CASE REPORT

Successful treatment of pain in melorheostosis with zoledronate, with improvement on bone scintigraphy

Samy Slimani,¹ Adlen Nezzar,² Hachemi Makhloufi¹

¹Department of Medicine, Hadj Lakhdar University, Batna, Algeria
²Nuclear Imaging Center, Batna, Algeria

Correspondence to
 Dr Samy Slimani,
 slimani@dr.com

SUMMARY

Melorheostosis is a very rare sclerosing bone disorder that involves frequently one limb. It may be asymptomatic, but pain and limb deformity may occur and can be very debilitating. Different reports have indicated efficacy of bisphosphonates (pamidronate and etidronate) on symptoms. We report an adult patient with a very painful melorheostosis, who improved after treatment with zoledronate, either on symptoms or on bone scans.

BACKGROUND

Melorheostosis is a very rare sclerosing bone disorder that involves frequently one limb. It is a developmental error with a sclerotomal distribution. Diagnosis is often made on plain radiographs, showing a 'candle wax' cortical hyperostosis.¹ It may be asymptomatic, but pain and limb deformity may occur and may be very debilitating, also leg-length discrepancy is common and in some cases a linear sclerodermatous skin is associated.² There is no universally recognised treatment but different reports have indicated efficacy of bisphosphonates (pamidronate and etidronate) on symptoms.³⁻⁷ Corrective surgery may be necessary in some cases. We report an adult patient with a very painful melorheostosis, who improved after treatment with zoledronate.

CASE PRESENTATION

We report a 33-year-old woman diagnosed with melorheostosis during adulthood. Her family history was unremarkable. She suffered for many years from chronic pain affecting her left lower limb (APS=4/10), mostly the knee, stopping her from professional activity. Physical examination revealed a limitation in the range of motion of the left knee (flexion=60°), linear sclerodermatous skin involvement over the left thigh and knee and 5 cm shortening of the left limb.

INVESTIGATIONS

Haematological and biochemical investigations were normal. X-ray of the long bones showed cortical hyperostosis extending along the left ilium, the medial aspect of the left femur, the lateral side of the tibia and the tarsal bones (figure 1). Bone scintigraphy revealed an increased linear uptake affecting the left ilium, femur, tibia and tarsus (figure 2A).

TREATMENT

The patient was given symptomatic treatment, with persistence of pain. She was then treated with a

single perfusion of 4 mg zoledronate. Tolerance was excellent except a very transient flu-like syndrome.

OUTCOME AND FOLLOW-UP

There was a noticeable clinical improvement within 3 months with resolution of pain (APS=0/10), improvement in the range of motion of the left knee (flexion=100°), the patient needed no more aides for walking and she resumed her work. Bone scan performed 6 months after the infusion showed a dramatic decrease in uptake which remained mainly on the lateral femoral condyle (figure 2B). The patient remained symptom free at the 18-month follow-up after the infusion treatment. It should be also noted that linear scleroderma improved clinically and on ultrasound scan but with a concomitant treatment with topical betamethasone for 3 months.

DISCUSSION

Melorheostosis is a rare sclerosing dysplasia of unknown aetiology that involves regions corresponding to sclerotomes and myotomes.⁸ It is often benign but can be very debilitating. There are reports of several associated clinical entities, mainly sclerodermic skin changes.² Bone involvement may be monostotic or polyostotic, mainly on lower extremities. Hellems *et al*⁹ demonstrated that a loss-of-function mutation in LEMD3 (chromosome 12q) results in melorheostosis but many cases did not express that mutation and seem sporadic. Since the first description in 1922, less than 500 cases have been reported. Treatment of symptomatic melorheostosis is still difficult to manage; it consists of analgesics, non-steroidal anti-inflammatory drugs and surgical correction of deformities.¹⁰ Reports on four patients treated with etidronate showed clear improvement of pain.³⁻⁴ Recently, three

Figure 1 Cortical thickening of the left pelvis, the medial side of the femur and the lateral side of the tibia.

To cite: Slimani S, Nezzar A, Makhloufi H. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009820

Figure 2 Anterior views of ^{99m}Tc -HMDP bone scintigraphy, before (A) and 6 months after zoledronate infusion (B). (A) increase of uptake in the left pelvis, the medial side of the femur, the lateral side of the tibia reaching tarsus and metatarsal bones. (B) Improvement in uptake on bone scan, remaining only on the left knee, the femoral neck and the upper extremity of the left tibia. HMDP, hydroxymethylene diphosphonate.

reports have shown the efficacy of pamidronate (a total dose of 180 mg in cases 1 and 2 and 90 mg in case 3) in painful melorheostosis,^{5–7} with durable pain relief but radionuclide accumulation remained unchanged during the first year after treatment in case 1 and not investigated in cases 2 and 3. Our report is the first to show the efficacy of a bisphosphonate on both clinical and scintigraphic abnormalities in this condition. Probably bisphosphonates act here by inhibiting the production of

proinflammatory cytokines and leading to apoptosis of osteoclasts and macrophages, all involved in increasing bone turnover and pain.

Learning points

- ▶ Melorheostosis is very rare and may be asymptomatic, but pain and limb deformity may occur and may be very debilitating.
- ▶ There is no universally recognised treatment for symptomatic reports.
- ▶ Our adult patient with a very painful melorheostosis improved after treatment with zoledronate, reinforcing the idea that bisphosphonates are effective in this condition.

Contributors SS was involved in diagnosis and management of the patient and redaction of the paper. AN contributed by helping with imaging modalities. HM was involved in redaction of the paper.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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