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CASE REPORT

Breast Schistosomiasis Presenting as Mammographic Calcifications

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ABSTRACT

A case of mammary schistosomiasis revealed by breast microcalcifications detected by mammography is reported. Although schistosomiasis can involve almost any organ, involvement of the breast is very rare. This case was diagnosed by stereotactic-guided vacuum-assisted biopsy of the breast microcalcifications.

Key Words: *Breast diseases; Breast neoplasms; Calcinosis; Mammography; Schistosomiasis*

中文摘要

乳腺血吸蟲病引致的乳腺鈣化

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本文報告一則乳腺X線攝影檢測到乳腺微細鈣化的血吸蟲病例。儘管血吸蟲病可發生於身體任何器官，但乳腺受累非常罕見。對鈣化灶行真空輔助裝置立體定位活檢，該病例確診為血吸蟲病。

INTRODUCTION

Schistosomiasis has long been described in humans and is endemic in many parts of the world[1] including Asia. In the United States, schistosomiasis is found in immigrants and others who live in the endemic areas, and affects around 400,000 people. Schistosomiasis commonly involves the liver, intestines, urinary tract, and less commonly the lungs, central nervous system, genitalia, spleen, and skin.[2] Schistosomiasis of the breast is extremely uncommon, and in the literature, only a few cases have been reported.[2-10]

CASE REPORT

A 71-year-old Chinese woman was referred for investigation of a right breast lump and the mammogram was performed for both breasts as usual. She was a farmer in mainland China till aged 40 years and then immigrated to Hong Kong. She had no family history of breast cancer or other medical disease under treatment. Her mammogram showed an incidental finding of microcalcifications in the left breast apart from the right breast lesion with benign appearance. There were multiple microcalcifications in all quadrants of left breast, some of which were round or oval in shape. They were in clusters and had a segmental distribution. No associated mass was present. The calcifications were not in a ductal orientation, but their large number and segmental distribution were deemed intermediately suspicious of malignancy (Figure 1). Ultrasound did not reveal any abnormality in the left breast. The mammographic and ultrasound appearances of the lesions were classified according to the Breast Imaging Reporting and Data

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System (BI-RADS) lexicon and assessed as belonging to categories BI-RADS 4. Stereotactic-guided vacuum-assisted biopsy was performed.

The pathological findings showed aggregates of calcified schistosoma ova within the fibrofatty stroma. These ova were oval, and did not demonstrate any spines. No adult worms were present. The adjacent tissue showed minimal reaction, with only a very sparse infiltrate of inflammatory cells, and there was no granulomatous inflammation. Based on the morphology of the ova, a diagnosis of inactive *Schistosoma japonicum* infestation was made (Figure 2), and therefore, specific treatment was not given.

DISCUSSION

Schistosomias causing pathology in humans result from three species, *S. hematobium*, *S. mansoni*, and *S. japonicum*. They can be differentiated on morphological grounds from their ova. *S. hematobium* ova possess terminal spines, *S mansoni* ova have lateral spines, and *S. japonicum* ova have lateral knobs only.[11] These different species tend to affect different organs in humans. *S. mansoni* inhabits the inferior mesenteric vein, affecting the colorectal region; *S. hematobium* inhabits the venous plexus of the bladder causing local lesions; and *S. japonicum* is encountered in the portal venous system and gives rise to lesions in the intestines, liver, lung, and rarely the brain. In the breast, a mixture of pathogens have been reported, including *S. japonicum*[2,6-8] and less commonly *S. mansoni*.[9,10]

Schistosomiasis of the breast presents variably. Most commonly, patients are asymptomatic with only calcifications being detected incidentally.[2,6,8] The next most common presentation is a mass lesion in the breast with no other symptoms; very often these are diagnosed clinically as fibroadenomas.[9,10] A third clinical presentation is pain without a mass lesion.[7] Interestingly, irrespective of the clinical presentation, only the ova were present in the majority of reported cases,[2,6-9] and the adult worms (with ova) were found very uncommonly.[10]

The patient reported here was asymptomatic, and did not present with any mass lesions in the left breast. This is in agreement with the most common presentation of schistosomiasis of the breast, detected at mammography due to the presence of calcification. Previous publications reported similar cases with unilateral involvement and occasionally presence of segmental microcalcifications. Morphologically in mammogram,

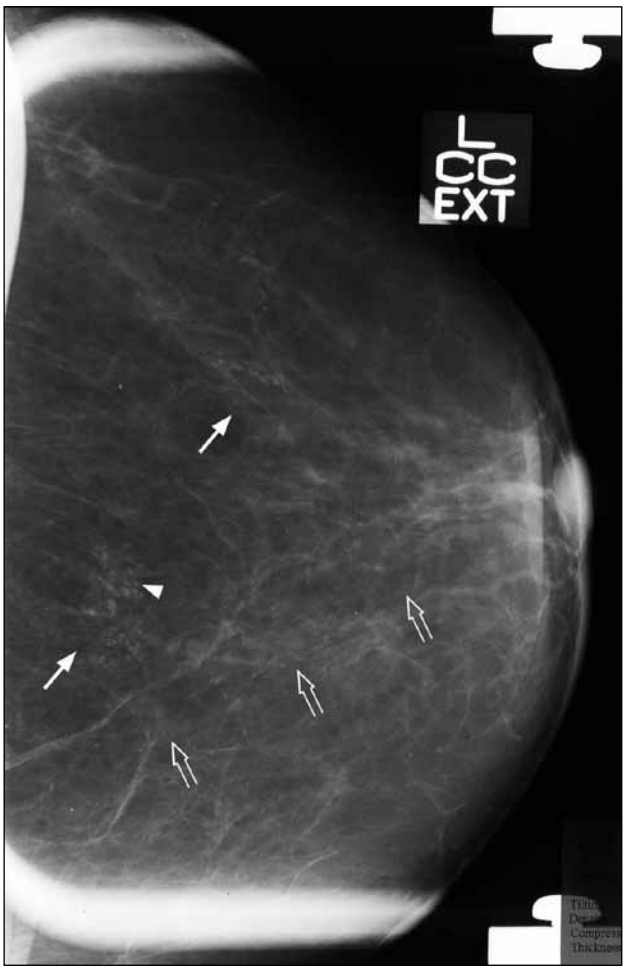

Figure 1. Mammogram (magnified craniocaudal view) showing clustered granular microcalcifications (arrows); some are oval and round in shape (arrowhead), with a segmental distribution (open arrows), and is of intermediate suspicion.

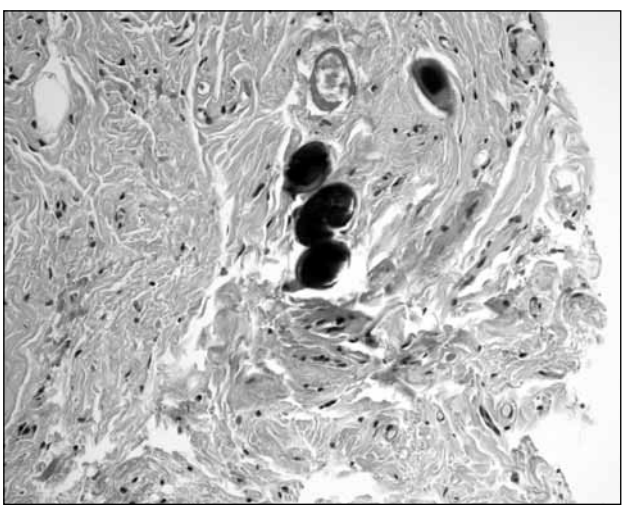

Figure 2. Photomicrograph of the biopsied breast tissue showing several calcified ova that are round, devoid of lateral or terminal spines, consistent with Schistosoma japonicum (H&E, x 200).

the microcalcifications are commonly amorphous. In the patient described here, however, the microcalcifications were granular and round in shape; none demonstrated any branching or linear pattern. Moreover they were unlike calcifications related to fibrosis or fibroadenoma, which are coarser and more heterogeneous. These microcalcifications of schistosomiasis are therefore of intermediate concern, and the main differential diagnosis to be considered is granular calcification related to ductal carcinoma. Obviously in any patient in whom the manifestation triggers a significant inflammatory response and fibrotic changes, calcifications demonstrated on mammography would have a mixed pattern.

Schistosomiasis is an uncommon cause of microcalcifications encountered at mammography of intermediate concern, and should be considered in patients with an appropriate travel history.

REFERENCES

1. Mahmound AF. Trematodes (schistosomiasis) and other flukes. Principles and practice of infectious diseases. Mandell GL, Douglas RG, Bennett JE (eds). 4th ed. New York: Churchill-Livingstone; 1995: 2538-44.
2. Sloan BS, Rickman LS, Blau EM, Davis CE. Schistosomiasis masquerading as carcinoma of the breast. South Med J. 1996;89:345-7.
3. Nkanza NK. Schistosomal ova in a female breast. Trop Geogr Med. 1989;41:365-7.
4. Wu DM. A case of mammary schistosomiasis complicated with breast cancer [in Chinese]. Ji Sheng Chong Xue Yu Ji Sheng Chong Bing Za Zhi [Chinese Journal of Paresitology and Parasitic Diseases]. 1984;2:208.
5. Case records of the Massachusetts General Hospital. Weekly clinicopathological exercises. Case 21-1985. A 21-year-old man with fever, diarrhea, and weakness of the legs during a sojourn in Kenya. N Engl J Med. 1985;312:1376-83.
6. Gorman JD, Champaign JL, Sumida FK, Canavan L. Schistosomiasis involving the breast. Radiology. 1992;185:423-4.
7. Varin CR, Eisenberg BL, Ladd WA. Mammographic microcalcifications associated with schistosomiasis. South Med J. 1989;82:1060-1.
8. Escobar PF, Patrick RJ, Sebek B, Procop G, Rice J, Crowe JP. Schistosomiasis presenting with microcalcifications on mammography. Breast J. 2005;11:489-90.
9. Makunike RT, Muronda C. Breast schistosomiasis: a case report. Histopathology. 2002;41:175-6.
10. Lima CA, Cavalcanti AC, Lima MM, Piva N. Pseudoneoplastic lesion of the breast caused by *Schistosoma mansoni*. Pev Soc Bras Med Trop. 2004;37:63-4.
11. Jasim KA. Breast schistosomiasis. Histopathology. 2003;43:196.