Indications of parathyroidectomy in ESRD patients include persistent elevation of PTH more than 800, Calcyphylaxis, Osteitis Fibrosa Cystica, and persistent anemia. Among these patients who require surgery, 5–20% present with persistent or recurrent disease and require further re-exploration and excision of parathyroid tissue. We present a case of persistent Calciphylaxis and SHPT in ESRD patient despite Parathyroidectomy which prompted diagnosing an ectopic mediastinal parathyroid adenoma. **Case Presentation:** 49 year-old male with ESRD for 15 years complicated with SHPT, presented due to worsening Caciphylaxis of bilateral lower extremities despite Cinacalcet, IV sodium thiosulfate, and Phosphate binder. Serum Calcium level was 9.0 mg/dl with corrected levels of 10.2 mg/dl, Phosphorus level of 9.3 with Intact PTH level 1,369 pg/ml. Ultrasound of parathyroid glands was normal. Due to failure of medical treatment, He underwent Total parathyridectomy and left arm parathyroid autograft. Intraoperative PTH level went down to 300 (less than 50%). Calciphylaxis never improved. 5 months later, Parathyroid hormone was elevated 1338 pg/ml, Calcium level 6.9 mg/dl and Phosphorus level 10.0 mg/dl. 99mTc-sestamibi parathyroid scan didn't show any activity in thyroid gland area and no increased uptake at the autograft area. Although it showed a small focus of persistent activity in substernal area suggestive of ectopic parathyroid tissue. Patient was referred for removal of ectopic adenoma. **Discussion:** Persistent SHPT is identified as the persistence or recurrence of symptoms, lab abnormalities and radiologic findings within 6 months after parathyroidectomy. Pathophysiology of recurrence is not well studied but one theory suggests that in SHPT, altered Calcium-phosphate hemostasis leads to hyperplasia of parathyroid tissue including ectopic and supernumerary tissue. This aforementioned altered hemostasis continues even after parathyroidectomy and cause hyperplasia and hyperfunction of the residual parathyroid tissue left accidentally by seeding within surgical site or implanted autograft or It can present with ectopic adenoma, even if they were undetected prior to or in the first intervention. Ectopic parathyroid tissue is an uncommon etiology of persistent or recurrent secondary hyperparathyroidism, it is reported in many cases where it was missed at initial workup. Prevalence reported up to 14% in patients with persistent SHPT. It is warranted further investigations to look for ectopic parathyroid tissue in patients with ESRD who present with recurrent or persistent secondary hyperparathyroidism after total parathyroidectomy with reimplantation.

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORT

Post-Traumatic Heterotopic Ossification With Incidental Hyperparathyroidism

Elizabeth Wootton, MBChB BSc[1], Matthew Balcerek, MBBS[1], Syndia Lazarus, MBBS FRACP PhD[1], Emma L. Duncan, MBBS, FRACP, MRCP, PhD[2].

[1]ROYAL BRISBANE WOMENS HOSPITAL, Brisbane, Australia, [2]King's College London, London, United Kingdom.

Background: Heterotopic ossification (HO) is a rare disease characterised by abnormal bone growth in non-osseous tissues, causing pain, immobility and impaired quality of life. Although still being elucidated, the underlying pathophysiology may relate to local macrophage-driven inflammation in response to trauma[1].

Case: A 35-year-old man involved in a motor vehicle accident (MVA) fractured over twenty bones (multiple vertebrae, ribs and complex open book pelvic fracture with shattered left acetabulum) with extensive soft tissue injuries requiring multiple surgeries. Past medical history included a renal calculus three years earlier. His serum corrected calcium on admission was elevated at 2.87mmol/L (2.10-2.60mmol/L). Peri-operative fluid over-resuscitation necessitated boluses of intravenous furosemide, and serum calcium transiently normalised before rapidly incrementing and peaking at 3.04 mmol/L. Serum parathyroid hormone post-operatively was inappropriately high at 9.4pmol/L (1.0–7.0pmol/L) and 25-hydroxyvitamin D low at 24nmol/L (50-150nmol/L). Oral vitamin D replacement was commenced and he received intravenous pamidronate (3x60mg infusions) which briefly restored normocalcaemia. Neck ultrasound and sestamibi scintigraphy demonstrated a left parathyroid adenoma, and he underwent parathyroidectomy. Histology revealed a single parathyroid adenoma. He has been normocalcaemic since surgery. Despite excellent overall recovery, mobility at the left hip remained restricted in all planes of movement. He could not perform simple activities such as putting on his shoe. Plain radiographs showed HO lateral to the left acetabulum, femoral head and neck, with bony bridging to the left ilium on computed tomography. Bone turnover markers (BTMs) measured eleven months post-MVA (and pamidronate) were elevated, with CTX of 750ng/L (100-600ng/L) and P1NP of 207ug/L (15-80ug/L). BTMs gradually reduced over time, plateauing two years post-MVA (CTX 480ng/L and P1NP 103ug/L). Surgery with pre-operative radiotherapy to remove the left hip HO is now planned.

Discussion: This man had multiple recognised risk factors for HO, including male sex, trauma followed by immobilisation and pelvic fracture. His hyperparathyroidism may have predisposed HO development through excess calcium-phosphate product promoting soft tissue calcification. Bisphosphonates may also increase the risk[2]. Elevated BTMs have been demonstrated in the early phase of HO; further research may elucidate whether BTMs can guide timing of surgical intervention relative to the pathophysiological processes driving HO.

References: 1 Meyers C et al. Heterotopic Ossification: A Comprehensive Review. JBMR Plus 2019, 3: e10172

2 Genêt F et al. Neurological heterotopic ossification following spinal cord injury is triggered by macrophage-mediated inflammation in muscle 2015. J Pathol. 236(2):229–40

Bone and Mineral Metabolism

BONE AND MINERAL CASE REPORT

Prednisone-Responsive Hypercalcemia in a Patient With IgG4 Disease and Elevated Serum PTHrP Levels

Melissa Cohen, MD, Julienne Sanchez, MD, Daniel Joseph Toft, MD, PhD, Yuval Eisenberg, MD, Subhash C. Kukreja, MD.

University of Illinois Hospital at Chicago, Chicago, IL, USA.