patient was tachycardic, afebrile and in pain. Physical exam was unremarkable, except for non-pitting right lower limb edema extending to the mid-thigh, with minimal erythema and positive pedal pulses (Figure 1).



fig.1

Review of personal history was non-significant except for the previously mentioned oncologic disorder, and recent ablation of a cutaneous lesion on right leg that was found benign on histology; review of family history and review of systems were insignificant.

Laboratory workup were ordered and showed an elevated D-Dimer (3120 ng/ml with a reference value of <500 ng/ml) and CRP (22 mg/L), with a negative white blood cells count, normal creatinine and normal liver enzymes. In light of a negative DVT workup, and elevated D-Dimer, malignancy was suspected, and therefore an abdominal-pelvic CT with injection was ordered. Surprisingly, the report showed diffuse peritoneal carcinomatosis, with an intra-peritoneal speculated lesion, lateral to the bladder on the right, compressing the right external iliac vein that could explain the unilateral lower limb swelling. After seeking surgical, gynecologic and oncologic consults, the plan was to admit the patient and put her on prophylactic anticoagulation, waiting for further investigations and management, including chest CT scan, MRI of the pelvis, biopsies.

Verbal consent was taken from the patient to publish these data anonymously.

Discussion:

This case highlights the imperative need for healthcare professionals to maintain a broad and comprehensive approach when confronted with unilateral leg swelling, particularly when common etiologies like deep vein thrombosis (DVT), Baker's cyst, and cellulitis have been ruled out. Although rare etiologies can be benign and non-life threatening, others can be more serious, and can be the superficial, visible tip of an iceberg, hiding underneath the surface a very serious condition, that needs prompt investigations and management. For instance, the case of unilateral lower limb edema, depicted in this report, unveiled a hidden malignancy and introduces a rare etiology of venous obstruction, although mechanical obstruction due to compression by a mass is relatively a common cause of edema and swelling⁶, having peritoneal carcinomatosis as the cause of the presentation is not documented in the literature yet. In fact, obstruction related to peritoneal carcinomatosis have been reported mainly as small bowel occlusion (highlighting the distinctiveness of this case report)^{7 8}.

Furthermore, this patient had strong risk factors and signs for DVT: unilateral leg swelling, 2 months duration, elevated D-Dimer, history of breast and

endometrial cancer, no improvement on antibiotics, and was tachycardic upon presentation (which could be a sign of consequences of DVT such as pulmonary embolism), which could easily lead to a bias in diagnosis; but the negative Doppler Ultrasound misled the physicians in the emergency department into further investigation. Given her past medical history, other diagnosis could be thought of such as idiopathic lymphedema, heart failure, kidney failure, pulmonary hypertension ... all of which were eliminated by the physical exam, laboratory workup and imaging done in the ER.

The delayed diagnosis in this case demonstrates the potential life-threatening nature of rare etiologies and the importance of promptly identifying and addressing them, even though Peritoneal Carcinomatosis (PC) is a late-stage manifestation of several gastrointestinal and gynecological malignancies, and is usually a sign of metastatic disease and has a poor prognosis⁹.

Finally, it is important to note that, in low-resource settings, the practical challenges of investigating lower limb edema can be significant. Relying on expensive imaging techniques like CT scans may not be realistic due to the high costs involved and limited access to such technology. This can make it difficult for healthcare providers to accurately diagnose the underlying cause of a similar presentation and develop an appropriate treatment plan. In these settings, healthcare providers may need to rely on less expensive and more readily available diagnostic tools, such as physical exams and basic laboratory tests, which can lead to misdiagnosis. The multidisciplinary approach taken, involving surgical, gynecologic, and oncologic consultations, exemplifies the complexity of managing such cases. The decision to initiate anticoagulation while awaiting additional investigations reflects a cautious approach given the potential complications associated with venous obstruction, including a chest CT to rule out any potential pulmonary embolisms. Further investigations are in order, including MRI, biopsies with histological and pathological studies to assess the extent of the disease and potentially the source of PC.

Conclusion:

This case underscores the significance of broadening the differential diagnosis for unilateral leg swelling beyond common causes. Clinicians should remain vigilant for rare etiologies, recognizing their potential to be life threatening or indicative of more extensive and serious underlying conditions. A multidisciplinary

approach, comprehensive laboratory assessments, and advanced imaging techniques are essential in ensuring timely and accurate diagnoses, thereby facilitating appropriate and effective patient management.

References

- 1-DT, H., SM, W., & P, K. (n.d.). Deep vein thrombosis. National Center for Biotechnology Information. <https://pubmed.ncbi.nlm.nih.gov/29939530/>
- 2-Davis, D. D., & Shaw, P. M. (2021). Popliteal Artery Entrapment Syndrome. PubMed; StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK441965/>
- 3-Elgendy, I. Y., & Lo, M. C. (2014). Unilateral lower extremity swelling as a rare presentation of non-Hodgkin's lymphoma. *BMJ Case Reports*, 2014. <https://doi.org/10.1136/bcr-2013-202424>
- 4-Stone, J., Hangge, P., Albadawi, H., Wallace, A., Shamoun, F., Knuttien, M. G., Naidu, S., & Oklu, R. (2017). Deep vein thrombosis: pathogenesis, diagnosis, and medical management. *Cardiovascular Diagnosis and Therapy*, 7(S3), S276–S284. <https://doi.org/10.21037/cdt.2017.09.01>
- 5-Ijaz, M., Sakam, S., Ashraf, U., & Marquez, J. G. (2015). Unusual Presentation of Recurrent Pyogenic Bilateral Psoas Abscess Causing Bilateral Pulmonary Embolism by Iliac Vein Compression. *American Journal of Case Reports*, 16, 606–610. <https://doi.org/10.12659/ajcr.894206>
- 6-Gasparis, A. P., Kim, P. S., Dean, S. M., Khilnani, N. M., & Labropoulos, N. (2020). Diagnostic approach to lower limb edema. *Phlebology: The Journal of Venous Disease*, 35(9), 650–655. <https://doi.org/10.1177/0268355520938283>
- 7-Santangelo, M. L., Grifasi, C., Criscitiello, C., Giuliano, M., Calogero, A., Dodaro, C., Incollingo, P., Rupealta, N., Candida, M., Chiacchio, G., Riccio, E., Pisani, A., Tammaro, V., & Carlomagno, N. (2016). Bowel obstruction and peritoneal carcinomatosis in the elderly. A systematic review. *Aging Clinical and Experimental Research*, 29(S1), 73–78. <https://doi.org/10.1007/s40520-016-0656-9>
- 8-Demarest, K., Lavu, H., Collins, E., & Batra, V. (2022). Comprehensive Diagnosis and Management of Malignant Bowel Obstruction: A Review. *Journal of Pain & Palliative Care Pharmacotherapy*, 37(1), 1–15. <https://doi.org/10.1080/15360288.2022.2106012>
- 9-Szadkowska, M. A., Pałucki, J., & Cieszanowski, A. (2023). Diagnosis and treatment of peritoneal carcinomatosis - a comprehensive overview. *Polish Journal of Radiology*, 88, e89–e97. <https://doi.org/10.5114/pjr.2023.125027>