Lupus Panniculitis Masquerading as Mastitis: A Diagnostic Challenge in a 17-Year-Old Female Patient*

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ABSTRACT

Introduction: Lupus mastitis is a rare manifestation of lupus panniculitis characterized by inflammation of the subcutaneous fat tissue and occurs in approximately 2-3% of systemic lupus erythematosus (SLE) patients. It may present as breast mass, axillary lymphadenopathy, fibrosis, or calcifications, which must be differentiated from infection and malignancy.

Case Report: A 17-year-old female presented with a 4-month history of multiple tender pruritic erythematous nodules with erosions and ulcerations on the right breast, which subsequently increased in size and number, extending to the right lateral neck associated with periorbital swelling. She was initially managed under pediatric service as a case of facial cellulitis and breast abscess. Extensive laboratory and imaging studies—including blood chemistries, cultures, radiographs, ultrasonography, and computerized tomography (CT) scans—were performed. She received several courses of oral antibiotics, antifungal agents, analgesics, and intravenous corticosteroids, with no clinical improvement, prompting referral to our service. A 4-mm punch biopsy revealed superficial and deep perivascular dermatitis with panniculitis. Additional findings of leukopenia, anemia, proteinuria with granular casts, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP), and positive for antinuclear antibody (ANA) supported a diagnosis of lupus panniculitis. She was given hydroxychloroquine 200 mg/day and prednisone 20 mg/day, resulting in marked improvement of lesions after one month.

Discussion: This case highlights the diagnostic challenges posed by lupus panniculitis masquerading as mastitis and emphasizes the need for a comprehensive evaluation in complex dermatologic cases. Early recognition and appropriate treatment of this condition can improve patient outcomes and prevent unnecessary interventions.

Keywords: Chronic cutaneous lupus erythematosus, lupus panniculitis, lupus mastitis

INTRODUCTION

Lupus mastitis is a rare manifestation of lupus panniculitis marked by inflammation of the subcutaneous fat tissue. It occurs more commonly in women, with a mean age of onset of 36 years.[1] It affects about 2-3% of patients with SLE and may be the initial manifestation of the disease. It may present as breast mass, axillary lymphadenopathy, fibrosis, and calcifications.[2] It can mimic malignancy or infection and therefore should be differentiated from them.[3] We describe a case of lupus panniculitis presenting as lupus mastitis highlighting the importance of a thorough diagnostic approach in such challenging cases[4].

CASE REPORT

A 17-year-old female presented with a 4-month history of multiple tender pruritic erythematous nodules with erosions and ulcerations on the right breast, which subsequently increased in size and number affecting the right lateral neck, associated with periorbital swelling. Review of systems, past medical history, family history, and sexual history were unremarkable. She was admitted under pediatric service and was initially diagnosed with facial cellulitis and breast abscess. Comprehensive diagnostic investigations were performed, including blood chemistries; gram stain and cultures of blood, wound, and tissue samples; chest radiography; ultrasonography of both breasts and the whole abdomen; computed tomography (CT) scans of the cranium, orbits, and chest; and biopsies of breast and submandibular tissue. Chest radiography revealed minimal right pleural effusion. Breast ultrasound revealed a large mass with a small pocket of fluid on the right breast, while chest CT scan showed swelling of the right breast parenchyma and areas of subcutaneous edema, both of which were consistent with a right breast abscess. Gram stain and cultures of blood, wound, and tissue samples yielded no growth. She received several courses of oral antibiotics, antifungal agents, analgesics, and intravenous corticosteroids, with

Disclosures: The author has formally acknowledged and signed a disclosure affirming the absence of any financial or other relationships (including personal connections), intellectual biases, political or religious affiliations, and institutional ties that could potentially result in a conflict of interest.

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no clinical improvement, prompting referral to our service.

Upon dermatologic examination, multiple well-demarcated erythematous to hyperpigmented indurated plaques were noted on the left periorbital area, submandibular region, neck, trunk, bilateral arms, and right breast, with multiple firm, tender nodules on the right breast (Figure 1).

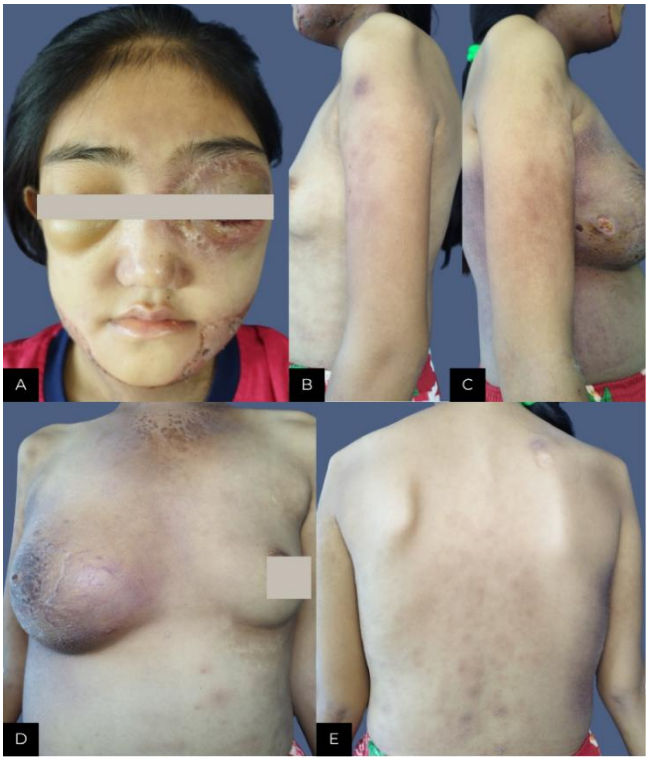

FIGURE 1. DERMATOLOGIC EXAMINATION (A., B., C. and D. Multiple well-demarcated erythematous to hyperpigmented indurated plaques on the left eye, submandibular area, neck, trunk, and bilateral arms. B. Multiple firm tender nodules on the right breast.

A 4-mm punch biopsy was performed on lesions located on the left arm and trunk. Hematoxylin and eosin (H&E) staining of the left arm revealed basket-weave orthokeratosis, vacuolar interface changes, and mild lymphocytic infiltrate involving the superficial and deep perivascular areas, adnexal structures, and fat lobules consistent with superficial and deep perivascular dermatitis with panniculitis (Figures 2A and 2B). While the lesion on the trunk revealed mildly atrophic epidermis, focal vacuolar interface changes consistent with superficial perivascular dermatitis and post-inflammatory pigmentary changes (Figure 3). Additionally, Alcian blue staining revealed increased dermal mucin deposition (Figure 2C). These histopathologic findings supported the diagnosis of lupus panniculitis.

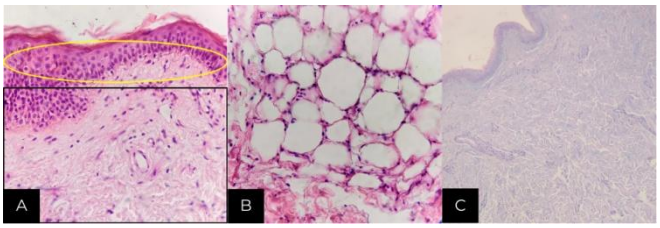

FIGURE 2. SKIN PUNCH BIOPSY ON THE LEFT ARM (A. H&E stain, LPO: Section shows vacuolar interface changes marked by yellow circle and mild inflammatory infiltrate composed of lymphocytes marked by black box; B. H&E stain, HPO: Section shows lobular panniculitis; C. Alcian blue stain: Section shows increased dermal mucin deposition)

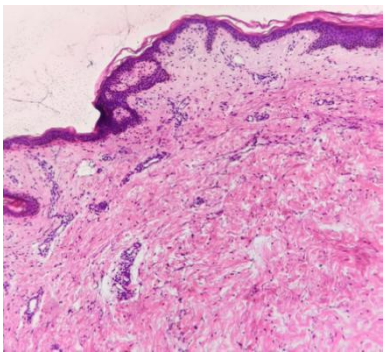

FIGURE 3. SKIN PUNCH BIOPSY ON THE TRUNK (H&E stain, LPO: Section shows mildly atrophic epidermis, focal vacuolar interface changes, mild dermal edema, and a sparse inflammatory infiltrate.

Comprehensive laboratory investigations revealed leukopenia, anemia, proteinuria and hematuria with granular casts on urinalysis, elevated ESR and CRP, with normal levels of complement component 3 (C3). Furthermore, the patient tested positive ANA with a value of 447, with negative anti-double-stranded-DNA (dsDNA) antibody.

The clinical presentation, laboratory results, and histopathologic findings supported the diagnosis of lupus panniculitis. The patient also met the American College of Rheumatology (ACR) criteria for systemic lupus erythematosus (SLE), based on the presence of discoid rash, proteinuria, hematuria, and granular casts on urinalysis, anemia and leukopenia on complete blood count, and positive ANA.

She was started on hydroxychloroquine 200 mg/day, with ophthalmologic clearance prior to initiation. Prednisone 20 mg/day (0.5 mg/kg/day) was also given, along with omeprazole 20 mg/day and vitamin D with calcium supplementation. Supportive measures included the use of mild soap, emollients, and strict photoprotection. After one month of treatment,

significant reduction in erythema and swelling of lesions with residual hyperpigmentation was observed (Figure 4). She was then discharged improved, and regular outpatient visits were scheduled. However, she was subsequently lost to follow-up.

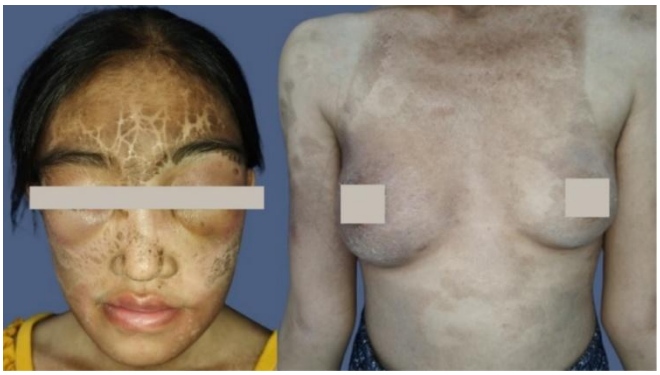

FIGURE 4. 1 MONTH OF AFTER TREATMENT (Lesions showed decrease in swelling and erythema with residual hyperpigmentation.)

DISCUSSION

Lupus mastitis is a rare, benign inflammation of the deep subcutaneous fat tissues of the breast, seen in around 2–3% of systemic lupus erythematous patients. It is part of the presentation of lupus panniculitis. It could be the first symptom of the disease and can appear concurrently with, before, or after other DLE or SLE symptoms. It is more prevalent in females, with a female-to-male ratio of 4.5:1. The age of onset ranges from 20 to 60 years, with the average age of 36 years old. [2,5] It was encountered in a majority of black women. [6]

Lupus mastitis may present as breast mass, axillary lymphadenopathy, fat necrosis, fibrosis, and calcifications. [2] Lupus mastitis and periorbital edema are rare initial manifestations of Lupus Panniculitis. [7] Often, the clinical presentation of lupus mastitis may mimic breast infection and malignancy. [2,6] Although uncommon, lupus mastitis should be considered in the differential diagnosis of a suspicious breast mass and distinguished from the latter diagnosis. It is the extension of lupus panniculitis on the mammary gland and presents clinically as a painful subcutaneous mass or with cutaneous involvement such as thickening and discoloration.[5,6] In an article published by Pessôa et al, imaging findings can be inconclusive. Magnetic resonance imaging (MRI) may reveal skin thickening, fat stranding, and heterogeneous contrast enhancement with variable enhancement curves. Mammography frequently demonstrates large dystrophic calcifications with fat necrosis in advanced cases, along with focal or diffuse, asymmetric, ill-defined masses. Ultrasonography often shows ill-defined hypoechoic areas, architectural distortion, and echotextural changes, commonly hyperechoic due to infiltration. The differential diagnosis must be ruled out with histopathological study, as there is no absolute imaging finding that differentiates it from LM.[8] Skin biopsy is the diagnostic procedure of choice for and the key histopathologic features include a lymphocytic infiltrate involving the fat lobules and hyaline necrosis of the fat lobules.[5] Special stains and direct immunofluorescence may aid in diagnosis but are not required. Laboratory investigations should always be performed to rule out or confirm other organ involvement. They are not only useful in initial diagnostics but also for evaluation of prognosis and activity.[7]

The first line of treatment for lupus panniculitis is antimalarial therapy, most commonly hydroxychloroquine at a dosage of 200 mg to 400 mg/day, which typically produces a clinical response in 6-8 weeks. Systemic corticosteroids are often used in combination with antimalarial drugs during the initial phase of treatment to achieve disease control. Other systemic treatments include dapsone, mycophenolate mofetil, cyclophosphamide, thalidomide, IVIG, and rituximab. Overlying cutaneous lesions can be treated with topical or intralesional steroids. Lupus panniculitis follows a chronic, relapsing–remitting course. Lesions can be debilitating, but they rarely have a long-term impact on patients' survival. Most patients have a favorable prognosis, and lupus panniculitis is generally considered a marker of a less severe form of systemic lupus erythematosus.[9]

We presented a rare case of lupus mastitis. This case highlights the diagnostic challenges posed by lupus panniculitis masquerading as mastitis and emphasizes the need for a comprehensive evaluation in complex dermatologic cases. The presence of a breast mass initially led to diagnostic uncertainty, as imaging and laboratory findings were inconclusive, necessitating histopathologic confirmation through biopsy. Despite reports of exacerbation during the biopsy, when confronted with this diagnostic challenge, it may be beneficial to confirm the diagnosis. Given the rarity of this condition, misdiagnosis is possible, often resulting in delayed or inappropriate management. Hence, a multi-specialty approach and proper clinicopathologic correlation are needed to arrive at an appropriate diagnosis and management plan. Early recognition and appropriate treatment of lupus panniculitis can improve patient outcomes and prevent unnecessary interventions.

REFERENCES:

1. Mullaaziz, D., Maden, S., Deren, O., & Özkayalar, H. (2020). Periorbital lupus erythematosus profundus: A case report and review of the literature. TURKDERM, 54(3), 114–116. https://doi.org/10.4274/turkderm.galenos.2020.32068
2. Oktay, A., Habib Ahmad Esmat, Aslan, Ö., & Ismayil Mirzafarli. (2022). Lupus Mastitis in a Young Female Mimicking a Breast Carcinoma; a Rare Entity Through a Case Report and Review of the Literature. Meme Sağlığı Dergisi/Meme Sağlığı Dergisi, 18(1), 13–15. https://doi.org/10.4274/ejbh.galenos.2021.6361
3. Mazeda, C., Aguiar, R., & Barcelos, A. (2022). Lupus mastitis – the copycat. Scandinavian Journal of Rheumatology, 1–3. https://doi.org/10.1080/03009742.2022.2076348
4. Roongta, R., Joshi, S., Chattopadhyay, A., & Ghosh, A. (2022). Lupus Mastitis. Reumatología Clínica (English Edition), 18(5), 312–313. https://doi.org/10.1016/j.reumae.2021.05.006
5. Lupus panniculitis in an ANA-negative systemic lupus... : Journal of the Philippine Dermatological Society. (2024). LWW. https://journals.lww.com/jpds/abstract/2021/30010/lupus_panniculitis_in_an_ana_negative_systemic.8.aspx
6. Béatrice Voizard, Lalonde, L., Lilia Maria Sanchez, Richard-Chesnay, J., David, J., Labelle, M., Mona El Khoury, & Trop, I. (2017). Lupus mastitis as a first manifestation of systemic disease: About two cases with a review of the literature. European Journal of Radiology, 92, 124–131. https://doi.org/10.1016/j.ejrad.2017.04.023
7. Worm, M., Zidane, M., Eisert, L., Fischer-Betz, R., Foeldvari, I., Günther, C., Iking-Konert, C., Kreuter, A., Müller-Ladner, U., Nast, A., Ochsendorf, F., Schneider, M., Sticherling, M., Tenbrock, K., Wenzel, J., & Kuhn, A. (2021). S2k guideline: Diagnosis and management of cutaneous lupus erythematosus – Part 1: Classification, diagnosis, prevention, activity scores. JDDG: Journal Der Deutschen Dermatologischen Gesellschaft, 19(8), 1236–1247. https://doi.org/10.1111/ddg.14492
8. Pessôa, A., & Célia, M. (2020). Lupus Mastitis as Differential Diagnosis of Breast Mass. Journal of Case Reports, 162–165. https://doi.org/10.17659/01.2020.0043
9. Cooper, E. E., Pisano, C. E., & Shapiro, S. C. (2021). Cutaneous Manifestations of "Lupus": Systemic Lupus Erythematosus and Beyond. International Journal of Rheumatology, 2021,1–19. https://doi.org/10.1155/2021/6610509