

Case Report

Subclavian Vein Stenosis Mimicking Inflammatory Breast Cancer in a Hemodialysis Patient

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Abstract

Background: A 72-year-old female with end-stage renal disease on hemodialysis through left brachial-basilic arteriovenous fistula presented with unilateral breast swelling from outflow stenosis in the subclavian vein.

We present the case of a 72-year-old African-American female who presented to our teaching institution with symptomatic left breast and upper arm swelling which had been limiting her mobility for two months. Her pertinent past medical history includes end-stage renal disease requiring hemodialysis through left brachial-basilic arteriovenous fistula. Pertinent physical exam findings included an extremely edematous left breast with thickening and dimpling of the skin without nipple retraction or any nipple discharge. Prior routine mammograms had shown no definite evidence of malignancy with small lesions suggestive of fibroadenomas. An ultrasound of the breast revealed extensive edema with no fluid collection or abscess. An outside institution's core needle biopsy performed of the left breast showed paucicellular fibrous tissue with no evidence of atypical hyperplasia or malignancy. We performed punch biopsy due to the concern for inflammatory breast cancer which again showed no evidence of malignancy. An ultrasound of the left arm was also performed which was negative for deep vein thrombosis. Two months prior to this admission, the patient underwent a fistulagram requiring angioplasty of the subclavian vein. Due to her symptoms, a repeat fistulagram was performed and she was found to have moderate stenosis of the left subclavian vein. The area of stenosis was then treated with 10 mm × 40 mm covered stent followed by balloon angioplasty with significant improvement in outflow. Post-operatively, the patient underwent hemodialysis any issues. On physical exam, the patient was found to have improvement in both arm and breast swelling. It is important to consider subclavian stenosis as a cause of unilateral breast swelling especially in a patient with hemodialysis access as treatment.

Conclusion: Central outflow stenosis should be considered as a differential case in a patient with a history of dialysis access who presents with unilateral breast swelling.

Keywords: Breast edema; Hemodialysis; Central vein stenosis

Introduction

Unilateral breast edema is a finding concerning for inflammatory breast cancer. Common etiologies for unilateral breast swelling include infectious, benign or malignant pathology.

Patients with End-Stage Renal Disease (ESRD) may require upper extremity central vein cannulation for dialysis or increased venous flow from arteriovenous fistula creation leading to venous congestion and interstitial edema of the soft tissues.

Case Présentation

A 72-year-old Creole female initially presented to an outside hospital with symptomatic breast enlargement and upper arm swelling. Patient has a past medical history of ESRD requiring hemodialysis via a left brachial-basilic arteriovenous fistula. Patient underwent routine

screening mammogram (Figure 1) which showed several calcified areas suggestive of fibroadenomas with no suspicious clusters of micro calcifications concerning for malignancy, reported as BI-RADS 2. She has no personal or family history of breast cancer, any prior breast or axillary procedures or radiation. A core needle breast biopsy was performed which showed paucicellular fibrous tissue with no evidence of atypical hyperplasia or edema. Following biopsy, Patient also underwent venogram with angioplasty of the left subclavian vein.

Patient then returned to our hospital two months later presenting with similar symptoms. On initial exam, the patient had left unilateral breast enlargement, swelling with significant dimpling of the skin (Figure 2). The left breast was tender to palpation and no spontaneous nipple discharge was present. In addition, her left upper arm was enlarged and tender. Left upper extremity arteriovenous fistula had a pulsatile thrill. A targeted ultrasound of the left breast revealed extensive soft tissue edema, but no fluid collection or abscess. Venous duplex of the left arm was negative for deep vein thrombosis.

Patient underwent repeat venogram of the left central venous system which showed moderate stenosis of the left subclavian vein (Figure 3). The area of stenosis was treated with a 10 mm × 40 mm covered stent followed by balloon angioplasty with significant improvement in outflow (Figure 4). Additionally, left breast skin biopsy was obtained to rule out inflammatory breast cancer. Over the next two days the patient reported improvement in her left breast and left arm pain, with noticeable reduction in swelling. Final breast pathology showed no evidence of malignancy.

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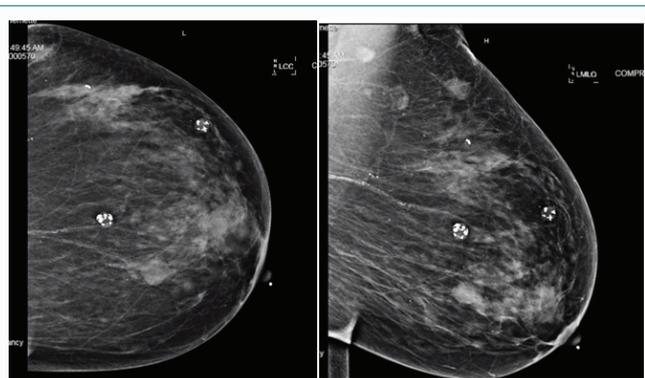


Figure 1: Breast Mammograms.



Figure 2: Skin changes of the left breast including edema, induration and dimpling.



Figure 3: Venogram demonstrates stenosis of the left subclavian vein.

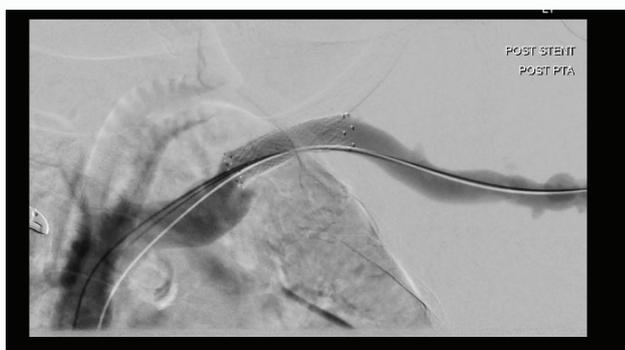


Figure 4: Post-angioplasty venogram demonstrates reduction in left subclavian vein stenosis.

Discussion

Unilateral breast edema may be present in a variety of both benign and malignant pathologic processes. The differential diagnosis includes inflammatory breast carcinoma, lymphatic obstruction, mastitis, fat necrosis, trauma, post irradiation changes, granulomatous diseases, nephrotic syndrome, lymphoma, progressive systemic sclerosis, leukemia, pemphigus and other skin conditions, central vein occlusion, or congestive heart failure [1,2]. Inflammatory breast cancer is rare, representing 1% to 4% of all breast cancers but very aggressive [3,4]. More than half of all women will die within 5 years despite receiving optimal therapy, and as many as 35% of women will have metastatic disease at the time of diagnosis [4]. Give the poor prognosis for inflammatory breast cancer, proper diagnostic workup is crucial.

Unilateral breast edema is a rare complication of subclavian vein or brachiocephalic vein stenosis and can occur in hemodialysis patient with vascular access on the ipsilateral side [2]. Venous drainage of the breast occurs via the internal thoracic and lateral thoracic veins. On the left side, the lateral thoracic vein drains into the axillary vein, a tributary of the brachiocephalic vein, and the internal thoracic vein drains into the left brachiocephalic vein directly. With distal occlusion or stenosis, venous hypertension may be overcome by collaterals over the breast which can cause upper extremity edema. However with more proximal occlusion or stenosis, venous drainage and breast collaterals is impaired leading to breast edema [2]. The clinical findings of erythema and thickened dimpled skin, or peau d'orange appearance, seen in cases of central vein stenosis mimics the presentation of inflammatory breast cancer [4].

Breast edema is a common presentation in which it is imperative to find an accurate diagnosis to avoid unnecessary testing and procedures. Our patient was found to have central venous stenosis on imaging, which was successfully treated with stenting and angioplasty, resulting in significant reduction in pain and swelling of the breast and upper extremity. Negative pathology findings further support lymphedema as the result of chronic central venous stenosis.

Conclusions

Central venous stenosis is a common complication in patients with end stage renal disease with upper extremity hemodialysis access. We present a case of chronic venous stenosis leading to unilateral breast swelling and lymphedema mimicking inflammatory breast cancer. It is imperative to include central venous stenosis as a differential in the diagnosis of unilateral breast swelling to avoid unnecessary imaging or procedures.

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