Erdheim-Chester Disease of the Breast Without Systemic Involvement

To the Editor:

Erdheim-Chester disease is a rare non–Langerhans cell histiocytosis, characterized by infiltration of tissues by foamy non–Langerhans cell histiocytes associated with Touton-type giant cells and mixed lymphoid infiltrates. There are fewer than 700 cases reported in the world and only 7 cases with solely breast involvement. We report another 4 cases. Four additional cases of isolated breast involvement in whom the diagnosis was made upon review of the biopsies.

A diffuse infiltration by epithelioid cells with abundant foamy cytoplasm, multinucleated cells with the appearance of Touton-type giant cells, and patchy mature lymphoid infiltrate were found. On immunohistochemical staining, the cells were positive for CD68 and negative for CD1a, S-100, and immunoglobulin G4 (IgG4). These findings were consistent with Erdheim-Chester disease.

INTRODUCTION

Erdheim-Chester disease is a rare non–Langerhans cell histiocytosis, first described as "lipoid-granulomatose" in 2 patients by Chester and Erdheim in 1930.[1] It is characterized by infiltration of tissues by foamy non–Langerhans cell histiocytes associated with Touton-type giant cells and mixed lymphoid infiltrates. Breast involvement is extremely rare, with only 7 reported cases in English literature.[2–8]

OBJECTIVE

To describe 4 additional cases of Erdheim-Chester disease, involving only the breast.

CASES

All cases are described in the Table 1.

DISCUSSION

Erdheim-Chester disease is an unusual disease of unknown etiology, so it is often misdiagnosed or diagnosed late in the course of the disease because of its varied clinical presentation and clinical course, low prevalence, clinical similarity with malignancies, and histologic similarity to other histiocytic lesions.

The xanthomatous cells (characteristic of this disease) infiltrate diffusely the tissues, and symptoms result from this infiltration. So, the patients may complain of juxta-articular pain (usually in knees and ankles), constitutional symptoms, exophthalmos, diabetes insipidus, and retroperitoneal or renal/ureteric involvement. Cutaneous xanthomas, neurologic symptoms, diffuse interstitial lung involvement, and body cavity effusions were reported with less frequency. Even more infrequent is breast involvement by Erdheim-Chester disease, with only 7 cases reported.[2,5,8] All patients (except 1 patient) were female (contrary to general literature on Erdheim-Chester disease, where there is a male predominance), and 5 of them showed a multisystem involvement. The other 2 patients disclosed only breast involvement at disease onset and during the next 2 to 3 years developed multisystem involvement due to Erdheim-Chester disease.

When a patient comes for a consultation with a unique breast mass, a malignancy should be ruled out (not on clinical grounds alone, but on subsequent histology). Nevertheless, granulomatous mastitis was the first histopathologic diagnosis in the majority of our patients. This is a distinct morphologic entity of unknown

TABLE 1. Clinical Data for Patients With Granulomatous Mastitis

	Age, y	Parity	Size of Lesion, cm	Location	Clinical Diagnosis	Clinical Features	Contraceptive Pill Use	Bacteriology	No. of Biopsies	Outcome
1	38, P.C.	2	0.18 × 0.05	L	Breast abscess, granulomatous mastitis (Fig. 1)	Pain and erythematous mass	No	Negative	2	Mass resection, stable disease
2	32, M.S.	4	3 × 4	L	Breast abscess	Pain and erythematous mass	No	Negative	1	Drainage of the mass and antibiotics, stable disease
3	38, A.D.	3	3 × 5	R	Granulomatous mastitis	Pain and erythematous mass	No	Negative	1	Mass resection and antibiotics, stable disease
4	35, A.H.	2	2 × 2	R	Breast abscess, chronic mastitis	Pain and erythematous mass	No	Negative	1	Drainage of the mass and antibiotics

All cases showed similar histopathologic features: breast tissue with ductal ectasia, extensive infiltrates of lymphocytes, and polymorphonuclear and plasma cells, with giant multinucleated cells and scattered granulomas. After granulomas and a diagnosis of granulomatous mastitis was made. On review a diffuse infiltration by epithelioid cells with abundant foamy cytoplasm, multinucleated cells with the appearance of Touton-type giant cells, and patchy mature lymphoid infiltrate were found. On immunohistochemical staining, the cells were positive for CD68 and negative for CD1a (Fig. 2). The clinical course and biopsy findings were consistent with the diagnosis of Erdheim-Chester disease. Systemic involvement due to Erdheim-Chester disease was ruled out. Currently, patients have a time evolution of 2 to 8 years. None of them have received treatment for Erdheim-Chester disease.

L indicates left; R, right.

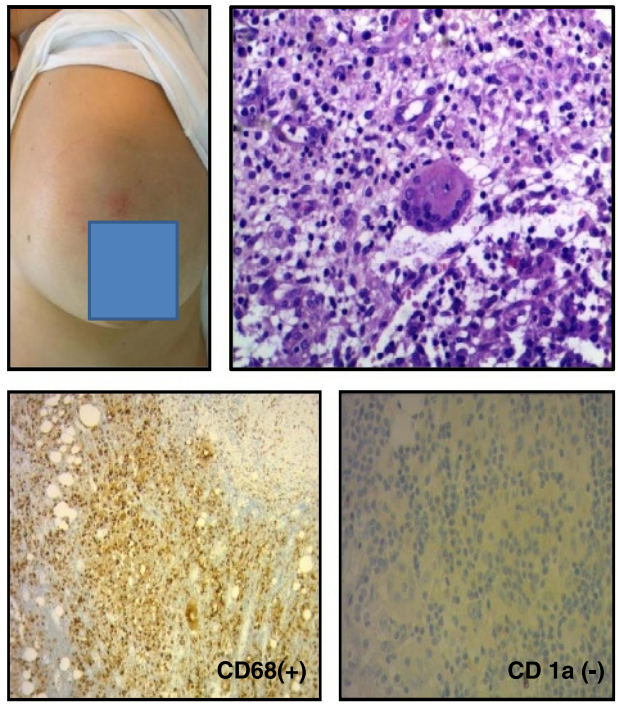

FIGURE 1. Patient 1: breast mass, histology, and immunohistochemical staining. Color online figures are available at http://www.jclinrheum.com.

etiology that occurs in young, parous women, composed histologically of granulomatous lobulitis, sometimes necrotizing, which was not associated with trauma, specific infection, or exogenous material.[9,10]

Hernández-Rodríguez et al[11] evaluated 34 patients with vasculitis of the breast (18 with isolated vasculitis of the breast, 6 with proven or indirect evidence of systemic vasculitis, and 10 with vasculitis of the breast with possible systemic involvement). They found that constitutional and musculoskeletal symptoms were present less often in isolated vasculitis of the breast than in systemic vasculitis with breast involvement. Patients with systemic involvement showed higher erythrocyte sedimentation rates and lower hemoglobin levels. Also, the former do not require systemic therapy. So, this is another disease that can be confounded when a solitary mass appeared in the breast.

These 4 patients developed an Erdheim-Chester disease limited to the breast, without systemic involvement during the follow-up. All patients had started experiencing symptoms 2 to 4 years before and consulted in several opportunities with their gynecologists without resolution of the disease.

Key Points

1. We report 4 cases of isolated breast masses, an extremely rare presentation of Erdheim-Chester disease.
2. Because of the symptoms, breast abscess, granulomatous mastitis, and a neoplasm should be ruled out.
3. Diagnosis of Erdheim-Chester disease is based on a tissue biopsy sample, disclosing typical spumous histiocytes with CD68-positive and CD1a-negative immunostaining.

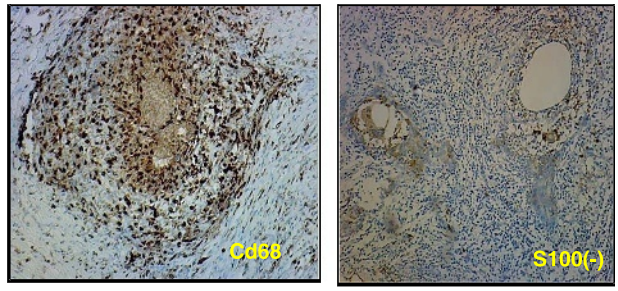

FIGURE 2. Patient 2: histology and immunohistochemical staining. Color online figures are available at http://www.jclinrheum.com.

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The authors declare no conflict of interest.

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