中文題目：一個腹膜透析患者之多發性骨溶解病灶：一個案例報告與文獻回顧
英文題目**: Multiple Osteolytic Lesions in a Peritoneal Dialysis Patient: A Case Report and Literature Review**

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Background:
Osteitis fibrosa cystica, also known as 'brown tumors', is an uncommon pathological osteolysis encountered in patients with untreated hyperparathyroidism (HPT), particularly the secondary type (SHPT). Despite that SHPT is a common complication in patients with chronic kidney disease (CKD), osteitis fibrosa cystica occurs only in 1.5-1.7% of patients with SHPT and is infrequently reported in the literature.

Case Presentation:
A 48-year-old male who had been on maintenance peritoneal dialysis since 2006 presented in May 2016 with a 2-week history of persistent gnawing pain in his lower back, weight loss of 2 kg, and progressive loss of appetite. On presentation, he also had normocytic anemia and well-controlled hypertension. As early as October 2012, his laboratory tests discovered the intact parathyroid hormone (iPTH) of 490.6 pg/ml (reference: 15.0~65.0 pg/ml), calcium level of 10.6 mg/dl (reference: 8.1~10.4 mg/dl), and phosphate level of 4.0 mg/dl (reference: 2.5~4.5 mg/dl). In April 2015, the patient's iPTH soared to 1170 pg/ml, but he hesitated about undergoing parathyroidectomy and would rather take Regpara (cinacalcet HCL). Calcitriol had also been added to the treatment since December 2015.

In April 2016, not present in the previous chest radiographs, a deformed, expansile lesion over the right 8th rib was visualized. To pursue further the cause and its severity, the patient underwent a computed tomography, which revealed multifocal osteolytic lesions in the 10th thoracic vertebra, right 10th and 11th ribs, and left scapula. The bone scan of the patient also suggested multiple bony metastases. Given that malignant bone lesions had to be excluded, the patient underwent a CT-guided biopsy from the left iliac bone. The pathologic findings were compatible with the diagnosis of brown tumor. As the parathyroid scintigraphy also showed consistency with hyperplasia of bilateral superior and inferior parathyroid glands, the patient underwent total parathyroidectomy and autotransplantation in the right forearm in July 2016. All parathyroid tissues resected were microscopically found to be with nodular hyperplasia of oxyphil cells, transitional cells and chief cells. One day after the surgical procedure, the plasma calcium level of the patient fell to 7.5 mg/dl. On following up 6 weeks after the procedure, the iPTH level was 49.5 pg/ml.

Conclusion:
Osteitis fibrosa cystica, in CKD patients, is a rare manifestation of SHPT, resulting from decreased kidney function that results in deficiency of activated vitamin D, decreased renal exertion of phosphate, and increased release of fibroblast growth factor-23 (FGF-

23) from the bones. These changes lead to hypocalcemia, hyperphosphatemia, and, as a result, extremely reactive hyperparathyroidism that facilitates bone resorption and turnover due to enhanced osteoclastic activity. This change can simultaneously affect multiple bones and cause chronic pain in the affected sites. Clinicians should be aware of the possibility of this medical condition when encountering patients with CKD complaining of chronic pain arising from the bones.

Keywords: Osteitis fibrosa cystica, brown tumor, secondary hyperparathyroidism, end-stage renal disease, peritoneal dialysis