Communications

The Parathyroid Cyst: A Case Report

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Parathyroid cysts are rare lesions in the neck. Usually they present without any significant symptoms. Accurate diagnosis preoperatively is difficult, but can be done. The following is a case report involving parathyroid cyst.

Case Report

A 34-year-old white female was admitted to the Naval Hospital, Lemoore, California, on January 9, 1979, with a complaint of a painless cyst in the neck. She first noticed the cyst five months prior to the admission, and had found it gradually increased in size. She had no other complaint otherwise. She was known to have hypothyroidism, and had been treated with 0.3 mg of sodium levothyroxine daily for many years.

Physical examination was normal except for a 3 × $4^1/_2$ cm cystic lesion at the left side of the neck. It was smooth and non-tender. It moved with swallowing, and no pulse or bruit was identified.

Initial diagnostic work-up included: T_3, 31.7 percent (normal 25 to 35 percent); T_4, 8.4 μg/100 ml (normal 4.5 to 12 μg/100 ml), with 0.3 mg of sodium levothyroxine daily; total calcium, 9.6 mg/100 ml (normal 8.9 to 10.1 mg/100 ml); magnesium, 1.9 mg/100 ml (normal 1.7 to 2.0 mg/100 ml); phosphorus 3.5 mg/100 ml (normal 2.5 to 4.5 mg/100 ml); and parathyroid hormone 26 μl Eq/ml (normal less than 40 μl Eq/ml). Chest roentgenogram, complete blood count, VDRL, SMA-12, and urinalysis were all within normal limits. Thyroid scan with 3.8 miC of Technetium 99m sodium pertechnetate showed a normal thyroid gland, with the palpable mass lying adjacent to the inferior pole of the left lobe and the area encompassed by the mass not appearing to concentrate radioactivity. It was concluded that the mass might be a thyroglossal duct cyst. An ultrasonogram revealed a cystic lesion.

The patient was taken to surgery with a preoperative diagnosis of possible thyroglossal duct cyst. However, because of the more lateral and inferior presentation of the cyst than the usual mid-line presentation of the thyroglossal duct cyst, a parathyroid cyst was also considered as a possibility. A low collar incision was made, and upper and lower flaps were developed at the subplatysmal level. The deep cervical fascia was opened and with the strap muscles retracted, a 3 × $4^1/_2$ cm translucent, cystic, unilocular lesion was removed in toto. No connection to the thyroid gland was noted. The wound was then closed accordingly. The pathology report revealed parathyroid cyst. The postoperative course was uneventful, and the patient was discharged on the second postoperative day. She was followed for one year, and was found to have no recurrence.

Discussion

Parathyroid cyst is a rare lesion in the neck. With the exclusion of those with cystic changes of

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parathyroid adenoma,[1] there are only 98 cases of true parathyroid cysts reported, since the first case presented by Goris in 1906.[2] According to Lack's recent analysis,[3] it occurs three times more frequently in females than in males. The average age at the time of diagnosis is 44 years (range 16 to 79 years), with the presence of a neck mass for an average of 23 months before diagnosis (range 2 days to 20 years). Usually the cyst presents no symptoms, but occasionally there can be dysphagia, dyspnea, or hoarseness due to compression on the adjacent organs. Sometimes it may even cause pain due to hemorrhage into the cyst. Sixty percent are located at the left side. Ninety-five percent are located at or below the inferior border of the thyroid, and the rest are in the upper neck or mediastinum.

The cyst is usually unilocular, loosely attached to the thyroid, with a definite cleavage plane, making excision relatively easy. The cyst wall is a grayish-white, paper-thin, translucent but tough membranous tissue.[4] Microscopically, the cyst wall is usually composed of a thin layer of fibrous tissue, covered by a single layer of cells that closely resemble normal parathyroid cells. The presence of nests of typical parathyroid cells, localized in one or two portions of the cyst wall or sometimes scattered diffusely throughout the entire wall, is considered by most authors an essential criterion for the diagnosis. Wasserhelle and chief cells are usually present, but one may be dominant.[5]

Its etiology is still uncertain, but the most widely accepted theory is that parathyroid cysts are embryological remnants of the third and fourth bronchial clefts. This is supported by the ultrastructural observation by Troster,[6] with identification of the lining cell being a rather basic absorptive epithelial cell with little or no differentiation in the direction of any specific organ, and the presence of smooth muscle in the cyst wall. These two elements, the epithelial and mesenchymal components, are present in the pharyngeal pouches, especially the third pharyngeal pouch.

Accurate preoperative diagnosis is rare. More than half the cases were diagnosed as thyroid lesions preoperatively and some patients had been subjected to long-term thyroid therapy. Diagnosis usually can be made by the character of fluid aspirated from the cyst.[7] The fluid is usually thin and watery, though occasionally it may be straw-colored, or bloody, due to hemorrhage into the cyst. The presence of an elevated parathyroid hormone level in the cyst fluid is also indicative of the diagnosis.[8]

The treatment of choice is total excision, which is easily accomplished with little morbidity. However, a total of three cases had been reported by Ginsberg[8] and Clark,[9] in which the cysts were treated with needle aspiration; there was no recurrence after two to five months of follow-up.

Recently Clark[10] had presented a case with hyperparathyroidism due to multiple parathyroid cysts, and had concluded that all the parathyroid glands should be individually examined and treated accordingly, on patients with both parathyroid cyst and hyperparathyroidism, since two or more glands may be involved, or hyperparathyroidism may persist.

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