

Exogenous Hypercalcemia-Induced Acute Kidney Injury: rare and easy to missed cause of hypercalcemia

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Introduction: Common causes of hypercalcemia are intrinsic like hyperparathyroidism and malignancy. This being so, physicians are easy to misunderstand extrinsic cause under situation that patient already has known cancer disease. However, not alone malignancy, but also many causes including excessive intake of calcium induce hypercalcemia. **Case:** A 62-year-old man consulted nephrologist about hypercalcemia (16.10 mg/dL) with azotemia (5.69 mg/dL). Hemicolectomy for adenocarcinoma of ascending colon was in contemplation(Fig.1). And he had dizziness and anorexia for several months. We started hemodialysis because hypercalcemia was not improved after massive hydration and diuretics. We suspected paraneoplastic syndrome because his intact PTH (9.25 pg/mL, normal; 15-65 pg/mL) was decreased. Renal microcalcification was suspected by multifocal bright spots in both renal cortex in kidney USG. Metastatic calcification of lung and stomach was appeared in bone scan(Fig.2). But we could not find any proof of metastatic lesion in chest, abdomen enhanced CT and PET-CT. Moreover, PTH-related protein (<1.1 pmol/L) was not elevated. We had to try the history taking again for drugs and diets. He preferred milk and has taken milk 800 to 1,000 mL daily with unknown nutritional supplement for 3 months. Even he had taken milk continuously in our hospital, too. We advised milk withdrawal and any other nutritional support. We prescribed antibiotics for pneumonia by *S.pneumoniae*. He received hemicolectomy at the level of serum calcium (11.2 mg/dL). Thereafter, his serum calcium (10.4 mg/dL) and creatinine (1.04 mg/dL) was normalized when he discharged. **Discussion:** Milk-alkali syndrome is rare condition due to alternative drug like proton pump inhibitor altering calcium carbonate. However, calcium intake is still possible by various route like milk, supplement, and medicine for osteoporosis. And exogenous hypercalcemia sometimes has more elevated serum calcium level and more severe outcome like life-threatening kidney injury than malignancy. Therefore, another key of hypercalcemia management is history taking including diet, previous disease, and current medications.

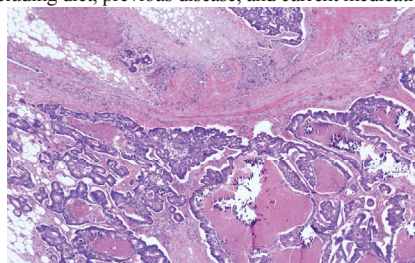


Fig.1 Adenocarcinoma with calcification in ascending colon

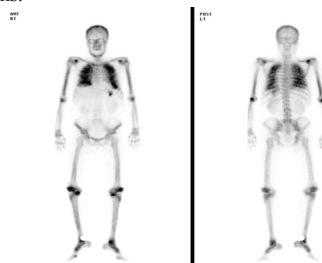


Fig.2 Metastatic calcification of lung and stomach in bone scan