

Ectopic Mediastinal Parathyroid Adenoma Resected by Video-Assisted Thoracoscopic Surgery

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Ectopic mediastinal parathyroid adenoma (EMPA) is not accessible by standard cervical surgical approaches. Although sternotomy is a common procedure for resecting EMPA, video-assisted thoracoscopic surgery (VATS) is a safe and effective alternative which produces aesthetically acceptable results. We describe a case of a 55-year-old woman on dialysis with chronic renal failure and persistent hyperparathyroidism resulting from an EMPA which was removed successfully by VATS. (*Mid Taiwan J Med* 2003;8:332-5)

Key words

ectopic mediastinal parathyroid adenoma, hyperparathyroidism, video-assisted thoracoscopic surgery

INTRODUCTION

Five to fifteen percent of patients on dialysis with renal hyperparathyroidism develop complications and require surgical intervention [1]. Bone pain, skin itching, and soft tissue calcification are indications for surgery [2]. Ectopic parathyroid adenoma is a frequent cause of persistent or recurrent hyperparathyroidism after parathyroidectomy in patients with chronic renal failure on dialysis [3,4]. Recent improvements in diagnostic imaging such as ^{99m}Tc-methoxyisobutylisonitrile (MIBI), have allowed ectopic parathyroid adenoma in the mediastinum to be identified preoperatively [5]. With video-assisted thoracoscopic surgery (VATS), ectopic mediastinal parathyroid adenoma (EMPA) can be excised successfully by the

shortest possible route without the need for sternotomy [6-9]. We report a case of a 55-year-old woman on dialysis with chronic renal failure, persistent hyperparathyroidism, and symptoms of progressive renal osteodystrophy. MIBI scintigraphy and chest CT detected EMPA on the right side of the anterior mediastinum. The adenoma was resected successfully by VATS. Her serum parathyroid hormone level returned to normal and she recovered well. The patient has been free of symptoms and signs of hyperparathyroidism during 3 years of follow-up.

CASE REPORT

A 55-year-old female patient with a history of end stage renal disease on maintenance hemodialysis for 8 years had diffuse bone pain on admission to this hospital. Her serum calcium was 3.38 mmol/L (high normal, 2.83 mmol/L) and her parathyroid hormone was 334.72 pg/mL (high normal, 54 pg/mL). Chest CT revealed an enhanced 2 cm × 2 cm nodule on the right upper

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Fig. 1. Chest CT reveals an enhanced 2 cm \times 2 cm nodule in the right superior anterior mediastinum (arrow).

superior mediastinum (Fig. 1). Subsequent MIBI parathyroid scan demonstrated persistent focal increased tracer uptake in the right superior mediastinum (Fig. 2). EMPA was diagnosed and VATS was performed via the right side. A double-lumen endotracheal tube was inserted and the patient was placed in a posterolateral thoracotomy position under general anesthesia. Four trocar sites were used, and all were performed by a standard 10-mm rigid thoracoscope with a 0 degree angle. The well-defined 2 cm \times 2 cm nodule located on the superior mediastinum near the superior vena cava and the right lobe of the thymus was resected by standard thoracoscopic instrumentation. Pathological examination of a frozen nodule section confirmed parathyroid adenoma. The operation lasted 90 min. The postoperative course was uneventful, and postoperative calcium concentrations and parathyroid hormone levels returned to normal. She was discharged from our hospital on the seventh postoperative day. The patient has been well and free of symptoms and signs of hyperparathyroidism during 3 years of follow-up.

DISCUSSION

The incidence of patients on dialysis who develop various musculoskeletal complications has been increasing [3]. Although 90% of hyperparathyroidism is primary and estimates of the prevalence of mediastinal parathyroid glands

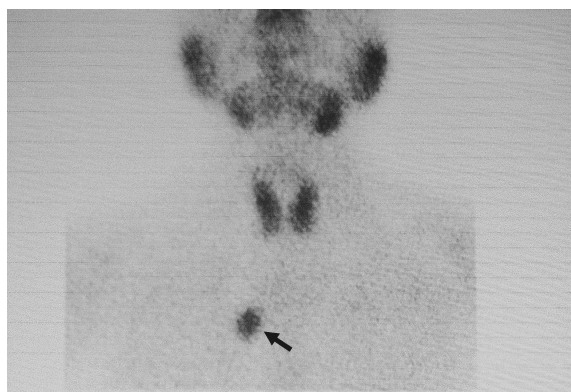


Fig. 2. ^{99m}Tc MIBI parathyroid scan demonstrates persistent focal increased tracer uptake in the right superior mediastinum (arrow).

are as high as 20% [10], ectopic parathyroid adenoma can exist as secondary hyperparathyroidism in patients with chronic renal failure on dialysis [3,4].

CT is reliable for detecting parathyroid glands larger than 1.5 cm; however, the procedure is less capable of identifying smaller glands. The ^{99m}Tc -MIBI scan, on the other hand, offers an 86% success rate at detecting tumors greater than 1 g, and a 100% success rate at tumors larger than 2 g [9].

Embryologically, the inferior parathyroid glands originate from the third bronchial pouch with the thymus, which may explain why most ectopic parathyroid glands are found in close proximity to the thymus gland. Microscopically, thymic tissue in fat was disclosed on its capsule in this study. It was reported by Medrano et al that four of seven ectopic parathyroid glands were intrathymic and the remaining three, parathymic in location [9].

Many surgical methods for resecting EMPA have been reported in the literature, including medial sternotomy [11,12], partial sternotomy [3], subxiphoid video-mediastinoscopy [13], and VATS [6-9]. However, the VATS approach results in fewer postoperative complications. For example, only 1 in 7 patients (14%) suffered minor complications in a report by Medrano et al [9], while the complication rate associated with sternotomy was 19% according to Conn et al [11],

and 21% as reported by Russell et al [12]. The VATS approach also leaves fewer surgical wounds than other surgical methods. The subxiphoid approach may be suitable for biopsy procedures; however, it requires placement of additional ports if instruments are needed for resection. Hence the subxiphoid approach would not seem to offer any significant advantages over the VATS approach as it was reported in the literature [6-9] and in this study.

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視訊輔助胸腔鏡手術切除異位縱膈腔副甲狀腺腺瘤

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視訊輔助胸腔鏡手術對異位縱膈腔副甲狀腺腺瘤切除，對於無法經由頸部手術和避免胸骨切開術，是一安全、有效、符合美容原則，及病患可以接受的方法。我們報告一位55歲女性病患因腎衰竭有長期洗腎病史，因為異位縱膈腔副甲狀腺腺瘤，造成持續性副甲狀腺功能過高症，經視訊輔助胸腔鏡手術，成功切除腺瘤。(中台灣醫誌 2003;8:332-5)

關鍵詞

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