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Case Report

An unexpected diagnosis in a patient with a history of breast cancer

Serra M[1], Santini D[2], Taffurelli M[1]

[1]Breast Centre - General Surgery, Department of the Health of woman, child and urological diseases, University of Bologna, Policlinico Sant' Orsola Malpighi, Bologna
[2]Pathology, Department of diagnostic and prevention medicine University of Bologna, Policlinico Sant' Orsola Malpighi, Bologna

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Abstract

A subcutaneous localization of Dirofilaria repens is very rare, expecially in non-endemic areas and only few cases of subcutaneous localizations are reported in the literature. We highlighted a rare case of subcutaneous infection of Dirofilaria epens presenting as a breast lump in a Italian woman, simulating a local recurrence. The patient has a history of breast cancer and underwent a right mastectomy with immediate reconstruction 10 years before. The ultrasound showed a markedly hypoechoic lesion, with spiculated margins. The demonstration of a parasitic infection was possible only with histological examination. This case illustrates an unusual presentation of breast cancer, due to a Parasitic infection in a non-endemic area e la necessità sempre di una diagnosi cito/istologica pre-operatoria.

Case Presentation

A 69 years-old caucasian woman was referred to the Breast Unit Surgical department of Policlinico Sant' Orsola - Malpighi, University of Bologna, with a small right breast lump increasing in volume in few months. In October 2015 she identified by self-examination the new lump, with no associated pain. She lived in Bologna (in the north of Italy) and she had not spent a holiday in a endemic area previously. She had also a previous history of breast cancer: the patient underwent a right mastectomy and omolateral axilla in 2004 . Thirty lymph-nodes were removed and in 3 of them there was a macrometastic involvement. The istopathological examination specimens showed a Ductal carcinoma, with a Luminal B bio-profile: Er 70%, PGR 10% Mib 1 : >20%, She was also treated with adjuvant chemotherapy.

The unilateral breast reconstruction after mastectomy was in 2-stage (6 months later), with placement of tissue sub-pectoral expander followed by permanent silicone implant placed in a second procedure.

The physical examination revealed a small, palpable painless lump in the upper quadrant of the right breast. The mass was 2 cm X 1.5 cm. Clinically it was near to the scar of the previous procedure. Nipple discharge or skin changes were not found.

The clinical examination of the left breast and omolateral axilla nodes was negative.

Breast ultrasonography of the right breast showed an omogeneous hypoechoic lesion (10 x 9 x 4 mm) in the upper inner quadrant of the breast, with spiculated margins (Figure 1). The mammogram of breast was performed on January of the same year, it was negative and it was not performed again.

Figure 1: Ultrasound of the lump upper inner quadrant of the right breast shows a omogeneous hypoechoic lesion (10 x 9 x 4 mm) in the upper inner quadrant of the breast, with spiculated margins.

***Corresponding Author:** Margherita Serra, Breast Centre - General Surgery, Department of the Health of woman, child and urological diseases, University of Bologna, Policlinico Sant' Orsola Malpighi, Bologna, , Phone number: 00390512143344; Fax number: 0039051301834, E-mail: magserra@hotmail.com

Fine-needle aspiration biopsy (FNAB) to diagnose the lesion was not performed because the mass was in proximity to the implant capsule, and for the fear to damaged it.

The surgical approach was finally based on clinical and imaging findings.

A wide local excision under general anesthesia was performed through a semicircular incision, adjacent to the mass and with adequate margins, to achieve optimal oncological resection; the sub-pectoral implant was preserved.

Histopathological sections of specimen revealed the presence of chronic inflammatory process and fibro-inflammatory components, chronic inflammatory cells and multinucleated giant cells were also observed due to a nematode. Specimens were also evaluated by veterinary pathologist and the definitive diagnosis was of female Dirofilaria repens. In the excised tissue, transverse sections of Dirofilaria worms were seen with a crenated outline, rod-like structures which corresponded to the cuticle of the parasite and uterine components. (Figure 2 and Figure 3)

Discussion

The estimated range of prevalence of dirofilariasis in dogs and domestic pets caused by D. repens infection in Europe is between 6.7% and 22% [1]. The most important vehicle of infection of this zoonotic infection for humans is rappresented by bloodsucking insects. The nematode slowly migrates through the subcutaneous tissue and activates the host immune system. In this report, we pubblish this case report of Dirofilaria repens localization of the breast because of its rarity in Italy, considered a non endemic area.

Generally clinical manifestation of this nematode is as a small painless nodule. The most common form of infection is the sub-conjunctival localization [2,3], but also subcutaneous implants (like male external genitalia) [4,5] of the worm are described in literature. Breast dirofilariasis is quite rare and few cases have been reported in English literature [6]. Breast's subcutaneous localization can be initially diagnosed as carcinoma on mammography (especially when associated with microcalcifications) or on Ultrasonography [7].

Female worms are found more often than males, but in cases of human infection, the female worm does not cause sistemic-filaremia. *D. repens* nematode presents precise microscopical features, including a thick laminated cuticle with external longitudinal ridges and circumferential musculature with lateral cords.[8]

Excisional biopsy of the parasitic nodule is diagnostic and therapeutic [7].

The unique feature of this case is the ultrasonographic appearance of the breast mass (hypoechoic lesion, with spiculated margins) and the simulation of breast breast cancer. This case also illustrates an unusual diagnostic problem and a real surprise in breast pathology since it presented in a non-endemic area. The clinical picture of the patient suggested a recurrence of the previous cancer and only the histological examination revealed the correct diagnosis.

Pre-operative diagnosis with cytological examination would have allowed planning the most appropriate treatment, even though it would most likely have been "inadequate" (C1).

Although the case had been discussed at the pre-operative multidisciplinary meeting and it was considered appropriate to proceed to an ecoguided biopsy (without thinking of this type of pathology but with a precise orientation towards a diagnosis of recurrence), however, despite reassurance, the patient had completely refused, for fear of accidental injuries to the prosthesis associated with the procedure.

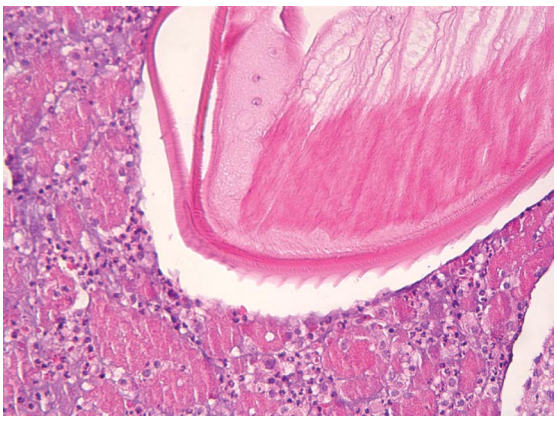

Figure 2

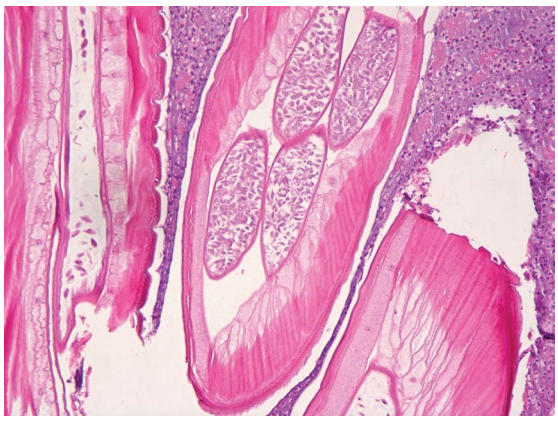

Figure 3

Figure 2, 3: Histological section (Haematoxylin and eosin) shows sections of a female *Dirofilaria* worm. The cuticle is thick and it shows fine longitudinal ridges

Conflict of Interest

The authors declare that they have no conflict of interest.

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