Rib Fractures in a Reticulated Python

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20-year-old female reticulated python (*Python reticulatus*) in zoological collection
- 6-month anorexia & weight loss
- 3-month lethargy
- No improvement with ceftiofur treatment
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Radiographs
- Over 90% of the ribs fractured or contained calluses
Serial bloodwork

- Hypercalcemia (>30 mg/dL)
  - ISIS: 18.8 (8.6 – 48)
- Hyperuricemia (26.6 mg/dL)
  - ISIS: 8.6 (3 – 34.2)
- Hyperglobulinemia (7.3 g/dL)
  - ISIS: 4.7 (2.6 – 8.3)
- Hypoalbuminemia (1.8 g/dL)
  - ISIS: 2.9 (1.3 – 7.2)
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Euthanized

- At the time of euthanasia, calcium was normal (16.3 mg/dL)
• Ribs contained multifocal to coalescing, smooth, and hard nodules
  • Up to 0.8 cm in diameter
  • Located mostly at the diaphysis
  • Broke easily with gentle handling
Rib: Fibrous osteodystrophy, chronic, locally extensive, severe, with chronic fractures and necrosis, active osteogenesis, and myelofibrosis
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Other diagnoses

Kidney: Glomerular & tubulointerstitial fibrosis, locally extensive, severe

Disseminated intravascular coagulation in multiple tissues: Lung, kidney, heart, and thyroid
Active osteolysis with fibrous replacement

Cause: Excessive parathyroid hormone (PTH) in mammals
Active osteolysis with fibrous replacement

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- Renal secondary hyperparathyroidism
  - Renal disease ↓ GFR → Phosphorus retention, calcium sequestration
    → ↓ 1-alpha-hydroxylase → ↓ Vitamin D3 → Chief cell hyperplasia → ↑ PTH
  - ↑ Bone resorption by osteoclasts & fibrous replacement

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Other differentials

- Nutritional secondary hyperparathyroidism
  - Animal was fed whole rabbits & chicken
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  - Animal was fed whole rabbits & chicken
- Primary hyperparathyroidism
  - Parathyroid and thyroid glands not evident on gross & histologic examinations
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Reptiles have similar calcium homeostasis

- PTH assays & reference ranges in reptiles are limited
Thank you

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