Paget's disease in Senegal: Two cases of a rare disease in black African populations

Maladie de Paget au Sénégal : à propos de deux cas dans une population noire africaine.

Ismaïla Diédhiou, Awa-Ndao Fall, Thierno-Oumar Soko, Abdou-Rajack Ndiaye

Polyvalent Department of Medicine – Military Teaching Hospital – Hôpital Principal de Dakar, 1 avenue Nelson Mandela, Dakar – Senegal

Corresponding author:
Abdou-Rajack NDIAYE
abdourajack@yahoo.fr

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ABSTRACT

Mr. MD is a 72-years-old man, admitted for spontaneous, permanent, crushing type pain on the pelvis above the right hip evolving for two years, without night or morning stiffness but increasing with hearing loss, temporal and parietal headache. Physical examination showed a painful hip in active and passive mobilization. Pressure on iliac spines and lower lumbar and sacrococcygeal bones was painful. The patient showed no inflammatory syndrome. Serum calcium was normal. We noted an isolated increase in alkaline phosphatase levels to 401 IU/l. Radiographs showed bilateral heterogeneous sclerosis of the iliac bone with thickening lines and and almost disappearance of the right hip joint space. There was a marked thickening of the cortex on the femoral proximal third and thickening of the cranial vault. MRI showed cortical thickening of the right pelvic bone, a T1 hyper signal, and an intermediate T2 signal with fat/sat. This was pathognomonic of Paget's disease. The second patient is a 72-year-old man with no history, having intense pain on the right side of the lower limb. Physical examination showed no musculoskeletal deformity, but pain on palpation and mobilization of the right hip. Serum alkaline phosphatase (ALP) was raised to 4 times the normal range. Radiography showed cortical thickening of the ischial pubic branch, a heterogeneous sclerosis gypsy moth of the iliac wing, a steady narrowing of the femoral hip-spaced lines and thickening of the iliac ischial pubic. This aspect is pathognomonic of Paget's disease, the patient underwent treatment with zoledronic acid intravenously at 5 mg. The outcome was favorable up to 10 months with reduced pain (VAS = 2/10) and normal PAL.

Keywords: Paget's disease; African population; Senegal

RÉSUMÉ

M. MD est un homme de 72 ans, admis pour une douleur intense spontanée du pelvis évoluant depuis 2 ans, sans réveils nocturnes, associées à une douleur temporale avec hypoacousie. L'examen clinique avait objectivé une douleur de la hanche en mobilité passive et active. La pression des épines iliaques et, rachis lombaire bas et du coccyx était douloureuse. Il n'y avait pas de syndrome inflammatoire. La calcémie était normale. Il y avait par contre une élévation des phosphatases alcalines à 401 UI/l. Les radiographies avaient mis en évidence une sclérose bilatérale hétérogène des os iliaques avec une quasi-disparition de l'interligne de la hanche droite. Il y'avait aussi un épaississement important de la voute crânienne, et du fémur proximal. L'IRM avait montré un épaississement cortical des os pelviens avec hypersignal T1 et signal intermédiaire T2 fat/sat. Cet aspect était pathognomonique d'une maladie de Paget. Le deuxième patient était âgé de 72 ans, sans antécédent pathologique, souffrant d'une douleur intense du bassin. L'examen clinique avait objectivé une douleur à la palpation et à la mobilisation de sa hanche droite. Les phosphatases alcalines sériques étaient à 4 fois la valeur normale. Les radiographies avaient montré un épaississement cortical de la branche ischio-pubienne avec une sclérose hétérogène de l'aile iliaque droite, et un pincement complet de la coxo-fémorale homolatérale. Cet aspect étant pathognomonique de la maladie de Paget. Le patient a été mis sous perfusion d'acide zolédronique à 5 mg. L'évolution était favorable avec une réduction de la douleur à 1/20 d'EVA, à la visite de suivi à 10 mois, ainsi qu'une normalisation des phosphatases alcalines.

Mots-clés : Maladie de Paget ; population africaine ; Sénégal

مرض باجيت في السنغال: حول حالتين في السكان الأفارقة السود

الملخص:

السيد م.د ،رجل عمره 72 عاما، تعرض للألم الحاد العفوي في الحوض لمدة سنتين من دون الاستيقاظ الليلي مرتبطا بألم في الرأس مع فقدان السمع. وكان الفحص السريري بين ألم الورك في الحراك السلبي والإيجابي. وكان ضغط العمود الفقري الحرقفي وأسفل العمود الفقري القطني والعصعص مؤلما. لم يكن هناك متلازمة التهابية. كان الكالسيوم في الدم الطبيعي. أما الفوسفاتيز القلوية فكانت مرتفعة إلى 401 وحدة دولية / لتر. والأشعة السينية كشفت متجانسة متعددة في العظم الحرقفي مع اختفاء الغضروف في الورك الأيمن. و أيضا سماكة كبيرة من قبو في الجمجمة، وعظم الفخذ . أظهر التصوير بالرنين المغناطيسي سماكة القشرية للعظم الحوض في ط1 وإشارة ط2 غير متجانسة . وكان هذا خاصا بمرض باجيت. وكان المريض الثاني ،72 سنة، وليس له تاريخ مرضي ،يعاني من آلام الحوض شديد. تم تجسيدها في الفحص السريري على ملامسة الفخذ الأيمن. كانت مستويات الفوسفاتيز القلوية 4 أضعاف القيمة العادية. وأظهرت صور الأشعة سماكة القشرية فرع الإسكية العانية مع الجناح الحرقفي الأيمن التصلب غير متجانسة. كان كل هذا خاصا بمرض باجيت. تم وضع المريض تحت ضخ حمض زوليدرونيك 5 ملغ، وكانت النتيجة إيجابية مع الحد من الألم إلى 10/2 ،في زيارة المتابعة في الشهر العاشر ، وتطبيع الفوسفاتيز القلوية.

كلمات البحث: مرض باجيت. السكان الأفارقة. السنغال

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INTRODUCTION

Paget's bone disease is characterized by excessive bone remodeling leading to progressive bone hypertrophy with significant abnormalities in texture and microarchitecture. This is usually a late onset to the affection. It represents the second benign bone disease after osteoporosis. Its prevalence is up to 3% of the Caucasian population after 55 years [1]. In Africa, the disease is considered to be exceptional in the black population, so poorly described. This disease is in decline although environmental pathogenic factors have not yet been defined [2,3]. Also, the geographic distribution of the disease gives weight to the hypothesis concerning the involvement of viral agents and the existence of a genetic factor [4]. In this study, the authors aimed to contribute to a better description of the clinical and para-clinical expression of Paget's disease through 2 cases in patients in sub-Saharan Africa.

CASE 1

Mr. M.D is a black Senegalese patient aged 72, admitted in Internal Medicine department for pelvic pain, especially on the right hip. History found in its comorbidities, a treated symptomatic gout and an untreated high cholesterol level. Symptoms began two years before, marked by a spontaneous occurrence of pain, mainly on the pelvis and the right hip with no traumatic context. This pain type crushing, with an estimated intensity between 3/10 and 8/10 in the visual analogue scale. Standing on a daytime background, the pain was exacerbated by prolonged standing, walking and especially rising of stairs. It was relieved by supine rest. The mechanical nature was confirmed by the absence of nocturnal recrudescence or morning stiffness. Accompanying signs were: a progressively worsening hearing loss predominant on the left ear; headache of temporal and parietal regions. Physical examination did not find associated vertigo or odynophagia, or tinnitus, or visual deficiency. There was no fever, no thrill, no night sweats, or weight loss. The examination for admission found a preserved condition. The weight was 70 kg for a height of 168 cm, for a BMI of 24 kg/M^2. The patient was afebrile with a temperature of 36.8 ° C. Blood pressure was 130/80 mm Hg and heart rate was 88 beats per minute. Respiratory frequency was 32 cycles per minute. On inspection, the conjunctival mucosa were well coloured, without jaundice or cyanosis. The patient showed no clubbing, no petechial purpura, or stellar angioma or palmar erythrosis. There was no oedema, varicose on inspection of the lower limbs. Musculoskeletal physical examination found an unremarkable standing position, walking without limping was done without help. There was no deformity. Hip examination showed no swelling; however, it was painful to the active and passive mobilization movements including counter clockwise rotations upset as well as the abduction and flexion of the thigh on the pelvis. Pressure of the iliac spines and lower lumbar and sacrococcygeal bones was painful. The other joints were painful with preserved motions. The rest of the physical examination was entirely normal. Biologically, blood count showed a haemoglobin level of 12.6 grams per liter, a mean corpuscular volume of 87 fl. The white blood cell rate was 4900 elements per liter. Platelets count was 184,000 elements per liter. The patient showed no biological inflammatory syndrome, the CRP was 4,40 mg per liter. Serum calcium was normal (88 mg / l). We noted an isolated increase in alkaline phosphatase levels to 401 IU per liter. Gamma GT rate was normal with 11 IU per liter. There was no hepatic cytolysis: AST = 12 IU / L and ALT 27 IU = / l. The rest of the metabolic balance was normal: total cholesterol 2 g per liter, normal glucose levels and elevated serum uric acid at 80 mg per liter. Renal function was normal as well as the chemistry panel. There was no bleeding disorder. Protein rate in blood was normal. The PSA level was normal. On the urinary level, 24 hours hydroxyprolinuria was normal (39 mg / 24h). On the morphological level, radiograph of the pelvis showed diffuse bilateral heterogeneous pictures of sclerosis of the spongy iliac bone with thickening lines of iliac ischial pubic straight and a virtual disappearance of the right hip joint space (figure 1). The femur, there was a thickening of cortical which was more marked on the proximal third. On the picture of the skull, there was a thickening and the vault.

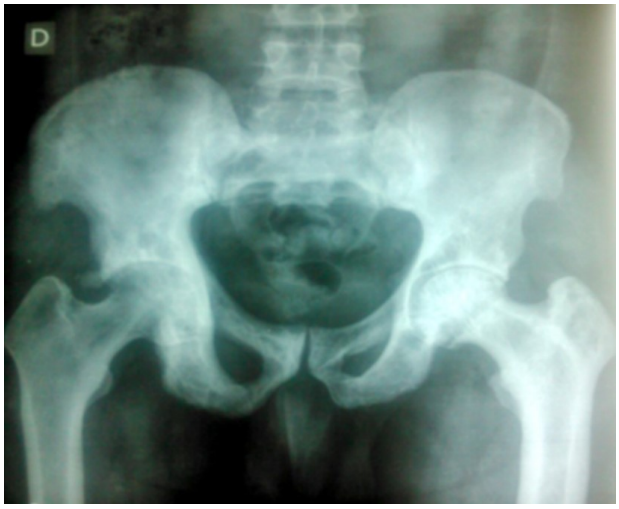

Figure 1. Pelvic Xray showing a heterogeneous bilateral iliac sclerosis, thickening of the iliac straight lines and hamstring pubic and virtually disappearance the right hip space.

Magnetic Resonance Imaging showed on the pelvis, cortical thickening of the right hip bone, a fat signal in bone marrow of the pelvic bone with hypersignal on T1, and an intermediate signal on T2 with fat-sat. After contrast injection, there was a medullary enhancement on the right hip. There was no cortical bone lysis. On the femoral head, we noted a disruption of the bone matrix with a fibrillar appearance (Figure 2).

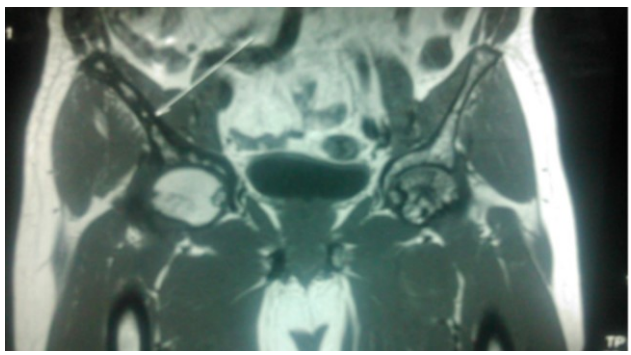

Figure 2. Presence of an irregular signal greasy type bone marrow of the pelvic bone with a hyper right signal in T1

The patient had passed a bone scan which showed intense focal hyper uptake of the skull, the right clavicle, the right hemi-pelvis, small and large left trochanter, sacrum, left sacroiliac joint and the right condyle. There was also a moderate uptake in the left femur and the tibia (Figure 3).

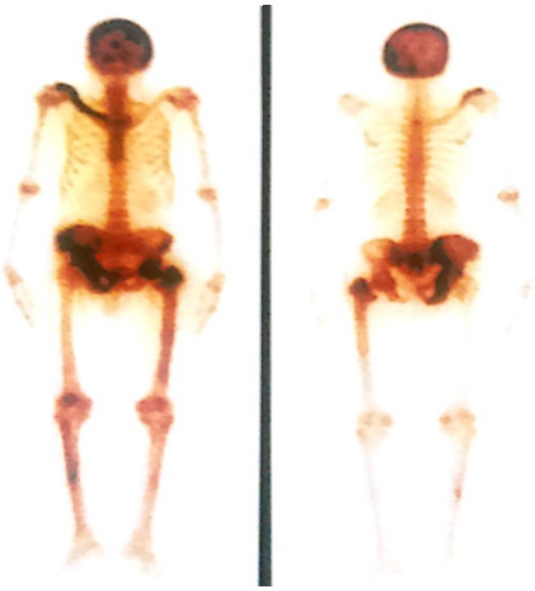

Figure 3. Bone scintigraphy showing intense uptake, more marked in the skull, the right clavicle, right hemi-pelvis, sacrum and trochanters.

The patient had received an infusion of zoledronic acid at a dose of 4 mg for 30 minutes, combined with a symptomatic analgesic treatment. Background treatment of gout with allopurinol 100 mg daily was continued in combination with statins. Follow-up at two months was clinically favorable with disappearance of the painful sites. The patient remained clinically asymptomatic during the period of follow-up.

CASE 2

The second patient is a 72-year-old man with no history, who complained of intense elective pain on the right side of his pelvis, VAS = 8/10, almost permanently, without irradiation, increasing by local pressure, with night recrudescence but without morning stiffness. Physical examination showed no musculoskeletal deformity, but palpation and mobilization of the right hip was painful. There was no oedema or collateral venous circulation or limitation of joint motion. Biologically, serum alkaline phosphatase (ALP) was raised to 4 times the normal range. Osteocalcin, procollagen type 1 and CTX dasages were not performed. Radiography showed cortical thickening of the ischial pubic branch, a heterogeneous sclerosis of the iliac wing, a steady narrowing of the femoral hip-space and thickening of the iliac ischial pubic bones (figure 4).

This aspect is pathognomonic of Paget's disease; the patient underwent treatment with zoledronic acid intravenously at 5 mg. The outcome was favourable at 10 months with reduced pain (VAS = 2/10) and normal ALP.

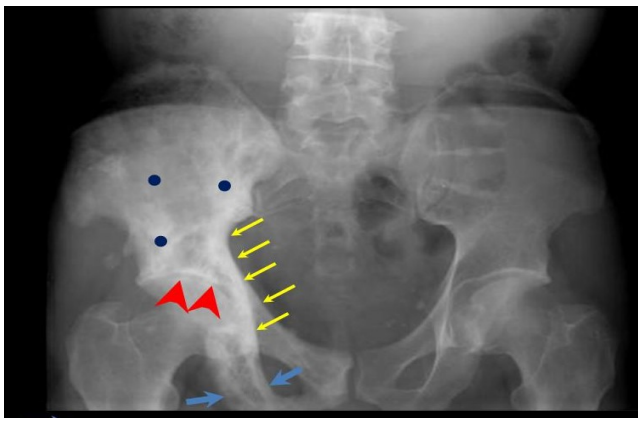

Figure 4. Bone cortical thickening of the ischial pubic branch, a heterogeneous sclerosis of the iliac wing, a steady narrowing of the femoral hip-space and thickening of the iliac ischial pubic bones.

DISCUSSION

First described in 1877 by Sir James Paget, osteitis Hutchinson called "Paget's disease" in 1888, appeared about 2000 years ago in Western Europe. Most cases of Paget's disease of bone were discovered in England. The disease then spread due to the migration of Europeans to other countries [1]. Epidemiologically, the geographical distribution of the disease is highly irregular according to many studies. It is considered common in the United States, Britain, New Zealand and Western Europe. This frequency is much lower in the Scandinavian countries, Eastern Europe and Asia [2,3]. Finally, Paget's disease remains exceptional in Africa, particularly in sub-Saharan areas in particular in patients with black skin [4-6]. This observation is one of very few cases described in sub-Saharan Africa. But it exists and diagnosis is possible despite the context.

Why Paget's disease of bone is rarely described in Africa? Is it really rare in this area? Is it simply a little-known condition? Several questions require further investigation in developing countries, especially as the infectious track resurfaced. About 140 years after the first description of the form that was called "osteitis deformans", disease and its determinants are still partially unknown. First, on the epidemiological and etiological aspects, Paget's disease of bone is in the second position in order of frequency after osteoporosis in the developed world. But today, the frequency and severity of Paget's disease, decreases worldwide. How to explain this evolutionary course of the disease?. Epidemiological surveys confirm the steady decline in the incidence of the disease. England and New Zealand are two countries that had the highest prevalence of Paget's disease with rates of 8%, a decrease in the incidence of the disease is marked since 1990 with an actual prevalence of 3% [1,2,7,8]. This rapid decrease in disease incidence may be related to environmental changes that have altered the expressiveness of osteopathy phenotype. Environmental and genetic factors often act in concert to promote the onset of the disease. Familial forms of Paget's disease have suggested the involvement of a genetic component in the pathogenesis of the disease. Indeed, several causal genetic defects have been identified. The most decisive among these abnormalities is the mutation of Sequestosome 1 (SQSTM1) [4,9,10]. At this genetic marker, was added the role of an infectious agent. This agent is a slow virus paramyxovirus family, it would be the trigger for osteopathy. This virus was widespread in the past, explaining the previous high frequency of the observed once disease. In the

same viral family, also exist lung syncytial virus, the dog distemper and measles virus. The advent of vaccination against measles would bear fruit and indirectly explain this decrease in frequency. Authors like Rénier expressed this hypothesis in the 1980s [1,11-13]. This observation also allows recall another issue of Paget's disease especially in Black Africa. Indeed the issue is decidedly practical. The disease is often asymptomatic, the therapeutic goal is to standardize alkaline phosphatase and bisphosphonates achieve this goal. But what is the relevance of a goal? On which goal? Is normalization of alkaline phosphatase sufficient to prevent the complications? the evidence was not sufficiently demonstrated. Indeed as a researcher Meunier followed 41 cases of Paget's disease for 12 years. He found a greater number of complications in patients whose alkaline phosphatase levels remained above normal ranges despite treatment, while complications were reduced for patients whose phosphatase levels were normalized [1,14-17].

CONCLUSION

Paget's disease is rarely described in African studies. This is a condition that deserves to be known despite its rarity. The disease is still the subject of several questions. It is still a mysterious disease and the frequency is decreasing, Paget's disease sees its pathogenesis enlightened by the experimental models and treatment evolve through specific new generation inhibitors of osteoclastic resorption are available. Diagnosis is often easy, diagnostic facilities are available in Africa, and we have to think about bisphosphonates which are the main therapeutic tools that are available and best accessible.

Conflicts of Interest: The authors declared no conflict of interest with regard to this article.

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