

GOUT IN A PATIENT WITH PAGET'S DISEASE

J.F. DE CARVALHO¹, C. FIGUEIREDO²

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¹Núcleo de Pesquisa em Doenças Crônicas não Transmissíveis (NUPEN), School of Nutrition from the Federal University of Bahia, Salvador, Bahia, Brazil

²Instituto de Reumatologia de São Paulo, São Paulo, Brazil

CORRESPONDING AUTHOR

Jozélio Freire de Carvalho, MD; e-mail: jotafc@gmail.com

ABSTRACT – Objective: We aimed at describing a patient with Paget's Disease (PD) who developed gout.

Case Presentation: A 65-year-old male patient with a long history of right hip pain, podagra, and knees with gait impairment and laboratory tests showing alkaline phosphatase 241 U/L (normal range: 27-100 U/L), C-reactive protein < 5 mg/L, erythrocyte sedimentation rate 34 mm 1st hour and serum uric acid 8.6 mg/dL (normal range: < 7 mg/dL) came to our private clinic. Conventional radiographies (X-ray) of the knees and spine suggested osteoarthritis (OA) with osteolytic areas highly indicative of PD, confirmed by a magnetic resonance imaging (MRI). An infusion of zoledronic acid 5 mg was performed, benzbromarone 100 mg/day and oral hydration were added. After four months, joint pain was entirely solved, alkaline phosphatase was 49 U/L, the erythrocyte sedimentation rate was 12 mm/1st hour, and uric acid was 7.8 mg/dL.

Conclusions: This article illustrates the case of a patient with PD associated with gout, with PD being successfully treated by zoledronic acid.

KEYWORDS: Paget disease, Gout, Gouty arthritis, Bone metabolism, Zoledronic acid.

INTRODUCTION

Paget disease is a focal bone disorder involving greatly increased remodeling in affected areas, resulting in the deposition of woven bone with loss of normal microarchitecture. Microarchitectural changes follow, leading to skull and long bones deformities, premature arthritis, deafness, and pathologic fractures¹. Paget's disease (PD) is a skeletal disease characterized by increased bone cell activity leading to expanded bone with both sclerotic and lytic lesions¹. Currently, the most valuable drug applied to PD treatment is zoledronic acid. Long-term remission of this bone disease is observed after a single dose of this medication in most patients¹. Due to the increased bone metabolism observed in PD, cell turnover is enhanced and may increase uric acid levels. Some reports have demonstrated hyperuricemia in about 20% of PD patients and gout disease in less than 6%². However, new data consider hyperuricemia a rare event in PD³. This article aimed to report the case of a patient with Paget's disease associated with gout that was successfully treated with zoledronic acid.

CASE REPORT

A 65-year-old male with a past medical history of systemic arterial hypertension came to our private clinic with a long history of right hip pain and knees with gait impairment and several podagra episodes. His physical examination showed reduction of knees' mobility, Bouchard and Heberden nodules on his hands, and obesity with a BMI (body mass index) of 30.7 kg/m². Arthritis on the 1st metatarsophalangeal joint was detected. Laboratory tests showed alkaline phosphatase 241 U/L [normal range (nr):



27-100 U/L], C-reactive protein (CRP) < 5mg/L, erythrocyte sedimentation rate (ESR) 34 mm 1st hour (nr: < 20 mm/1st hour), serum uric acid 8.6 mg/dL (nr: < 7 mg/dL), 25-OH vitamin D 46.9 ng/mL and serum electrophoresis with normal values. Antinuclear antibodies and rheumatoid factor were negative. Conventional radiographies (X-ray) of the knees and spine suggested osteoarthritis (OA) and also presented osteolytic areas highly suggestive of Paget's disease. A total body skeleton scintigraphy with technetium demonstrated a polyostotic Paget (Figure 1a) of lumbar vertebra L2 and L4, sacrum, right sacroiliac joint, and lower diaphysis of the left femur. A simultaneous hyper uptake of the first metatarsophalangeal was detected compatible with gout attack (podagra) (Figure 1b). A magnetic resonance imaging (MRI) of the lumbar spine confirmed features of Paget's disease. Then, the Paget's disease diagnosis was determined, and an intravenous infusion of zoledronic acid 5 mg was performed. Gout was also diagnosed based on podagra and high uric acid levels. Benzbromarone (UC II) 50 mg/day associated with colchicine 1 mg/day was started. Glucosamine 1.5 g/day, a chondroprotective drug, was also initiated due to osteoarthritis. After four months, joint pain was completely solved, alkaline phosphatase was 49 U/L, erythrocyte sedimentation rate was 12 mm/1st hour, and uric acid was 5.2 mg/dL. He was referred to a nutritionist. After five years of treatment, no additional infusion of zoledronic acid was required in this period. He is under UC II 40 mg/day but has a poor adherence to gout medications and diet, so he has been keeping serum levels of uric acid 7.8 mg/dL; however, no gout crisis or joint pain have been reported.



Figure 1. Bone scintigraphy showing typical Paget's disease (1a) on the upper epiphysis of the left humerus, lumbar vertebrae L2 and L4, sacrum, sacroiliac joints, right iliac, and 2/3 lower part of the left femur. Figure 1b reveals inflammation of the first right metatarsophalangeal (podagra) secondary to gout.

DISCUSSION

This article is a report of a patient who was diagnosed with Paget's disease and gout. Garrod first reported the combination of PD and gout in 1876, and subsequently was confirmed by Paget in 1882. This clinical association is observed in 6% of the cases⁴. However, the combination of hyperuricemia and PD is more frequent, observed in 20 to 40% of the cases⁴. The pathophysiological mechanisms that cause this association might be due to the increased bone metabolism in PD, leading to higher cell turnover and consequent hyperuricemia^{5,6}. Currently, PD treatment has presented high efficacy since the development of zoledronic acid. Studies such as HORIZON-TOP [Health Outcomes and Reduced Incidence with Zoledronic Acid Once Yearly - Treatment of Paget's] showed that one single intravenous dose has achieved 95.5% of therapy's efficacy in 6 months, with an improvement in quality of life of these PD subjects¹. After two years, 98% of the patients continued in PD remission⁷. Furthermore, after 6.5 years, one study has demonstrated sustained response in zoledronic acid-treated patients⁸, as observed in our patient, with a loss of response in only 12.5% of PD⁹. Some studies have shown an additive effect of this third-generation, nitrogen-containing bisphosphonate zoledronic acid drug on osteoarthritis. An Australian trial demonstrated beneficial effects on the knee symptoms in patients with osteoarthritis treated with zoledronic acid; however, no structural differences were observed⁹. Our patient reported an important improvement in his joint pains, even with irregular use of chondroprotective drugs. Since PD improvement is mostly demonstrated after zoledronic acid, the uric acid levels might be theoretically reduced with the PD improvement. However, this finding was not observed in the present case. Further studies evaluating uric acid levels in PD subjects after zoledronic acid are required. Few studies have analyzed the association between PD and gout. One interesting study verified the presence of PD in patients with established gout. The authors found that 6/26 (23%) patients with gout had PD features compared to 2.1% in the control group¹⁰.

CONCLUSIONS

The present study reports an association of Paget's disease patient who developed gout, in which PD was successfully treated with zoledronic acid.

CONFLICT OF INTEREST:

The Authors have no conflict of interest to declare.

AVAILABILITY OF DATA AND MATERIALS:

All data are available at request.

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AUTHOR CONTRIBUTIONS:

JFC: Conception, analysis, writing, interpretation, revision, submission. CF: writing, interpretation, revision.

ETHICAL STATEMENT:

The authors declare that they followed the World Medical Association Declaration of Helsinki in this study.

INFORMED CONSENT:

An informed consent was obtained from the patient for publication of his case. No image of him is used.

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