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PANCYTOPENİA, SECONDARY MYELOFİBROSİS AND GİANT CYSTİC PARATHYROİD ADENOMA

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ABSTRACT
Hyperparathyroidism may cause myelofibrosis. Primary hyperparathyroidism-induced bone marrow fibrosis has been reported in very few cases until this time. Generally, myelofibrosis has been reported in patients with hyperparathyroidism secondary to chronic renal failure. We report a 22-year-old girl who presented with a complaint of swelling in the neck to our clinical service. Primary hyperparathyroidism and pancytopenia were found in this case. There were the increased reticulin fibers in the bone marrow biopsy. The patient was operated for parathyroid adenoma. The patient's hematological and biochemical parameters improved on the 3rd postoperative month. Therefore, we considered that the patient had myelofibrosis secondary to primary hyperparathyroidism. We report an young who presented with pancytopenia caused by myelofibrosis secondary to primary hyperparathyroidism. Hyperparathyroidism must be considered when myelofibrosis is assessed in a young person.

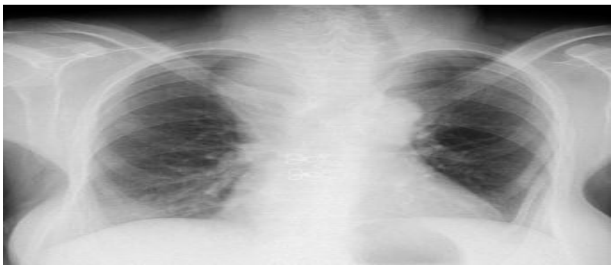
KEY WORDS: Hyperparathyroidism, myelofibrosis, pancytopenia.

INTRODUCTİON
Primary hyperparathyroidism (PHPT) is a disease which is caused by excessive, autonomous secretion of parathyroid hormone (PTH) from the parathyroid glands. The incidence of PHPT increases after age 50. It is 2-4 times more common in women. If there are no familial hyperparathyroidism syndromes, it is rarely seen in children and young people. Single solid parathyroid adenoma which is seen in 80-85% of patients is the most common cause.[1]

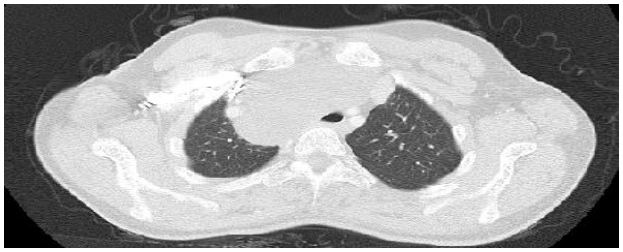
In primary hyperparathyroidism, the various findings may occur in various systems and organs. The clinical symptoms which develop due to the effects of parathyroid hormone (PTH) on skeletal system are bone pain, arthralgia, pathological fractures, bone cysts or brown tumor. Moreover, bone marrow fibrosis and anemia may occur. However, there are very few patients with bone marrow fibrosis and anemia secondary to hyperparathyroidism.[2] In this article, we reported a young female patient who had pancytopenia, secondary myelofibrosis, cystic bone lesions secondary to giant cystic parathyroid adenoma.

CASE REPORT
22-year-old woman was admitted to our clinic with a complaint of swelling in the neck. The patient's physical examination, there was no pathology except the palpable, pulsatile and soft lesion in the neck. Her personal and family history were unremarkable. It was observed in posteroanterior (PA) radiograph that there were homogeneous mass and tracheal deviation to the left in the superior mediastinum (Picture 1). The demographic characteristics and laboratory test findings of the patient are shown in Table 1. The BMD T-scores of the lumbar spine (L1–L4) and the femoral neck were -3.4 and -3.1, respectively. A cystic-solid lesion was seen to be extended from lateral neighborhood of the right thyroid lobe to the mediastinal aortic arch and to expand the thyroid gland and to have dense components and fibrous septates in neck ultrasound and dense, vascularized and solid components in doppler imaging. In magnetic

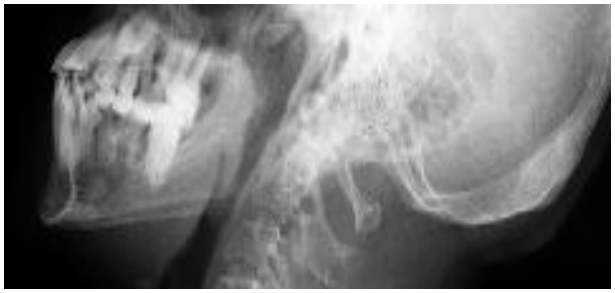
resonance imaging of the neck and mediastinum, a well-defined cystic lesion was seen to be extended from neighborhood of the right thyroid lobe to neighborhood of the submandibular gland at above and to the anterior and middle mediastinum at below and to be measured at 8x8x14 cm in size and to be hypointense on T1 and hyperintense on T2 and to be 20x25 mm in the superior mediastinum and 12x7 mm in the anterior mediastinum and to contain enhancing solid components (Picture 2). In the lateral radiograph, a lytic bone lesion was seen 15x20 mm in size in the right mandible (Picture 3). In computed tomography, a 15x22 mm expansion and cortical thinning were seen in the bone on the anterior of the right mandible, and also a solid lesion was seen to destruct the bone in the anterior region and to be extended to perimandibular soft tissue (Picture 4). In parathyroid scintigraphy, Tc-99m sestamibi uptake compatible with parathyroid pathology was observed at two locations at both top and bottom at the right and one location at the center in the midline on the anterior of the neck. In peripheral blood smear, morphology was normal but erythrocytes, leukocytes and platelet counts were decreased. In bone marrow aspiration and biopsy, morphology was normal but pancytopenia and increased reticulin fibrosis were found (Picture 5). Malignancy was negative in the biopsy of upper mediastinal mass. The biopsy of mandible was reported as brown tumor. The patient underwent total excision with Kocher's necklace incision in the cervical region without thoracotomy in general surgery clinic. Tissue pathology was reported as the parathyroid adenoma and parathyroid cyst. The patient improved clinically at the follow-up and the laboratory test findings of the patient on the 3rd postoperative month are shown in Table 1.



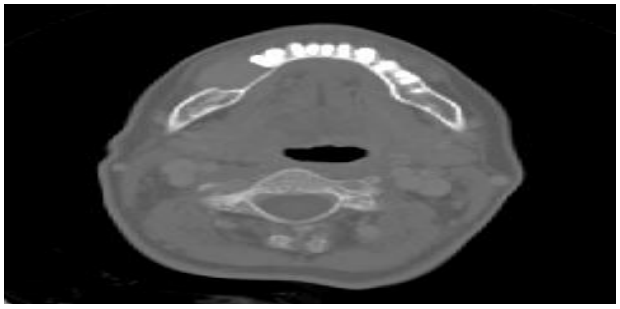
Picture 1: Posteroanterior (PA) radiograph: it is seen that there were homogeneous mass and tracheal deviation to the left in the superior mediastinum



Picture 2: Cervical MRI: a 8x8x14 cm mass is seen to be extended from neighborhood of the right thyroid lobe to the anterior and middle mediastinum.



Picture 3: Lateral radiograph: a lytic bone lesion is seen 15x20 mm in size in the right mandible.



Picture 4: Computed tomography: a solid lesion is seen on the anterior of the right mandible, to destruct the bone in the anterior region and to be extended to perimandibular soft tissue.

DİSCUSSİON

Parathyroid adenoma is the most common cause of primary hyperparathyroidism and hypercalcemia. PHPT is reported to be seen 0.1-0.3% in the general population.[3] Its incidence increases with age and it is 2-4 times more common in women than men. Clinical application patterns have considerably changed since the 1920s in when the disease was first described. The initial complaints which caused significant comorbidities such as nephrolithiasis, bone cysts ("osteitis fibrosa cystica"), pathological bone fractures, muscle atrophy became insignificant. In today, the presence of serum Ca2+ in routine blood chemistry tests has helped to the detection of hypercalcemia without causing clinical symptoms in the early stages. Therefore, PHPT has currently evolved to an asymptomatic hormonal disorder from a disease with severe clinical signs.[4] Our case was admitted to our clinic with a complaint of swelling in the neck. Moreover, the patient had the complaints of bone pain, fatigue, palpitations, increased urinary frequency but the patient did not care her complaints.

Brown tumors are well circumscribed and non-neoplastic osteolytic lesions. They are formed with the bone resorption and the replacement of this bone with fibrous tissue due to an imbalance between osteoclastic and osteoblastic activity. They are histologically characterized by giant cells in fibrovascular stroma, and also they have brown-red color which gives its name to the tumor due to bleeding areas. While brown tumors are frequently placed in the mandible, the ribs, clavicle and pelvis, they are rarely placed in the maxilla.[5] In our case, brown tumor was detected in right maxillary bone.

Giant parathyroid adenoma is defined as nodules larger than 3gr and is operated with traditional large incision. Sternotomy may be required for the surgery of the adenomas in the superior mediastinum.[6] This case was approximately 3.3 g in weight ve 12x6x4 cm in size and was operated by Kocher's necklace incision from the right cervical region. It is the biggest adenoma with this feature among the cases reported in the literature and also may be the first case which can be operated from cervical region. Ectopic parathyroid tissues are rarely not and 1-3% of the parathyroid glands are located in ectopic location. Mediastinal parathyroid adenomas can be seen in 5% of patients with PHPT. The lesion is localized in any area which can not be reached with a cervical incision in about 2% of these patients lezyon and also requires thoracotomy.[7]

Myelofibrosis is a rare disease in young persons. The majority of these cases occur as a secondary myelofibrosis. Myelofibrosis occurs secondary to many diseases such as Vitamin-D deficiency rickets, myelodysplastic syndrome, leukemia, essential thrombocythemia, lymphoma, renal osteodystrophy, gray platelet syndrome.[8] PHPT may rarely lead to development of secondary myelofibrosis. However, it is extremely rare in young persons except a few elderly patients in the literature.[2] Pancytopenia associated with myelofibrosis secondary to PHPT is a less common situation than anemia associated with hyperparathyroidism. Myelofibrosis is excessive reticulin deposition in the bone marrow. It may be either primary (idiopathic) or secondary. Anemia can occur in a substantial number of patients with PHPT with or without myelofibrosis. It has been shown that high concentrations of PTH have an inhibitory effect on erytropoiesis.[9] Our case had the laboratory findings of pancytopenia, hypercalcemia, hyperparathyroidism in the preoperative period. The hematological parameters improved 3 months after the surgery of parathyroid adenoma and calcium and parathyroid hormone levels were normal in our patient diagnosed with primary hyperparathyroidism and pancytopenia. Bone marrow biopsy was consistent with myelofibrosis. In this case, these findings suggested that parathyroid hormone induced bone marrow fibrosis, which impaired erythropoiesis, leukocytosis and thrombocytosis.

In conclusion, we report a patient who presented with pancytopenia and then was diagnosed with myelofibrosis due to a parathyroid adenoma. All clinical abnormalities resolved after parathyroidectomy. Clinicians should be aware that hypercalcemia, high PTH levels, brown tumors and pancytopenia may be the findings of myelofibrosis secondary to primary hyperparathyroidism in the young population.

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