

胸腔鏡手術切除長期血液透析併有次發性副甲狀腺亢進患者之額外異位性縱膈腔副甲狀腺

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Thoracoscopic Excision of Ectopic Supernumerary Mediastinal Parathyroid Gland with Tertiary Hyperparathyroidism Caused By Long-Term Hemodialysis

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Abstract:

The incidence of ectopic parathyroid glands and supernumerary parathyroid glands are approximately 16%¹ and 13%², respectively. However, mediastinal ectopic parathyroid glands that could not be identified excised by cervical operation are quite rare with an incidence approximately 2%³. Supernumerary mediastinal parathyroid glands are even rare. Here we present three cases of supernumerary ectopic mediastinal parathyroid glands successfully diagnosed with Tc99m-MIBI scintigraphy and treated with thoracoscopic mediastinal parathyroidectomy.

Case presentation:

The patients are a 68-year-old lady, a 45 year-old lady and a 48-year-old gentleman. All of them have end-stage renal disease and have received regular hemodialysis for many years. They also have received cervical total parathyroidectomy with forearm autotransplantation for tertiary hyperparathyroidism caused by long-term hemodialysis. Four cervical parathyroid glands for each patient were identified by pre-operative sonography and were removed by the surgery.

However, significantly elevated serum PTH level with hypercalcemia persisted after their cervical total parathyroidectomy. Furthermore, deterioration of renal osteodystrophy also persisted despite supplement of calcium and vitamin D. Further examinations with thoracic CT and Tc99m-MIBI scan were arranged under such circumstances and finally revealed a supernumerary ectopic parathyroid gland in mediastinum for each of the patients. The 48-year-old gentleman also received MIBI-SPECT for better localization of the gland. These glands were located near hilum of right lung, root of pulmonary artery and aortopulmonary window, respectively. All these three supernumerary ectopic parathyroid glands are located within anterior mediastinum.

Unilateral VATS mediastinal parathyroidectomy was performed for these patients. Their ectopic supernumerary parathyroid glands were identified and excised. Significant drop of serum PTH and calcium levels were confirmed after the operation for all three patients. In two patients, serum PTH level dropped dramatically to normal range on the very first day after operation. For the other one, the PTH level also dropped dramatically from 1578.1 pg/ml to 439.4 pg/ml on the first day after operation, but it took about a month to return to

normal range. Eventually, all of their PTH level returned to normal level with forearm autotransplantation.

Moderate to severe hypocalcemia caused by bone hunger syndrome also developed. It was moderate for two patients and severe for the other one with numbness of limbs and required intensive calcium supply. After adequate supply of calcium, all of them recovered from bone hunger syndrome. Eventually, their serum calcium level also returned to mild to moderate hypocalcemic status caused by end-stage renal disease with regular phosphorus binders, calcium and vitamin D supply.

Their length of stay was 8 days, 7 days and 14 days respectively. The major cause of prolonged hospital stay up to 14 days in one patient is profound hypocalcemia caused by bone hunger syndrome.

Discussion:

Thoracoscopic excision of ectopic mediastinal parathyroid glands has similar mortality and morbidity with significantly shorter length of stay when compared with sternotomy.

For these cases, the true challenge of managing these patients would be accurate preoperative localization of the glands, which facilitate the use thoracoscopic surgery. When compared with complete surgical exploration, Tc99m-MIBI scintigraphy could identify only 69.7% of ectopic parathyroid glands located in the upper mediastinum mediastinal and thymic tongue.

Intraoperative parathyroid hormone monitoring and radio-guided surgery has also been proposed as intra-operative confirmation. However, both of the methods are difficult to provide adequate hint for intraoperative conversion to thoracoscopic surgery.