

DIAGNOSTIC ROLE OF IMAGING IN ANTI-RETROVIRAL THERAPY ASSOCIATED MASTOPATHY

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ABSTRACT

With increased availability and increased usage of antiretroviral therapy newer side effects are being reported. Bilateral breast enlargement is one such entity. The human immunodeficiency virus lipodystrophy syndrome now includes this rare entity. We as Radiologists need to be aware about this entity as imaging evaluation alone is often confirmative and unwarranted biopsy can then be avoided.

A case of anti retroviral therapy associated mastopathy is therefore presented here so that increased awareness would obviate the need of invasive procedures in such cases. It is important to note that proper counselling in such condition is very important and adds to the respect and regards from the patient as well as the referring doctor.

Keywords: Anti retroviral therapy; Lipodystrophy; Mastopathy; Breast cancer; Breast mass; Imaging; Mammogram; Ultrasound

Introduction

As awareness about human immunodeficiency virus (HIV) has increased, the number of cases diagnosed per year has also increased globally. Hence more people are now using antiretroviral therapy. Due to this many unreported side effects or associated unwanted results are being observed. Bilateral breast enlargement is one such entity.^{1,2}

In general the commonly known causes of breast enlargement are physiological state of pregnancy, gynecomastia (proliferation of ducts and periductal stroma), lipomastia (adipose-tissue deposition), infections / abscesses and neoplasms. We describe a case of a 31 years old HIV-infected lady, currently on anti-retroviral therapy for the past 22 months who was referred for mammography with complaint of rapid bilateral breast enlargement.

Case Report

A 31-year-old lady was receiving antiretroviral therapy for the past 22 months after she got infected from her

husband who expired 20 months ago. She had no other illnesses. Her family history was unremarkable. Since the past six months she has been noticing rapid bilateral breast enlargement such that she had to increase the size of her brassieres by 3 bra sizes within this short duration. There was neither any history of trauma nor was she lactating. No secretions were being produced or expressed from either of the breasts.

Palpation demonstrated that both of her breasts were smooth, firm, easily mobile over the underlying thoracic musculature, and devoid of any palpable mass lesions. There was no nipple discharge, skin abnormalities or any axillary lymphadenopathy (Fig.1).

X-ray Mammography revealed enlargement of both breasts without any focal obvious mass. Both breasts are almost completely radiolucent because of a high proportion of fat. There were no architectural distortions, abnormal micro calcifications or masses. Overlying skin was neither thickened nor was the nipple puckered (Fig.2).

Both breasts were scanned using Linear Array Transducer with frequency 7.5 MHz (Fig.3); as well

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as with a Curvilinear Transducer of frequency 3.5 MHz (Fig.4). Sonomammogram of the breasts showed mastomegaly due to hypoechoic fatty tissue that occupied the entire breasts. No obvious mass, nodule or calcification was seen.



Figure 1: Photograph of a 31 years lady on antiretroviral therapy for the past 22 months now showing enlarged breasts.

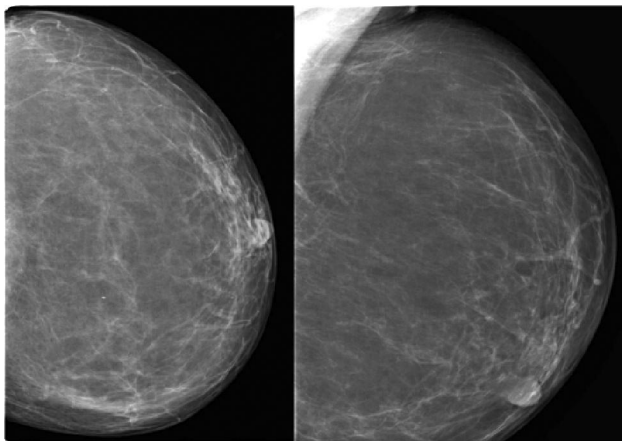


Figure 2: Left breast mammograms showing almost radiolucent breast due to predominant fat. No other obvious mass or nodule is seen.

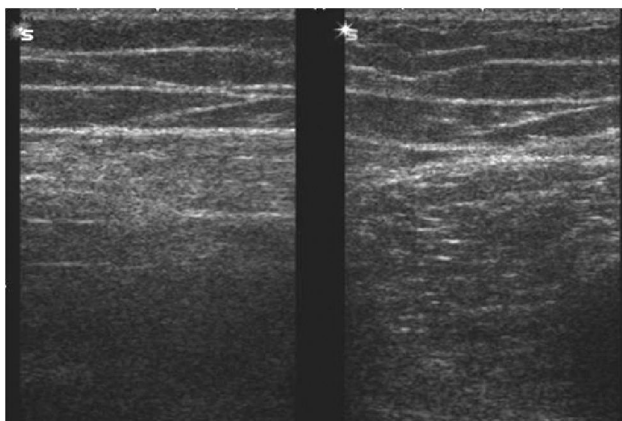


Figure 3: Sonomammogram of both breasts using Linear Array Transducer of 7.5 MHz showing predominant fatty parenchymal pattern as the cause of mastomegaly.

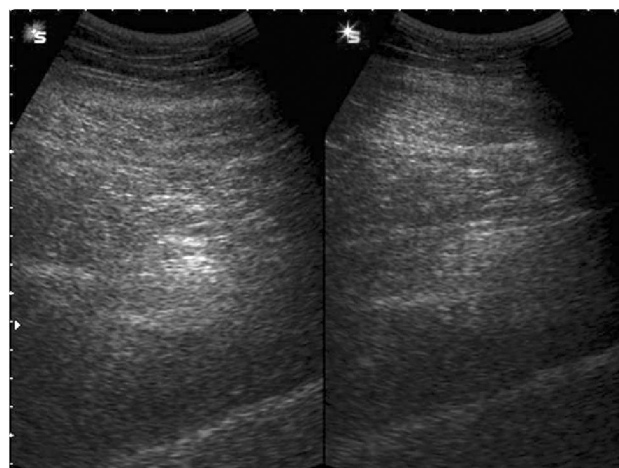


Figure 4: Sonomammogram of both breasts using Curvilinear Transducer of 3.5 MHz showing predominant fatty breast parenchyma as the cause of breast enlargement.

Breast Magnetic Resonance Imaging was not performed due to its local unavailability and in affordability by the patient. Doing Computed Tomography was not justifiable as palpation, X-ray mammography as well as on Sonomammography demonstrated no lesions.

Discussion

Newer and more cases of breast enlargement are being reported in antiretroviral therapy- associated human immunodeficiency virus lipodystrophy syndrome in males as well as females.³

The change in fat metabolism and distribution that occurs in antiretroviral regimes in HIV-infected patients is believed to be responsible for this breast enlargement. Characteristically there is progressive enlargement of the breast and abdomen but simultaneously fat loss is seen over the thighs. Authentic data from affected males is not yet clear but it has been reported in 10% of HIV-infected women treated with combined antiretroviral therapy.⁴

In such patients the in vitro production of TNF alpha and IL-10 is lower and IL-12 production higher. 50% of the patients treated with triple therapy have lipodystrophy at one year follow up, that manifests as weight loss, face-wasting and hyperglycemia.⁴

Of the multiple anti-retroviral drugs available; four protease inhibitors (saquinavir, indinavir, nelfinavir and ritonavir) are associated with the development of abnormal body fat.⁵ The pathophysiology for these events remains unclear and a specific drug or drug class linkage is still uncertain.

Following three types of fat distribution have been reported⁶ either separately or in combination in HIV-infected patients who are undergoing active antiretroviral therapy:

1. Lipo-atrophy syndrome in which there is fat depletion related to the use of stavudine;
2. Lipo-redistribution syndrome - an unusual side-product of effective virus control; and
3. Subcutaneous adiposity syndrome reflecting increase in caloric intake.

In those who were affected; changing the treatment was associated with limb fat-sparing and fat restoration compared with continued treatment with stavudine and/or protease inhibitor.⁷

Treatment options for patients with distress caused by mastomegaly include changing the medicines to halt or regress this lipodystrophy, or sometimes even reduction mammoplasty may be needed.⁸

In addition to the medical and surgical aspects, counselling plays a major role in this scenario. Assuring the patient as well as the referring doctor that there is no neoplasm hidden in the enlarged breasts and that it is just an unavoidable side effect of the essential anti retroviral therapy can often go miles in terms of doctor-patient as well as doctor-doctor relationships. Yearly follow up would enable to address any other fears as well.

X ray mammography, Sonomammography, CT Scan as well as Breast MRI, all imaging modalities demonstrate that breast enlargement in this condition is due to adipose tissue alone and hence obviate the need for biopsy. Moreover by ruling out the existence of any associated mass lesions, the patients as well as the referring doctor are in a better position to manage their primary concern i.e. HIV. As imaging plays a diagnostic role in evaluating anti-retroviral therapy associated mastopathy; we should all be aware of this entity.

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