Sagliker syndrome in a patient with end-stage renal disease with secondary hyperparathyroidism

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ABSTRACT

Sagliker syndrome (SS), also known as an “uglifying human face syndrome,” is one of the severe manifestations of chronic kidney disease in patients with uncontrolled secondary hyperparathyroidism. Patients with SS develop short stature, maxillary and mandibular bone overgrowth, nasal bone and cartilage destruction, widely spaced teeth with anterior positioning, soft tissue tumors in the oral cavity, auditory loss, and neurological and psychological features. SS can possibly be prevented with proper treatment of secondary hyperparathyroidism using disease-modifying medication and surgical therapies. We report a case of SS in a patient in the USA with end-stage renal disease achieving adequate hemodialysis.

KEYWORDS Chronic kidney disease; end-stage renal disease; Sagliker syndrome; secondary hyperparathyroidism

All patients with end-stage renal disease (ESRD) inevitably develop secondary hyperparathyroidism. Some patients with uncontrolled secondary hyperparathyroidism can develop severe bone overgrowth leading to physical changes and a dysmorphic facial structure syndrome called Sagliker syndrome (SS). We report such a case with abnormal bone growth, neurological complications, and permanent debility in a patient on hemodialysis.

CASE PRESENTATION

A 31-year-old black man with ESRD on hemodialysis, hypertension, and severe secondary hyperparathyroidism presented to the emergency department with facial swelling and new bilateral tingling in his hands. He noticed swelling of his gums, facial bones, and cheeks that began to increase in size over several years. He required a walker to ambulate for the past 2 years after left hemiarthroplasty following a ground-level fall. The patient denied chest pain, dyspnea, cervical neck pain, and lower-extremity numbness or tingling. He had a small axial skeleton frame, irregularly wide-spaced teeth, overgrowth of maxilla and mandible, swelling of oral mucosa, and protuberant lips and spoke with a potato voice (*Figure 1*).

The patient had been on in-center hemodialysis for 14 years beginning at age 17. He initially presented to medical care with chronic kidney disease (CKD) stage 5 and never had a kidney biopsy. He had severe secondary hyperparathyroidism with hyperphosphatemia. He recently was meeting dialysis adequacy and receiving treatment through an upper-extremity brachiocephalic fistula without complication. He weighed 48 kg and his body mass index was 18.2 kg/m². Although he was prescribed cinacalcet 60 mg twice daily, doxercalciferol 20 mcg per dialysis treatment, and sevelamer carbonate 3200 mg three times a day with meals, he confirmed chronic nonadherence to medications, missing some scheduled treatment sessions, and repeated refusal of recommendations for parathyroidectomy evaluation.

Admission laboratory results compared with historical outpatient values are available in *Table 1*. His admission serum laboratory values were as follows: sodium, 140 mEq/L; potassium, 4.5 mEq/L; bicarbonate, 34 mEq/L; blood urea nitrogen, 80 mg/dL; creatinine, 7.7 mg/dL; albumin, 2.7 g/dL; and hemoglobin, 8.9 g/dL. Magnetic resonance imaging of the cervical spine showed complete compression deformity of C6, marked focal kyphosis and fragmentation of C5, and severe anterior compression of C7 cervical vertebrae. These changes were associated with severe spinal stenosis, cord edema, and compressive myelopathy.

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Figure 1. (a) Frontal view of patient exhibiting growth of maxillary and mandibular bones, widening of the nares, and flattening of nasal cartilage. (b) Sagittal view of maxilla by computed tomography displaying overgrowth of maxillary and mandibular bones, increased frontal bone growth, and visible deposits in frontal, maxillary, and mandibular bones.

Table 1. Laboratory results for the patient over the prior year and upon admission to the emergency department

	12 Months prior	6 Months prior	3 Months prior	1 Month prior	Admission day
Parathyroid hormone intact (pg/mL)	5230 ^a	4475 ^a	5579 ^a	4862 ^a	1915 ^b
Calcium (mg/dL)	11	9.6	9.6	10.2	9.5
Phosphorous (mg/dL)	8.4	5.7	6.7	7	6.4
Alkaline phosphatase (U/L)	589	704	745	786	465
Vitamin D (25-OH) (ng/mL)	20	NA	NA	NA	18.5
Albumin (g/dL)	3.9	3.7	3.8	3.8	2.7
Ferritin (ng/mL)	1424	1176	945	1131	1109

^aSiemens assay.

^bAccess 2, Beckman Coulter assay.

25-OH indicates 25-hydroxy vitamin D.

DISCUSSION

SS is a rare clinical condition originally described in 2004 by Sagliker and colleagues.¹ Individual components of this syndrome were described as early as 1953 with physical bone descriptions of secondary hyperparathyroidism in patients with CKD.² SS is exclusively seen in progressive CKD and dialysis-dependent patients, occurring in only 0.5% of the ESRD population and usually in persons under 39 years old.^{3,4} Most cases are seen in countries with limited access to CKD and/or dialysis therapy. Commonly the patients develop CKD before puberty, and many patients are unaware of their progression as symptoms slowly compound.

Classic features of SS include progressive CKD, secondary or tertiary hyperparathyroidism with parathyroid hormone-intact levels in the thousands, hypocalcemia, elevated bone-specific alkaline phosphatase, and hyperphosphatemia. Physical and radiological changes include accumulation of skull and facial bones, irregularly scattered bone tumors, maxillary and mandibular bone expansion resulting in the

lateral spreading of teeth, severe destruction of the nasal bones with a flattened nasal bridge, benign soft tissue growth in the upper oral cavity, short stature, upwardly curved third phalanx of the fingers, x- or o-type knee deformities, and crippled walking.⁵ Brown tumors, a result of parathyroid hormone-driven osteoclastic activity with sclerosis causing abnormal bone remodeling, can be seen on imaging but need to be confirmed with biopsy.⁶ Neurologic manifestations, hearing difficulty, and depression are other frequent symptoms.⁵ The universal acceptance of this syndrome is still debated, because many characteristics are extreme manifestations of uncontrolled secondary hyperparathyroidism.

Currently, the precise pathophysiology of SS is not known; the root pathology is likely a multifactorial complication of a genetic propensity, combined with late or inadequate advanced CKD and hyperparathyroidism treatment.⁷ In the USA where citizens are eligible for Medicare and have access to adequate dialysis, nutrition counseling, and guideline-driven treatment of renal osteodystrophy, SS is rare.

Most case reports are from developing countries and describe young patients without access to optimal CKD therapy.⁸

Treatment includes aggressive care from the first recognition of SS. Parathyroidectomy is recommended, because most patients have a parathyroid hormone-intact level above 1500 pg/mL.⁹ This is a rare case in the USA despite a patient's access to available therapies.

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