Collateral Damage: A case of refractory hyperparathyroidism in a young woman with end stage renal disease

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Background:

The Rio Grande Valley (RGV) is a community with the highest incidence of ESRD in the USA. Hyperparathyroidism (HPT), defined as a serum PTH >65 pg/mL, HPT is a secondary complication of ESRD affecting 80% of individuals in this population. Although hyperparathyroidism may be asymptomatic, a severe form, refractory to medication can occur. Refractory HPT is defined as a PTH level 9 times the upper-limit or a serum level >800 pg/mL. This disease causes mutations in parathyroid cells causing parathyroid-gland hyperplasia. Once PTH levels increase to this extent, systemic issues including electrolyte derangements, weight loss, pathologic fractures, osteoporosis, and death can ensue. Due to the high mortality associated with this condition; it is paramount that patients are referred for surgery when medical management is inadequate.

Case Presentation:

A 31-year-old female with a significant medical history of ESRD on hemodialysis presented for evaluation of a suspected parathyroid carcinoma. Physical examination revealed a frail, short-statured woman who ambulated with a walker. Patient endorsed a 13-year history of uncontrolled HTN on antihypertensives, with a BP of 226/124. The patient presented with a BMI of 16.7, and endorsed a history of multiple fractures, musculoskeletal-pain, fatigue, palpitations, and a 33 pound weight loss over 1.5-years. Labs showed a total calcium of 9.4, phosphorus 6.9, ALP 652, and a PTH of 2423, meeting criteria for refractory HPT. Of note, records received five-months prior to referral showed a PTH of 5343 pg/ml, suggesting earlier surgery could have minimized disease progression. Based on the patient's presentation, MEN was suspected, however workup was negative. The patient was referred to a nearby ER for hemodynamic-stability and further workup of her underlying conditions. Ultrasound revealed two putative inferior parathyroid-glands presumptive for a diagnosis of severe tertiary HPT, but due to PTH>1000 carcinoma could not be excluded. Patient was taken to surgery and intra-operatively 4-gland hypertrophy was noted and a 3.5-gland excision was performed. Intraoperative PTH decreased to 120, and pathology showed benign parathyroid hyperplasia. Post-op day 1 the patient received hemodialysis and lab values revealed severe hypocalcemia prompting close monitoring and aggressive calcium supplementation. The patient’s electrolyte levels stabilized, she was discharged, and follow-up 2-weeks later revealed a PTH of 14.5.

Conclusion:

This case of a young patient with refractory HPT highlights the region's early onset of ESRD and its subsequent conditions. Noteworthy, the RGV is associated with a multitude of socioeconomic factors that precipitate neglect of chronic illnesses, indicating the substantial

need for early identification and intervention to prevent long-term complications to disease in this vulnerable population.