

IMAGES IN CLINICAL RADIOLOGY



Chain mail calcifications in dracunculiasis

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A 66-year-old black man from Mali was referred for radiological examination with atypical abdominal complaints. Results of the blood tests were unremarkable, without infectious parameters. Gastroscopy showed pangastritis. Plain films of the pelvis (Fig. A-B) and abdominal ultrasonography (not shown) were performed.

On the plain radiographs curly calcifications were seen to project over the right obturator foramen and the presacral region (arrows). The morphology of these calcifications resembles a so-called chain mail (Fig. C, detail view of a chain mail), an appearance which is considered to be pathognomonic for dracunculiasis or guinea worm infection.

Comment

Dracunculiasis or guinea worm infection is endemic in Sub-Saharan Africa (the disease extends geographically in a broad belt from Senegal to Kenya). Humans become infected after swallowing small crustaceans of the Cyclops genus, while drinking contaminated water. In the stomach of the host the larvae of the guinea worm are liberated and penetrate the intestinal wall. After further development female worms migrate to the subcutaneous tissues. After one year of maturation, the uterus of the adult female carries about 3 million embryos and can measure 600 to 800 mm in length and 2 mm in diameter. The head of the worm then migrates to the skin of the host and forms a local blister which bursts in contact with water. During the prolapse of the uterus a huge amount of larvae are discharged. Finally the cycle is completed when these larvae are swallowed by the Cyclops crustaceans and develop into an infective form after 4-6 weeks. It is estimated that 90% of all worms are located in the subcutaneous tissues of the legs, arms, genitals and breast.

Inflammatory reaction around dead worms can result in extensive dystrophic calcifications, which results in a typical chain mail appearance. Chain mail (also known as chain maille or chainmail) is a type of medieval armour consisting of small metal rings linked together in a pattern to form a mesh.

Occasionally, the migrating worm dies in close proximity to an adjacent joint. Inflammatory reaction around the dead worm may cause joint effusion and secondary bacterial infection, resulting in acute pyogenic arthritis.

In case of active infection, treatment consists of transcutaneous worm extraction with a stick and antibiotic therapy for secondary infections. In this case, no further treatment was required, as the calcifications indicated the presence of a dead worm.

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