Images in Clinical Tropical Medicine

Lymphoscintigraphy in Unilateral Lower Limb and Scrotal Lymphedema Caused by Filariasis

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Abstract. Lymphedema is the edema that results from chronic lymphatic insufficiency. Lymphatic filariasis is caused by the filarial nematodes *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*. Lymphatic filariasis is common in tropical and subtropical regions. Early diagnosis and prompt therapy can be implemented using lymphoscintigraphy. Our patient is a 15-year-old boy presenting with a 3-month history of hydrocele. The patient was referred to us to rule out any lower limb lymphatic obstruction as the patient is from an endemic area. Tc Sulfur colloid (filtered) lymphoscintigraphy showed abnormal tracer collection in the scrotum and penis. There is associated dermal backflow or stasis in the left thigh region extending just above the knee, suggesting partial obstruction of left inguinal lymphatic channels.

Lymphatic filariasis is common in tropical and subtropical regions.¹ A 15-year-old boy presented with 3 months of scrotal edema. Although residence in a tropical area raises a high suspicion for lymphatic filariasis caused by *Wuchereria bancrofti*, which can usually be diagnosed with an antigen detection card test, this patient was evaluated for lymphatic obstruction. Imaging was performed with one millicurie (mCi) of filtered Technetium sulfur colloid (Figure 1). Four intradermal injections were given in the first and second webspaces of each foot in equal

divided doses. After a brisk walk, whole body anterior and posterior images were acquired immediately and 2 hours later using a dual head variable angle Gamma camera. Images showed abnormal tracer collection in the scrotum and penis with associated unsuspected dermal backflow/stasis in the left thigh region extending just above the knee. Lymphoscintigraphy was consistent with early partial obstruction of left inguinal lymphatics. A computed tomographic scan of the abdomen (Figure 2) showed soft tissue stranding in the lower anterior

FIGURE 1. Bilateral lower limb lymphoscintigraphy with filtered Tc Sulfur colloid. The initial images of both lower limbs show good progression of colloid particles through bilateral lower limb lymphatic channels. There is normal visualization of the bilateral inguinal group of lymph nodes in initial images. However, there are fewer left inguinal lymph nodes. Liver is visualized normally. Delayed image showed abnormal tracer collection in the scrotum and penis (depicted with annotation “Sc”). There is dermal backflow or stasis in the left thigh region (marked as DB in anterior and posterior views) extending up to the knee. Thus, lymphoscintigraphy was suggestive of early partial obstruction of the left inguinal lymphatics.

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FIGURE 2. (A) Transaxial (B) coronal sections of CT abdomen shows soft tissue stranding (marked as STS) in the lower anterior abdominal wall and left inguinal region suggestive of inflammatory changes (cellulitis), better seen in coronal view. A few enlarged lymph nodes were also noted along the left common femoral artery and in the bilateral inguinal region of average measurement 8×1 cm in its short axis. Bilateral scrotal oedema noted (marked as SE).

abdominal wall and left inguinal region suggestive of inflammatory changes (cellulitis) with bilateral scrotal edema. Microscopic examination of the surgically removed left spermatic cord showed a filarial nematode (*W. bancrofti*) (Figure 3). Although both *W. bancrofti* and *Brugia malayi* exist in Kerala,

FIGURE 3. Showing the cross-sectional view of a filarial nematode in the left spermatic cord, with surrounding intense eosinophilic inflammatory infiltrate (magnification, $\times 400$). U = denotes uterine tubes, M = the musculature, I = the intestinal loop and C is the cuticle.

B. malayi rarely produces scrotal involvement or swelling above the knee. Lymphatic filariasis may be acute or chronic by presentation. Acute lymphangitis, often recurrent, is characterized by fever, chills, and erythema. Adult worms (macrofilariae) are usually concentrated in the inguinal and scrotal lymphatics, and thus lower limb and inguinal symptoms are more common, although the upper limbs and breasts may also be affected rarely. Chronicity may manifest as limb lymphedema, hydroceles, and chyluria.

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