Case Report of Dementia as Presenting Symptom of Primary Hyperparathyroidism

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CC

Right flank pain, change in personality

HPI

68 y/o male with PMH of HLD, HTN, presents to ED after collapsing at work due to severe and acute onset right flank pain, radiating to his right groin. Describes pain as intermittent in nature. Endorses associated nausea. Patient's wife at bedside has concern that he is experiencing increased depression and forgetfulness for the past 2 months. Wife states patient has not " been acting like his normal self." Patient's mother died of Alzheimer's dementia 5 years ago, and wife is concerned that he may also be having symptoms of dementia. Patient states that he feels thirsty more frequently and is also getting up to urinate about 3 times a night. Denies any headache, dizziness, blurry vision, SOB, chest pain, abdominal pain, diarrhea.

PMH: HTN on Lisinopril, HLD on Atorvastatin

PSH: right sided inguinal hernia repair 15 years ago

Family History: Maternal history of Alzheimer's dementia. Father is deceased.

Social History: quit smoking 4 years ago. Drinks 2 glasses of wine about twice a week. No illicit drugs.

Home meds: Lisinopril, Atorvastatin

Allergies: Shellfish

ROS: Endorses nausea, dysuria, hematuria, polydipsia, polyuria. Depression, anxiety, sleep disturbances, confusion. Denies fevers, chills, vomiting, SOB, CP, abdominal pain, diarrhea.

Physical Exam

Vitals: BP 142/97, HR 91, RR 17, Temp. 97.1, SpO2 98% on RA.

General: Obese, well nourished. Appears uncomfortable 2/2 flank pain

HEENT: PERRLA, no pharyngeal erythema, no tonsillar exudate, uvula midline. No nasal discharge.

CV: RRR, normal S1 and S2. No gallops, murmurs, or rubs.

Resp: LCTA b/l, no crackles, wheezing, rales. No increased WOB, no retractions

Abdomen: soft, non-tender to palpation. +BS. No HSM, no tenderness at McBurney's point. Negative Rovsing's sign. Negative Murphy's sign. No peritoneal signs. No rebound, guarding, distension.

MSK: right CVA tenderness.

Skin: warm, dry, normal turgor. No rashes, abrasions, contusions.

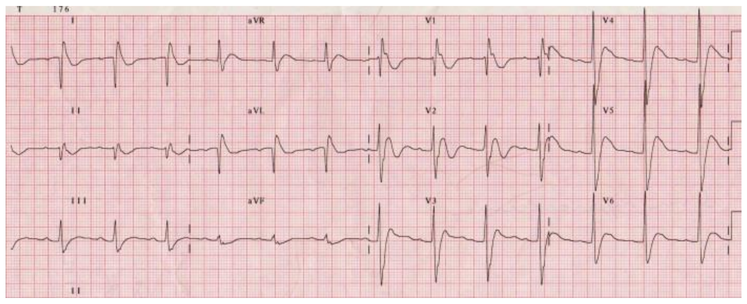
Neuro: AAOx3, no gross focal neurological deficits. CN 2-12 intact. Cerebellar: finger-to-nose testing, heel to shin testing normal. 5/5 muscle strength in b/l UEX and LEX. Sensation to light touch and pinprick intact.

Psych: Signs of anxiety, depression. No SI or HI.

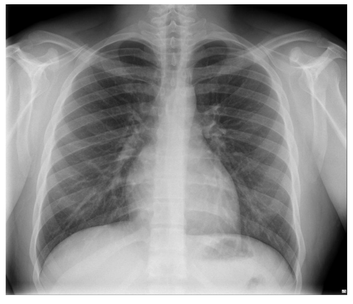
Labs

Labs:	Normal:
Hb 14.0 g/dL	13.3–17.7 g/dL
WBC 9.9 x 10^9/L	3.9–10.6 x 10^9/L
Platelets 234 x 10^9/L	150–440 x 10^9/L
Sodium 141 mmol/L	135–145 mmol/L
Potassium 3.9 mmol/L	3.5–5.0 mmol/L
Serum calcium 10.1 mmol/L (corrected based on serum albumin)	2.12–2.65mmol/L
Urea 6.5 mmol/L	2.5–6.7 mmol/L
Creatinine 111micro mol/L	70–120 micro mol/L
Random glucose 5.2 mmol/L	4.0–6.0 mmol/L
Urine: – protein; +++ blood	

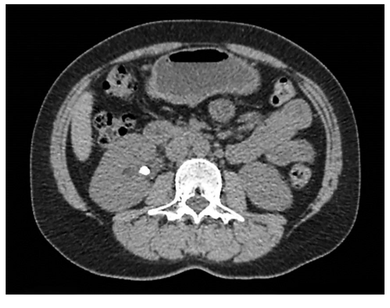
EKG



CXR



CT Abdomen and Pelvis



Conclusions

Patient has acute onset colicky flank pain, 2/2 right sided renal stone. Also experiencing polyuria and polydipsia, mental status changes. EKG shows shortened QT interval. All are signs concerning for hypercalcemia. PTH elevated, indicating patient has hyperPTH, causing hypercalcemia. Hypercalcemia can cause "groans (constipation), bones (osteoclastic activity), stones (renal stones), and psychiatric overtones (depression, psychosis)." CXR did not show evidence of lung mass/nodule. In patients with low-to-normal PTH level, and hypercalcemia, patient can have elevated PTHrP level, concerning for paraneoplastic effect of SCC, causing malignancy-associated hypercalcemia. This patient has elevated PTH, and hypercalcemia. Will require outpatient radio-isotope uptake scan to evaluate for single parathyroid tumor, causing primary hyperparathyroidism.

Treatment in ED: IV fluids (hydration helps decrease calcium levels through dilution). Can also give analgesic for renal stone. Outpatient urology and endocrinology follow-up.

Other Metabolic Causes of Dementia:

- Hypothyroidism
- Vitamin B12 (Cobalamin) deficiency
- Hypercalcemia

Key

Key: Do not conclude change in personality/mental status is 2/2 ageing! Look for underlying metabolic causes as well.

References

1. Bilezikian JP, Brandi ML, Eastell R, et al. Guidelines for the management of asymptomatic primary hyperparathyroidism: summary statement from the Fourth International Workshop. J Clin Endocrinol Metab 2014; 99:3561.

2. Eastell R, Brandi ML, Costa AG, et al. Diagnosis of asymptomatic primary hyperparathyroidism: proceedings of the Fourth International Workshop. J Clin Endocrinol Metab 2014; 99:3570.