Case Report Article

Vertigo as the first manifestation of paget’s disease: a case report

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Abstract
Paget’s disease of bone is characterized by the dysfunction of the bone architecture due to the extreme increase of the osteoclast and osteoblast activity which results in the production of pathological bone. The particular disease afflicts any skeleton bone. Its sources have not been specified yet. There is evidence for the existence of strong genetic background as well as the effect of environmental factors. The neurological complications are relatively rare and are related to the central and peripheral nervous system (headache, ataxia, vertigo, loss of hearing, smell etc.). In our case, we present a patient with vertigo as the first manifestation of Paget’s disease.

Keywords: Paget disease, Vertigo, Bone disease, Neurological complications, Osteitis deformans

Introduction
Paget’s disease of bone is a rare disorder that occurs in patients under 40 years old¹². Neurologic manifestations of Paget’s disease before the radiographic appearance of the bone changes is an uncommon presentation of the disorder³. Early neurological symptoms include headache⁴, dizziness, deafness, tinnitus and pain due to radicular compression³. The uncontrolled growth of bones results in pressure imposed on the conterminous soft tissues, such as brain⁵, spinal cord and particular peripheral nerves³⁵⁶. In our case, we report a patient presented at the emergency department with vertigo and finally diagnosed with Paget’s disease.

Case report
Treatment was conducted in compliance with the international biomedical studies stipulations, with reference

Figure 1. Paget’s disease by the ‘cotton wool’ appearance in the x-ray film.

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to the Declaration of Helsinki of the World Medical Association. No personal data of the patient were kept, while it was impossible to trace back to any personal data from the data collected for the present study. The present study was approved by the Department of Internal Medicine at the General Hospital of Athens “Elpis”.

A 70-year-old man was admitted at the emergency department of our hospital complaining for vertigo and nausea for about an hour ago, before admittance. His medical history included coronary artery disease (coronary artery bypass graft surgery 15 years ago), hypertension and epileptic crisis. His medication included clopidogrel, atenolol, enalapril, hydrochlorothiazide and valproic acid. The clinical examination did not reveal pathological findings.

The blood chemistries showed increased levels of alkaline phosphatase (ALP): 616 IU/ml (normal values: 50-136), gamma-glutamyl transferase (γGT): 173 IU/l, creatinine: 0.74 mg/dl urea: 76 mg/dl, serum calcium: 9.1 mg/dl, serum magnesium: 1.6 mg/dl and lactate dehydrogenase (LDH): 275 IU/l. Additional blood tests included: parathyroid hormone (PTH): 55.5 pg/ml (normal values 15.0-65.0) (>30: adequacy), thyroid stimulating hormone (TSH): 0.463 (0.35-4.94), 25-hydroxy-vitamin D (VIT 25-OH-D): 18.60 (10-30: Deficiency). The rest blood exams did not reveal pathological findings.

A brain computed tomography (CT scan) revealed disperse bone-diluting and bone-thickness skull areas, an image which is compatible with Paget’s disease of bone. The skull X-ray imaging revealed high and low-density areas (Figure 1), while the pelvis X-ray imaging revealed multifocal Paget’s disease on the ilium (fattening of iliac crest) and the pubic bone.

The full body bone scintigraphy revealed increased fixation to the bony skull, pelvic bones, inferior cervical spine, body of T9 vertebra, the inferior lumbar spine and along left tibia and left shoulder blade (Figure 2). As a result, the patient was diagnosed with multifocal Paget’s disease. The patient was immediately treated with risedronate 30 mg o.d. for 2 months and the patient was scheduled for re-examination.

During re-examination the blood chemistries depicted 50% decline of ALP: 238 IU/l, PTH: 189.5 pg/ml, serum calcium: 9.25 mg/dl, VIT 25-OH-D:14.50 mg/ml. The patient did not report any neurological symptoms. We decided the termination of risedronate sodium treatment while aledronate sodium 70mg once a week was initiated. A new re-examination of the patient was scheduled after 6 months.

**Discussion**

Paget’s disease of bone or osteitis deformans is a chronic bone abnormality, which may affect a single, several, or many bones, but never involves the entire skeleton\(^7\). Paget’s disease affects both men and women, with an apparent small male predominance. It rarely manifests itself clinically before the age of 40 years while the frequency of the condition

![Figure 2. Full body scintigraphy compatible with multifocal Paget’s disease](image-url)
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In conclusion, although the neurological complications of the Paget’s disease are rare, clinicians should be aware of the disease because early recognition and appropriate treatment are the cornerstones for achieving a better outcome.

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