Martel’s Sign in Chronic Tophaceous Gout

A 45-year-old non-diabetic, non-hypertensive, non-obese, teetotaler from rural Bengal presented with multiple nodules over olecranon process, dorsum of fingers and toes, tendo Achilles, tibial tuberosity, shins and over medial end of both clavicles along with acute agonizing pain felt all over the body for last 6 and half years. The disease started as non-symmetrical polyarthritis 17 years back and he was being treated from time to time with NSAIDs. He did not receive diuretics, nicotinic acid or pyrazinamide in the past. The nodule over right middle finger was discharging chalky-white material. The nodules, per se, were non-tender but the peri-nodular areas were exquisitely painful and tender. Extensive joint destruction and large nodules over hand and feet led to grotesque deformities (Fig.1). Other than mild anaemia and multiple nodules, general survey and systemic examination were essentially normal.

Serum uric acid level was 12.7 mg/dl; haemoglobin, sugar (F), urea and creatinine were respectively 9.1 g/dl, 98 mg/dl, 32 mg/dl and 1.4 mg/dl. Rheumatoid factor was negative and routine urine examination was normal; 24-hr urinary uric acid excretion on a normal diet was 328 mg. USG of kidneys neither revealed any calculus nor parenchymal renal disease. X-ray of feet (Fig. 2) demonstrated soft tissue swelling, cystic changes, and well-defined ‘punched-out’ type lytic lesions with sclerotic margins and overhanging bony edges (Martel’s sign, G sign or rat-bite erosion). Chalky material was examined under light microscope, which revealed needles-shaped structures (monosodium urate crystals); polarized light microscopy was not possible. A diagnosis of chronic tophaceous gout was made.

The radiology led to the differential diagnosis of giant cell tumour, aneurysmal bone cyst, brown tumour from hyperparathyroidism and tophaceous gout. Other than gout, Martel’s sign may rarely be found in erosive osteoarthritis, destructive apatite arthropathy and rheumatoid arthritis. It is worthwhile to mention here that in severe tophaceous gout, helix and antihelix may be exempted from urate deposition.

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