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Primary Hyperparathyroidism

Primary hyperparathyroidism is a disorder of the parathyroid glands in which one or more of the four parathyroid glands are overactive. The overactive gland produces an excess of parathyroid hormone, which helps regulate the amount of calcium in the blood and the tissues. This overproduction of the hormone leads to high levels of calcium in the blood, known as hypercalcemia. Primary hyperparathyroidism is the leading cause of hypercalcemia, which can lead to numerous health problems.

There are a few causes of primary hyperparathyroidism, but all are because of a problem on one or more of the parathyroid glands. The most common cause is a benign tumor or adenoma on one of the glands; this is in roughly 80 percent of cases. Most other cases are caused by enlargement of two or more of the parathyroid glands. In less than one percent of patients’ primary hyperparathyroidism is caused by a malignant tumor of the parathyroid. In most people the cause of the tumors that lead to primary hyperparathyroidism are unknown, but there are some factors that can increase a persons’ risk for developing the disorder. The risk factors include: taking lithium medications, head and neck radiation therapy and rare genetic disorders such as endocrine neoplasia.

Most patients with primary hyperparathyroidism do not have any symptoms, but when they do appear they are usually mild. Symptoms include aches and pains, muscle weakness and fatigue. While there are few minor symptoms with primary hyperparathyroidism increased calcium levels in the bloodstream can lead to other complications such as osteoporosis, kidney stones, cardiovascular disease and gastrointestinal problems. One clinical presentation of the disorder in the oral cavity is the loss of the lamina dura, which is apparent on radiographs. Another rare clinical presentation includes brown tumors. Brown tumors are erosive bony lesions that are caused by increased osteoclastic activity induced by hyperthyroidism. These tumors typically occur in the long bones and it is extremely rare that they appear in the oral cavity.

Primary hyperparathyroidism occurs in roughly 100,000 people each year. Patients who develop the disorder are typically between the ages of 50 and 60 years old. Also women have a three times greater chance of developing the disorder over men. Race is not a factor in this disorder.

Typically primary hyperparathyroidism is diagnosed from blood tests; the patient will have elevated levels of calcium and parathyroid hormone in the blood. Once a diagnosis is confirmed there are multiple other tests conducted to determine any complications of the disorder. These include bone mineral density tests, ultrasounds of the parathyroid, kidney imaging tests, CT scans, urine collection and vitamin D tests.

The treatment of primary hyperparathyroidism depends on the severity of disorder. If patients have a mild form of the disorder with only slightly elevated blood calcium levels and normal kidney function and bone density they can opt for a watch and wait approach. These patients should be monitored for any changes. In patients with more severe forms of the disorder surgery is the number one treatment option. The surgeon will only remove the parathyroid gland or glands that are affected. This treatment option has a 90-95 percent success rate of curing primary hyperparathyroidism. If patients do not have surgery it is important that they are routinely monitored and make lifestyle changes such as eating a moderate calcium diet and possibly taking medications to prevent complications of the disorder.

Primary hyperparathyroidism itself is not generally confused with other disorders, but differential diagnosis is important with brown’s tumor. It should exclude other giant cells lesions in the oral cavity, including central giant cell granuloma, aneursmyal bone cysts, odontogenic keratocysts and cherubism before making a diagnosis.

Primary hyperparathyroidism is extremely important to dental hygienists because although rare a brown tumor may be the first indicator to diagnosing the disorder. It also reaffirms the importance of reviewing the patient’s medical history and performing a head and neck exam. As dental hygienists’ it is important to recognize that this is an abnormal lesion and recommend that a biopsy and the proper tests are performed to determine a diagnosis. The loss of the lamina dura is also extremely significant to dental hygienists. It is detected on radiographs that we often take and review. When the lamina dura is missing it is a sign of disease and along with the dentist the hygienist must be able to identify that there is a problem, try to determine what is causing it and develop an appropriate treatment plan for the patient.

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