

Investigating XLH: Brian's case[†]

Case overview

Brian is a 38-year-old male patient who presents with the following:¹⁻⁵

- Pain and stiffness in his lower back and hips
 - Experiences pain when bending over to change or do housework; also experiences pain when trying to find a sleeping position
 - Stiffness is described as “feeling sluggish and rusty”, and is mainly experienced in the morning, when he gets out of bed
- Pain in both his heels
- Short stature (163 cm standing height, 5ft 4in)

He and his family physician discussed the possibility of ankylosing spondylitis, and decided that an assessment from a rheumatologist was warranted.^{2,3}

Patient history

- Recalls experiencing joint and muscle pain as early as childhood, but noticed significant worsening during his thirties⁴
- Recall undergoing proximal femoral osteotomy with realignment to correct bowed legs at age 9⁵
- Fractured right femur at age 28⁵
- Root canal surgery at ages 29 and 32⁵
- Family history (as described by Brian):
 - Father has osteoarthritis, has suffered multiple fractures and is short in stature (~5ft 5in)
 - Mother and brother are slightly below average height and have no history of fractures

Laboratory test results

Test (reference range) ^{6,7†}	Results ^{1,7,8}
Serum phosphorus (2.5–4.5 mg/dL)	2.0 mg/dL
TmP/GFR (2.5–4.18 mg/dL)	1.9 mg/dL
1,25(OH) ₂ D (18–64 pg/mL)	33 pg/mL
25(OH)D (20–50 ng/mL)	36 ng/mL
ALP (40–129 U/L)	193 U/L
PTH (15–65 pg/mL)	72 pg/mL

1,25(OH)₂D=1,25-dihydroxyvitamin D; 25(OH)D=25-hydroxyvitamin D; ALP=alkaline phosphatase; PTH=parathyroid hormone; TmP/GFR=tubular maximum reabsorption of phosphate corrected for glomerular filtration rate; XLH=X-linked hypophosphatemia.

[†] Fictitious patient. May not be representative of all patients.

[‡] Reference ranges may vary based on assay and instrument used. Reference ranges provided by the laboratory conducting the test should be used to ensure accuracy.

Rheumatologic findings

HLA-B27 typing for ankylosing spondylitis is **negative**.⁹

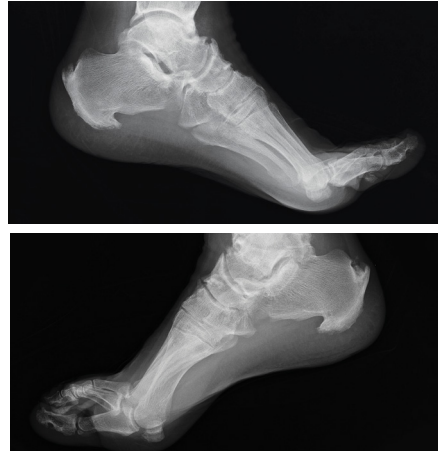
Radiographic evaluation

X-ray 1: Pelvis



Diffuse increased density of iliac wings and lumbosacral spine; bilateral enthesopathic calcifications extending from the superior acetabular walls

X-ray 2A and 2B: Feet



Prominent bilateral calcaneal enthesophytes

Recommendation from the XLH Guidelines

“In adults, the diagnosis of XLH should be considered in the presence or history of lower limb deformities, and/or clinical and/or radiological signs of osteomalacia (including pseudofractures, early osteoarthritis and enthesopathies) in the context of serum levels of phosphate below the age-related reference range associated with renal phosphate wasting (grade B, moderate recommendation)” — Haffner *et al.*, 2019.⁸



Would you consider referring Brian to an endocrinologist to help confirm a diagnosis of XLH?



Visit XLHLinkHCP.ca for more information and resources about XLH!

HLA-B27=human leukocyte antigen B27; XLH=X-linked hypophosphatemia.

References: **1.** Dahir K, *et al. J Endocr Soc.* 2020;4(12):bvaa151. **2.** Chacur C, *et al. Med Clin (Barc).* 2023;160(5):218-221. **3.** Takase R, *et al. Intern Med.* 2020;59(9):1233-1234. **4.** Lo SH, *et al. Qual Life Res.* 2020;29(7):1883-1893. **5.** Skrinar A, *et al. J Endocr Soc.* 2019;3(7):1321-1334. **6.** Dahir K, *et al. J Endocr Soc.* 2021;5(9):bvab099. doi:10.1210/jendso/bvab099. **7.** Ruppe MD. X-linked hypophosphatemia. In: Adam MP, Everman DB, Mirzaa GM, *et al.*, eds. GeneReviews®. Seattle (WA): University of Washington, Seattle; February 9, 2012. Updated April 13, 2017. **8.** Haffner D, *et al. Nat Rev Nephrol.* 2019;15(7):435-455. **9.** Dahir K, *et al. JBMR Plus.* 2022;6(12):e10692.