

# Sarcoidosis of the breast: a rare case report and a review

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**Abstract.** – Sarcoidosis is an idiopathic systemic inflammatory granulomatous disorder comprised of epithelioid and multinucleated giant cells with little necrosis. It usually invades the lungs with fibrosis and may also involve lymph nodes, skin, liver, spleen, eyes, phalangeal bones, and parotid glands. Breast involvement is extremely rare, but, when present, it could be confused with a benign or, more important, a malignant neoplasm.

We have reported a case of sarcoidosis of the breast in a 51 years old woman with systemic manifestations of sarcoidosis (arthralgias and uveitis) associated with a breast mass and with a clinical history of fibrocystic mastopathy.

A chest X-ray and a Computed Tomography (CT), with raised serum levels of Angiotensin Converting Enzyme (ACE), were compatible with a diagnosis of sarcoidosis. The mammography and ultrasonogram showed a solitary little nodular lesion localized in the breast.

A breast cancer in a patient with sarcoidosis? To answer this question, the patient performed breast surgery under general anaesthesia and bioptic microscopic examination showed a typical sarcoid granuloma.

*Key Words:*

Sarcoidosis, Breast, Noncaseating Granuloma.

## Introduction

Sarcoidosis is a multisystemic granulomatous disease of unknown etiology with a diverse clinical spectrum of symptoms<sup>1</sup>. It occurs in both sexes, more frequently in young adult female<sup>2</sup>. It is characterized, histologically, by the presence of noncaseating epithelioid-cell granulomas in various organs and tissues, which evolves into either complete resolution or hyaline fibrosis<sup>3</sup>. In most cases

the presence of these typical granulomas is documented in lungs, intrathoracic lymph nodes, periferic lymphatic system and skin.

When symptomatic, the clinical features of the disease include respiratory symptoms, dyspnea is the commonest, followed by cutaneous manifestations, ocular disease, splenomegaly, lymphadenopathy, bone cysts, hepatomegaly, arthropathy and cardiac manifestations. Also kidneys, lacrimal and salivary glands could be involved. Neuronal symptoms are observed in about 5% of patients<sup>4</sup>.

Diagnosis is based on clinical-radiological findings plus histological evidence of non-caseating epithelioid granulomas and exclusion of other granulomatous diseases. Other findings, such as, raised serum concentrations of Angiotensin Converting Enzyme (ACE) are thought to be epithelioid cells derived from monocytes in sarcoid granulomata<sup>5</sup>.

Sarcoid involvement of the breast is extremely rare, as evidenced by the paucity of documentation of such cases. It accounts for less than 1 per cent of cases, but when present it may be confused with a malignant neoplasm<sup>6-13</sup>.

In the earlier documented cases the breast and lymph nodes had been simultaneously affected at the time of presentation and needed histological confirmation<sup>14-16</sup>.

In case of sarcoidosis of the breast, shown as a single nodule often fixed to skin with axillary lymphonodes possibly interested, breast cancer may be detected: although sarcoidosis of the breast constitutes a rare entity it should be considered in the differential diagnosis of breast cancer. We report a case of breast sarcoidosis incidentally detected in a patient with sistemic sarcoidosis and a fibrocystic mastopahty hystory.

### Case Report

N.G., a 51 years old white woman, retired (after having worked for 30 years as civic servant), reported nothing of relevant in her personal medical history, except fibrocystic mastopathy, periodically evaluated by mammography, since she was about 20 years old.

Her clinical conditions were absolutely excellent until about four years ago, when the patient began to complain of the presence of arthralgias, localized in upper limbs, particularly in hands and shoulders with partial "functio lesa", especially in early morning.

Suspecting an autoimmune disease, we proceeded to dose the autoantibodies, ENA as well as the reumatoid factor, with the circulating immune complexes, and Waaler-Rose reaction. All yielded negative results.

About a year ago the patient showed bilateral acute eye pain with conjunctivitis and photophobia. We performed a diagnosis of bilateral uveitis and the patient started a scaled down deflazacort treatment (starting dosage: 60 mg/day).

In the hypothesis that the uveitis could be the manifestation of a systemic pathology, sarcoidosis or paraneoplastic syndrome, we decided to dose the serum ACE (angiotensin converting enzyme) and neoplastic markers (CEA, TPA, NSE, CA 15/3). ACE serum levels were elevated (51 mU/ml) as well as CA 15/3 (31.6 U/ml). A tubercoline test with 5 PPD U.I. yielded a negative result. Corrected serum calcium concentration was normal. There was no evidence of skin, neurological or myocardial involvement.

The coexistence of elevated CA 15/3 values, of fibrocystic mastopathy without recently performed mammography and the evidence of a palpable nodule in the upper outer quadrant of her left breast, made us suspecting the presence of a breast cancer.

A chest X-ray (Figure 1) and a computed tomography (CT) (Figure 2) were carried out and showed bilateral hilar adenopathy with partial alteration of pulmonary drawing, with microcystic emphysema in the posterior areas of the lower lobes.

Ultrasonogram (Figure 3) showed a hypoechoic mass of 2.5 cm and mammography (Figure 4) revealed a spiculated left breast lesion.

Suspecting a II stage sarcoidosis associated with a breast cancer, the patient performed breast surgery under general anaesthesia and



Figure 1. Chest X-ray shows bilateral hilar enlargement.

the excisional biopsy revealed an epithelioid granuloma with multinucleated giant cells and with little necrosis, histopathological appearance typical of sarcoidosis (Figure 5).

After diagnosis the patient started corticosteroid therapy at standard dosage (0.5 mg/kg/day) for 6 weeks gradually scaled till a maintenance dose administered continuously for 6 months. One year later a chest X-ray showed a reduction of the hilar adenopathy, without any more interstitial involvement. Besides the patient continued the periodical mammographic controls and, after 20 months, no mammarian recurrences were detected.

As an high level of ACE is persisting without any signs of systemic manifestations, at this moment the patient needs a lower degree of corticosteroid therapy, monitoring neoplastic markers levels for early detection of hidden cancer.

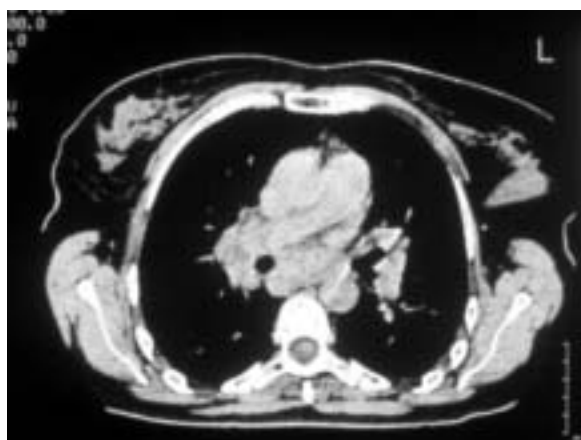
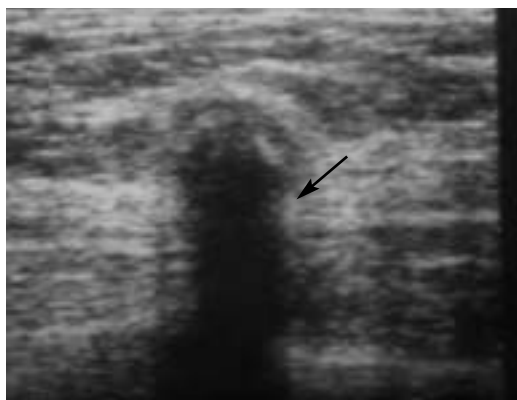
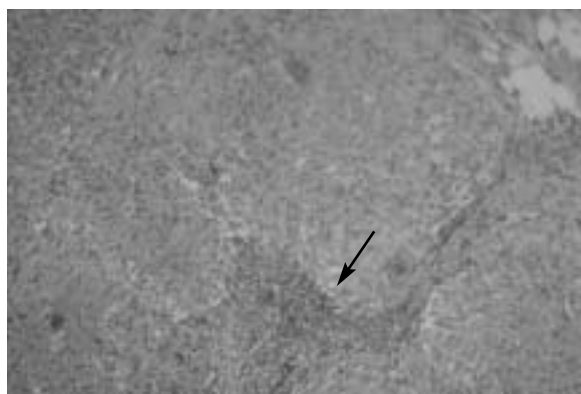


Figure 2. Chest CT scan confirm the presence of bilateral hilar adenopathy.



**Figure 3.** Ultrasonography shows a nodular lesion of about 2.5 cm that is hypoechoic and heterogeneous with indistinct border localized in the upper outer quadrant of the left breast.



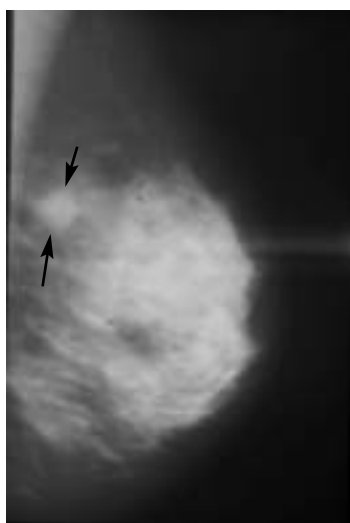
**Figure 5.** Non-caseating epithelioid granuloma, with multinucleated giant cells, in the left mammary lobule (1000 ×).

## Discussion

In this case the presence of a breast palpable nodule, in a woman with a fibrocystic mastopathy history associated to clinical signs (uveitis, arthralgia, high ACE serum concentration) and radiological findings (hilar lymphadenopathy) typical of sarcoidosis, suggested us the hypothesis of the coexistence of sarcoidosis and breast cancer. Moreover, in this contest, clinical findings, mammography and echography were misleading and inconclusive. This condition made the surgical excision of the nodule mandatory. So the patient

underwent surgery only to rule out the malignancy and not for the histological diagnosis of sarcoidosis. It is important to underline that the presence of a breast nodule was an incidental finding. So that, only the previous history of fibrocystic mastopathy focused our attention on the possible coexistence of a breast cancer in a patient with a suspected sarcoidosis. Breast sarcoidosis constitutes a rare entity and we can find only sporadic cases<sup>15-17</sup>.

The scientific literature from 1921 to 1997 shows only 35 histologically proven cases relating to sarcoidosis of the breast<sup>18,19</sup>. Seven patients (20%) had a breast mass as primary presentation of sarcoidosis without any clinical evidence of systemic sarcoidosis. The size of the breast lesions ranged from 0.25 to 5 cm in diameter. Fine-needle aspiration was used only in four cases; the results of two were compatible with sarcoidosis and two required an excisional biopsy as a result of inconclusive results. Seventeen cases reported excisional biopsy as the diagnostic procedure. In two cases of radical mastectomies for breast adenocarcinoma, sarcoidosis was an incidental finding, either in the remaining breast tissue or in the axillary nodes. One patient underwent a partial mastectomy revealing sarcoidosis as the definitive diagnosis<sup>18</sup>. A case of sarcoidosis has been reported, presenting initially as a breast mass with subclinical pulmonary and medullary involvement, highly mimicking metastatic breast carcinoma<sup>9</sup>. It has been examined a group of 629 women with sarcoidosis: breast biopsy revealed granulomas consis-



**Figure 4.** Mammography reveals an opacity in the upper region of the left breast with irregular border.

tent with sarcoidosis only in six of these women<sup>10</sup>. So the past literature confirm the importance of histology in case of breast mass of unknown origin in order to exclude the possible presence of a breast cancer.

Moreover in the differential diagnosis of breast nodules we have to consider, in addition to cancer, granulomatous mastitis, tuberculosis, and fungal infection. This becomes really interesting if we consider that the radiologic features of breast lesions caused by immunologic, reactive, and noncurrent infectious diseases often mimic those of malignancy, frequently constituting a diagnostic challenge even if the underlying disease is known: Wegener granulomatosis and sarcoidosis often manifest as irregular masses, although sarcoidosis can also manifest as round, well-defined masses reflecting intramammary node involvement<sup>20</sup>. A differential diagnosis between sarcoidosis and other granulomatous mastitis, either tubercular or mycotis, may be difficult. Moreover sarcoidosis is more frequently associated with lymphoproliferative diseases or ovarian, testicular and lung cancer<sup>12</sup>. In addition, we know that the high levels of CA 15/3 are also possible in non-neoplastic pulmonary pathology, such as idiopathic fibrosis.

In this contest our work is an attempt to stimulate the attention on this rare sarcoidosis entity that shows intriguing diagnostic problems and needs an accurate follow-up for early detection of possible malignancies.

Despite of the extreme rarity of the clinical feature described, this rare case report is a reminder that not all breast nodules are malignant, but, especially in this rare case, where physical examination and mammography findings are unable to distinguish between sarcoidosis and malignancy, biopsy of all suspicious lesions is recommended.

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