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Bone and Mineral Metabolism
BONE AND MINERAL CASE REPORT

A Case of Teriparatide Use in Nonunion Atypical Ulnar Fracture

yin nwe tun, MBBS[1], Yan Russell, MD[1], Helena Abby Guber, MD[2].
[1]SUNY Downstate Medical Center, Brooklyn, NY, USA, [2]Brooklyn VA Medical Center, Brooklyn, NY, USA.

Background: Atypical upper limb fracture is a rare complication of bisphosphonate use. The management of nonunion fractures is challenging, especially in patients who are not surgical candidates. Teriparatide, a novel anabolic drug for osteoporosis has been increasingly used off-label for treatment of nonunion fractures and bisphosphonate related atypical fractures of the lower extremity. The proposed mechanism of healing is by enhancement of callus formation and mechanical strength. **Clinical Case:** A 72 year-old woman with a history of bilateral lower extremity paralysis and bilateral upper extremity paresis, who mobilized short distances with Canadian crutches, had been treated for 15 years with alendronate, for osteopenia associated with multiple risk factors for osteoporosis. 11 months before referral, and a month after alendronate was discontinued, she sustained a muscle-spasm induced fracture of the midshaft of the right ulna. She was treated nonoperatively due to chronic osteomyelitis with recurrent bacteremia from a prior non-healing left ulnar fracture (with internal fixation). Bone density of the right forearm had been normal. Since the right ulna break was transverse with minimal comminution, located in the diaphysis, occurred after trivial force and exhibited delayed healing, it was thought to be an atypical fracture secondary to bisphosphonates. She was initiated on cyclical teriparatide injection 20 mcg subcutaneously daily, with 2 months on and 2 weeks off. In one year, patient responded with dramatic radiographic improvement by forming a large callus with almost complete healing of the fracture. **Conclusion:** Mid-forearm atypical fracture from long-term bisphosphonate use is rare and is at risk for nonunion. The management of atypical upper limb nonunion fracture in nonoperative patients is not well established. Case reports exist of patients with atypical upper limb fracture who are either treated conservatively, or surgically with fixation/bone grafting +/- teriparatide. Our case showed that teriparatide, when used cyclically, exerted positive osteogenic effect and improved healing of the nonunion of an atypical fracture of forearm in a patient who continued weight bearing activity on her only functional limb.

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A Case of Vocal Cord Paralysis and Severe Hypocalcemia

Sandra Omozehio Iwuala, MBBS[1], Johnathan Kirupakaran, DO[2], Rhonda Trusty, MD[2], Sumarah Curry, MD[2], Belinda Williams, MD[2], Orpah Daruwala, MD[2], Franklyn Fenton, MD[2], Gul Bahtiyar, MD, MPH[2], Giovanna Rodriguez, MD[2].
[1]SUNY Downstate Medical Center, Brooklyn, NY, USA, [2]Woodhull Medical Center, Brooklyn, NY, USA.

Background: Tetany is the hallmark of hypocalcemia. Vocal cord paralysis is a rare presenting symptom of hypocalcemia, especially without signs of overt tetany or seizures. **Clinical case:** 18 year old man with history of iron deficiency anemia and dyslipidemia presented with aphasia, right sided upper and lower extremity weakness and facial tingling for 3 days. Physical exam was notable for aphasia, pallor, positive Chvostek and Trousseau sign. Admission labs showed BUN 127 mg/dL (n 8–26 mg/dL), creatinine 12.74 mg/dL (n 0.8–2.00 mg/dL), calcium 5.2 mg/dL (n 8.5–10.5 mg/dL), magnesium (1.8–2.4 mg/dL), phosphorus 10.3 (2.4–4.8 mg/dL), alkaline phosphatase 126 (8–120 U/L), albumin 3.3 g/dL (n 3.0–5.0 g/dL), 25 OH $VitD_3$ 9.1 ng/mL (n 30–80 ng/mL), PTH 594 pg/mL (n 15–65 pg.mL), COVID 19 PCR negative. Aphasia resolved with 1 gram calcium gluconate infusion. Patient underwent emergent hemodialysis. He was placed on calcium carbonate 1500 mg oral three times daily, calcitriol 1 mcg oral twice daily, ergocalciferol 50,000 IU weekly, sevelamer carbonate 1600 mg tablet three times daily. Kidney biopsy showed membranoproliferative pattern glomerulonephritis with C3 deposits. He was discharged on hemodialysis and referred to a transplant center. **Conclusion:** Vocal cord paralysis is rare in adults and mostly seen in patients with pseudohypoparathyroidism caused by hypomagnesaemia.[2,3] Identifying vocal cord paralysis as an atypical presentation of hypocalcemia secondary to acute kidney failure requires prompt recognition and treatment. **References:** 1.Shoback D, Marcus R, Bikle D. Metabolic bone disease. In: Greenspan FS, Gardner DG, editors. Basic and clinical endocrinology. 3rd ed Los Altos (CA): Lange Medical Publications; 2004. p. 3242.van Veelen, M J et al. "Hypocalcaemic laryngospasm in the emergency department." *BMJ case reports* vol. 2011 bcr1120103555. 17 Feb. 2011, doi:10.1136/bcr.11.2010.35553.Guise TA, Mundy GR. Clinical review 69: evaluation of hypocalcemia in children and adults. J Clin Endocrinol Metab 1995;80:1473–8

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A Case Report of Calcium-Sensing Receptor Gene Variant and Primary Hyperparathyroidism