

RESEARCH NOTE

Detection by Ultrasound of Living Adult *Wuchereria bancrofti* in the Female Breast

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Although *Wuchereria bancrofti* has been identified in biopsy specimens of lymphatic vessels of the ovary and breast in women and from the scrotal area in men (RR Oliveira, T Caldas 1981 *J Bras Ginecol* 91: 335-338, P Jungmann et al. 1992 *J Trop Med Hyg* 95: 114-118, G Dreyer et al. 1994 *Trans R Soc Trop Med Hyg* 88: 232-236), the distribution of living adult worms within the human body remains poorly defined. F Amaral and colleagues recently showed that ultrasound can be a powerful tool for direct visualization of living adult *W. bancrofti* in the scrotal area of infected men (1994 *Am J Trop Med Hyg* 50: 753-757). The characteristic pattern of continuous movement, called the "filaria dance sign", and the location of the adult worm nests within the lymphatic vessels remain remarkable stable with time (Dreyer et al. 1994 *loc. cit.* 88: 558). Whether there is a "preferred" location of *W. bancrofti* in infected women it remains unknown, although evidence from biopsies of breast nodules suggests that the breast may be an important site of the adult worm in women (Jungmann *loc. cit.* p. 114-118, H Saxena et al. 1975 *Am J Trop Med Hyg* 24: 894-896). To

determine if live *W. bancrofti* can be visualized in the female breast by ultrasound, we performed multiple ultrasound examinations (on at least six separate occasions) in seven microfilaremic women at the Filariasis Out Patient Clinic at Centro de Pesquisas Aggeu Magalhães-FIOCRUZ in Recife, Brazil using a 7.5 MHz transducer (Pie Medical Scanner 200, Rotterdam, the Netherlands). Microfilarial density was determined by filtering 1 ml of blood obtained between 11:00 p.m. and 01:00 a.m. The blood was filtered through a 3 µm Nuclepore filter (Nuclepore Corporation®, Pleasanton, CA) and the slide was stained and examined microscopically. Informed consent was obtained from all patients before participation in the study.

Mean age was 25.9 years (range 17-47). None of the seven women reported symptoms of filariasis or symptoms related to the breast, and none had been previously treated with antifilarial drugs. Physical examinations were unremarkable. Microfilarial density ranged from 85 to 2980 (geometric mean, 316) microfilariae per ml. The filaria dance sign was detected in the left breast of one woman. She was 29 years old and had microfilarial density of 2980 microfilariae per ml. The location of the adult worm nest and their pattern of movement remained consistent each time the patient was examined. In the area where the living adult worms were seen the diameter of the lymphatic vessel was 10 mm. This was the only ultrasound in which lymphangiectasia was detected; ultrasound of the remaining six women were unremarkable. All patients are assisted by the Filariasis Patient Out Clinic and will follow the treatment schedule with diethylcarbamazine (DEC) advised by World Health Organization.

Although the number of patients in this study was small, the proportion of microfilaremic women with detectable filaria dance sign in the breast appears to be relatively low. In contrast, local adverse reaction associated with death of adult *W. bancrofti* after treatment with DEC are usually limited to the scrotal area in men (Dreyer *loc. cit.* 88: 232-236, Dreyer et al. 1994 *loc. cit.* 89: 98-102). In fact, 80% of 100 microfilaremic men in Recife had living adult worms detectable in the lymphatic vessels of the spermatic cord (J Norões 1995 *Trans R Soc Trop Med Hyg* in press). Thus, it seems that the scrotal area may be the principal site of *W. bancrofti* in men. We do not yet know whether this difference is because ultrasonographic visualization of the adult worm is more difficult in the breast or because adult worms localize less frequently in women breast than they do in men scrotal lymphatic. Furthermore with a 7.5 MHz transducer, the filaria dance sign cannot be reliably detected in lymphatic vessels of scrotal area < 1

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mm in diameter (G Dreyer et al. 1995 *loc. cit.* 89: 225-226). The same limitations may occur with the filaria dance in the breast.

To our knowledge, this is the first direct observation of living adult *W. bancrofti* in the female breast reported. Additional work is needed to determine the distribution and location of the living adult worms in women and children. Ultra-

sound, which has proved to be a useful tool for detection *W. bancrofti* in the scrotal area of infected men (Amaral *loc. cit.* p.753-757, Dreyer et al. 1994 *loc. cit.* 88: 558, Dreyer et al. 1995 *loc. cit.* 89: 225-226), may also be useful visualizing the live adult worms in women.

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