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CASE REPORT

Ectopic Mediastinal Parathyroid Adenoma Excision via Video Assisted Thoracoscopic Approach: A Case Report

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ABSTRACT

Ectopic parathyroid adenomas can be a cause of recurrent and refractory hyperparathyroidism. Majority of parathyroid adenomas are located in the neck region, however in very few cases they are located within the mediastinum. In such cases excision via cervical approach is not possible and it becomes a diagnostic as well as surgical challenge. Excision via thoracoscopic approach is a preferred approach in this regard. Here we represent a case of ectopic parathyroid adenoma embedded within thymus gland which underwent surgical excision via thoracoscopic approach.

Key words: Ectopic, Parathyroid adenoma, Thoracoscopy

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Article info:
Received: August 15, 2022
Accepted: December 27, 2022

Cite this article. Umair B, Chatha S S, Husnain R, Ullah F, Khan R.Ectopic Mediastinal Parathyroid Adenoma Excision via Video Assisted Thoracoscopic Approach: A Case Report.J Islamabad Med Dental Coll. 2022; 11(4): 256-258 https://doi.org/10.35787/jimdc.v11i4.901

Funding Source: Nil
Conflict of Interest: Nil

Introduction

Primary hyperparathyroidism (PHPT) occurs due to excessive secretion of parathyroid hormone by parathyroid glands. Causes of primary hyperparathyroidism include parathyroid adenoma or parathyroid carcinoma. Majority of cases of primary hyperparathyroidism are caused by solitary parathyroid adenoma.[1,2] Majority of the parathyroid adenomas are located in cervical region, however in 1-2% cases they are located at ectopic location in mediastnum.[3] The presence of ectopic location for parathyroid adenoma is due to abnormal migration during embryogenesis. Localisation of ectopic parathyroid gland can present as a diagnostic challenge and a combination of high-resolution computed tomography, MRI and nuclear scintigraphy are needed for appropriate localisation. Surgical resection is the most effective treatment for the management of PHPT secondary to parathyroid adenoma. However surgical resection of ectopic parathyroid gland located in mediastinum is usually not possible via cervical approach so a thoracoscopic approach is considered a most appropriate approach. The video-assisted thoracoscopic surgery (VATS) offers an excellent modality combining the merits of a minimally invasive approach and magnification of the surgical field.[4] Here we represent a case of ectopic parathyroid adenoma

located within the mediastinum for which video assisted thoracoscopic resection was performed.

Case Report

A 45-year-old lady presented to Medical OPD with complaints of bone pains for the past 8 months. She has been regularly using pain killers but without any relief. She was hypertensive well controlled on medication. On being investigated she was found to have raised serum calcium levels. Her PTH Levels were also found to be raised and a provisional diagnosis of Primary hyperparathyroidism was made. Ultrasound neck gave suspicion of parathyroid adenoma on left lower pole of thyroid gland. Her CECT Neck and chest was done which gave suspicion of parathyroid adenoma at ectopic place on left mediastinum. Her sesta-MIBI scan showed small sesta-MIBI avid lesion anterior mediastinum and confirmed the diagnosis of Ectopic mediastinal parathyroid adenoma.

She was counselled and planned for surgical resection of the parathyroid adenoma. Due to Ectopic location of the parathyroid adenoma Video assisted thoracoscopic resection of the adenoma was performed. Per-op no discrete adenoma was identified, however based on the area identified by CT scan and sesta-MIBI scan, the whole area suspicious of containing parathyroid adenoma was cleared and removal of gland was confirmed by post-op PTH levels which dropped drastically from 16.5 mmol/l pre-op to 1.62 post-op. Her post-op recovery was uneventful and she was discharged on second post-op day. Histopathology report confirmed the presence of ectopic parathyroid gland embedded within the thymus gland.

Discussion

Primary Hyperparathyroidism is caused by excessive secretion of parathyroid hormone causing hypercalcemia.[5] Primary hyperparathyroidism affects approximately 1% of the adult population.[6] Majority of the patients affected are woman. In about 80% of cases, PHPT is caused by solitary parathyroid adenoma.[7] Other less common causes are parathyroid hyperplasia, multi-gland disease (MGD), and parathyroid carcinoma.[8] Most of the parathyroid adenomas are usually located in the neck especially on posterior capsule of thyroid gland or in ectopic locations such as mediastinum due to migratory pathway of embryological origin.

In primary hyperparathyroidism the incidence of ectopic mediastinal parathyroid adenoma is about 1-2%.[9] Mediastinal parathyroid adenomas are usually small and accurate preoperative localisation is often challenging and difficult. Ultrasound, scintigraphy, and CT scan are commonly used to diagnose and localise parathyroid adenomas. The diagnostic rate of lesion responsible for causing Primary Hyperparathyroidism is increased using sesta-MIBI scan and similar was done in this case as well where sesta-MIBI scan was more helpful in localising the adenoma. Sagan et al in his study showed that use of intraoperative intact PTH measurement, decreases the failure rate of surgery from 21% to 3%[10] and this technique was used in this case as well where intraoperative decrease in PTH levels confirmed the removal of adenoma.

Biochemical evaluation demonstrating raised serum calcium levels along with an elevated intact PTH level, are required for diagnosis of PHPT, whereas parathyroid imaging has no role in diagnosis but is used for anatomic localization of ectopic parathyroid gland and hence for planning a suitable surgical approach. In about 1–2% of cases, parathyroid adenoma may be located so deep within

the mediastinum that cervical approach is not possible and thoracotomy is required. Surgical resection is the treatment of choice for ectopic parathyroid adenomas causing primary hyperparathyroidism. Depending upon preoperative localisation, various surgical approaches can be used for removal of ectopic mediastinal parathyroid adenoma starting from cervical approach to sternotomy, thoracotomy or minimal invasive thoracoscopic approach, in experienced hands. VATS was used in this case as well for removal of parathyroid gland.

REFERENCES

1. Hoang JK, Sung WK, Bahl M, Phillips CD. How to perform parathyroid 4D CT: tips and traps for technique and interpretation. Radiology 2014; 270:15e24.
2. Ruda JM, Hollenbeak CS, Stack Jr BC. A systematic review of the diagnosis and treatment of primary hyperparathyroidism from 1995 to 2003. Otolaryngol Head Neck Surg 2005;132:359e72.
3. Noussios G, Anagnostis P, Natsis K. Ectopic parathyroid glands and their anatomical, clinical, and surgical implications. Exp Clin Endoclinol Diabetes.2012;120:604–10.
4. K.E. Isaacs, S. Belete, B.J. Miller, A.N. Di Marco, S. Kirby, T. Barwick, et al., Video-assisted thoracoscopic surgery for ectopic mediastinal parathyroid adenoma, BJS Open 3 (6) (2019) 743–749.
5. Walker MD, Silverberg SJ. Primary hyperparathyroidism. Nat Rev Endocrinol 2018; 14:115–25.
6. AACE/AAES Task Force on Primary Hyperparathyroidism. The American Association of Clinical Endocrinologists and the American Association of Endocrine Surgeons position statement on the diagnosis and management of primary hyperparathyroidism. Endocr Pract 2005;11:49- 54.
7. Taghavi Kojidi H, Vagharimehr N, Mohseni S, Pajouhi M, Mohajeri-Tehrani MR. Unusual ectopic parathyroid adenoma: a case report. Acta Med Iran 2016; 54:547–50.
8. Ruda JM, Hollenbeak CS, Stack Jr BC. A systematic review of the diagnosis and treatment of primary hyperparathyroidism from 1995 to 2003. Otolaryngol Head Neck Surg 2005;132:359e72.
9. Noussios G, Anagnostis P, Natsis K. Ectopic parathyroid glands and their anatomical, clinical, and surgical implications. Exp Clin Endoclinol Diabetes. 2012;120:604–10.
10. Sagan D, Gozadziuk K. Surgical treatment of mediastinal parathyroid adenoma: rationale for intraoperative parathyroid hormone monitoring. Ann Thorac Surg. 2010;89:1750–5.