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Ectopic mediastinal thyroid removed by U-VATS approach. A case report

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ABSTRACT

INTRODUCTION: Ectopic thyroid tissue is a rare entity, and accounts for approximately 1% of all mediastinal tumours. It is a differential diagnosis of the mediastinum tumors or metastatic deposits from an orthotopic gland, as well as other benign or malignant masses. Although most cases are asymptomatic and discovered incidentally by imaging, symptoms related to tumor size and its compression of adjacent structures may also appear which necessitates explorations and lead to diagnosis.

CASE PRESENTATION: This is a 59-year-old women, followed for glaucoma and operated for bilateral congenital cataract referred to our structure by the service of pneumology for a right laterotracheal mediastinal mass. The patient presented respiratory symptoms over four months, and the physical examination found patient in good condition with PS 0 and normal vital signs, a poor oral health was noticed. The CT scan showed a left basal opacity and a right laterotracheal mediastinal mass at the upper right mediastinum, pushing forward the superior vena cava and compressing the trachea on the contralateral side, with well-defined borders and without signs of infiltration of adjacent structure. The brochoscopy was performed which showed the yellowish granulous aspect and the pathophysiology revealed a pulmonary actinomycosis. The patient was treated with antibiotic based on parenteral infusion of penicillin G at 20 million / day for 6 weeks relayed by oral administration of 3 g / day for 3 months with a good response and the left basal opacity disappeared on the CT control but the mediastinal mass persisted. After multi-disciplinary concertation, the mediastinoscopy was performed and has revealed an ectopic thyroid which was removed by Uniportal Videoassisted Thoracoscopic Surgery (U-VATS) approach.

DISCUSSION: The first case of ectopic thyroid gland was described by Hickman in 1869, since a few cases have been reported by the literature. Its prevalence is about 1 per 100 000–300 000 people, rising to 1 per 4000–8000 patients with thyroid disease. The main techniques indicated in the management of undetermined lesions of the anterior mediastinum, are midline exploratory sternotomy, anterior lateral thoracotomy and VATS. U-VATS has demonstrated its feasibility and safety compared to conventional techniques by several advantages.

CONCLUSION: Ectopic mediastinal thyroid is an unusual presentation of thyroid pathology. Complete surgical resection remains a therapeutic and a key diagnosis. The aim of this study is to prove the feasibility, efficiency and efficacy of U-VATS approach as minimally invasive thoracic surgery for mediastinal mass resection.

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1. Introduction

Ectopic thyroid tissue is an abnormal embryological development and migration of thyroid tissue, which can be found anywhere

along the line of the obliterated thyroglossal duct from the tongue to the diaphragm. Mediastinal ectopic thyroid gland is a rare entity of the ectopic thyroid tissue and accounts for approximately 1% of all mediastinal tumours [1]. It is important to differentiate the mediastinum thyroid from germ cell tumors, neurogenic tumors, lymphomas, mesenchymal and thymic tumors [2]. We report a case of a 59-year-old woman with a right mediastinum ectopic thyroid mass removed by U-VATS approach. This work has been reported in line with the SCARE 2018 criteria [3].

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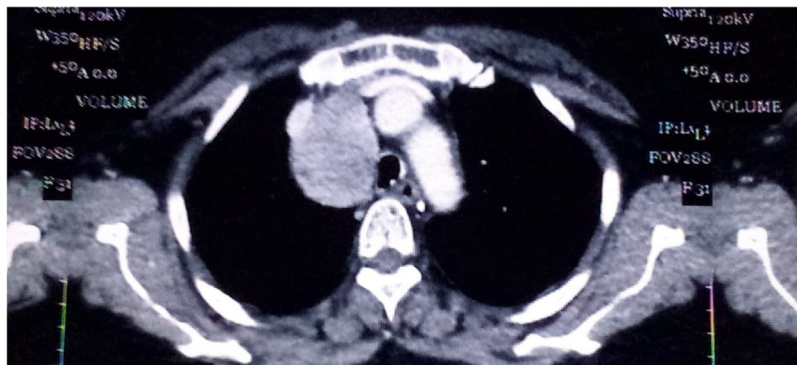


Fig. 1. CT CHEST a right laterotracheal mediastinal mass measuring (57 mm × 45 mm) at the upper right mediastinum.

2. Case presentation

This is a 59-year-old women, followed for glaucoma and operated for bilateral congenital cataract referred to our structure by the service of pneumology for a right laterotracheal mediastinal mass. The patient presented respiratory symptoms over four months, and the physical examination found patient in good condition with PS 0 and normal vital signs, a poor oral health was noticed. The CT scann showed a left basal opacity and a right laterotracheal mediastinal mass measuring (57 mm × 45 mm) at the upper right mediastinum, pushing forward the superior vena cava and compressing the trachea on the contralateral side, with well-defined borders and without signs of infiltration of adjacent structure. The bronchoscopy was performed which showed the yellowish granulous aspect and the pathophysiology revealed a pulmonary actinomycosis. The patient was treated with antibiotic based on parenteral infusion of penicillin G at 20 million / day for 6 weeks relayed by oral administration of 3 g / day for 3 months with a good response and the left basal opacity disappeared on the CT control but the mediastinal mass persisted (Fig. 1). After multidisciplinary concertation, the mediastinoscopy was performed and has revealed an ectopic thyroid which was removed by U-VATS approach. The thyroid hormones levels were normal and the bronchoscopy control was with normal aspect. Under general anesthesia and Selective intubation with a double lumen endotracheal tube, in a left lateral position, the mass was removed through a U-VATS. A 3 cm incision was made at the level of the 4th intercostal space along the right medium axillar line and a wall protector was positioned. The mass adhered to the right side of trachea, Superior Vena Cava and Azygos vein, with difficulties of dissection between the vena cava and azygos vein, with a thickened mediastinal pleura due to the inflammation. The mass was completely dissected from the structures mentioned above (Fig. 2). The extraction was made through endobag. No peroperative complications occurred. A pleural drainage was performed. The post-operative was uneventfull. The pleural drainage was removed on the second day and the patient was discharged from the Hospital. Subsequent anatomohistological identified an ectopic thyroid tissue. According to the analysis, its proper dimension was: 55 mm × 5 mm × 45 mm. Weight: 32 g. A control chest x-ray performed after 15 days was normal. The patient is currently in very good general condition, and does not present any complications during the long term follow up.

3. Discussion

Ectopic thyroid gland is defined as a location of thyroid tissue at a certain distance from the 2nd to 4th tracheal cartilages.

This is the results of an abnormality in embryological development and / or migration of the gland. The first case of ectopic thyroid gland was described by Hickman in 1869, since a few cases have been reported by the literature [4]. Its prevalence is about 1 per 100 000–300 000 people, rising to 1 per 4000–8000 patients with thyroid disease. However, in autopsy studies, the prevalence ranges from 7 to 10%. More than 440 cases have been reported up to date. In 70–90% of cases, it is only the thyroid tissue which is present [2]. Lingual thyroid is the most frequent ectopic location of the thyroid gland accounting for 90% of cases, though ectopic thyroids have also been reported from the submandibular region, trachea, mediastinum, heart, lung, duodenum and adrenal gland. Other sites are rarer [5]. In cases of mediastinal ectopic thyroid, the discovery is incidentally, orthotopic tissue usually coexists and the patients are euthyroid and asymptomatic [1]. However, obstructive or compression-related symptoms, especially of the upper airways and digestive tract can appear as well as hypothyroidism and rarely, hyperthyroidism. In few cases reported in the literature, it is located in the anterior mediastinum and only two cases of posteriorly location have been reported [6]. Due to its rarity, there is no pre-established therapeutic strategy for the management of ectopic thyroid, but most of the authors recommend surgical treatment according to the following parameters: size, local symptoms, compression of adjacent structures, age of the patient, thyroid functional status and complications of the mass (ulceration, bleeding, cystic degeneration and malignancy) [2]. Ectopic thyroid tissue may undergo malignancy changes [7], and for this some authors recommend complete surgical resection [8]. The main techniques indicated in the management of undetermined lesions of the anterior mediastinum, are midline exploratory sternotomy, anterior lateral thoracotomy and VATS.

The U-VATS technique was first initiated in the early 2000s for a thoracic sympathectomy, and since then the technique is carried out for more and more complex procedures launched by the group of Gaetano Rocco of the national cancer institute in Italy, to achieve a major step in 2010 with the world's first U-VATS lobectomy reported in 2011 by Gonzalez Rivas' group in Coruna, Spain. Since then, thoracic surgery for pulmonary and non-pulmonary lesions have been reported with great success [9,10]. U-VATS has demonstrated its feasibility and safety compared to conventional techniques by several advantages: less blood loss during surgery, less postoperative morbidity and mortality, better cosmetic results, shorter recovery and hospital stay [11]. It keeps as the only limit, the giant masses exceeding 10 cm which sometimes impose the use of the conventional techniques: sternotomy or thoracotomy depending on the location of the mass. Few cases of ectopic thoracic thyroid resected by VATS and in particular by U-VATS have

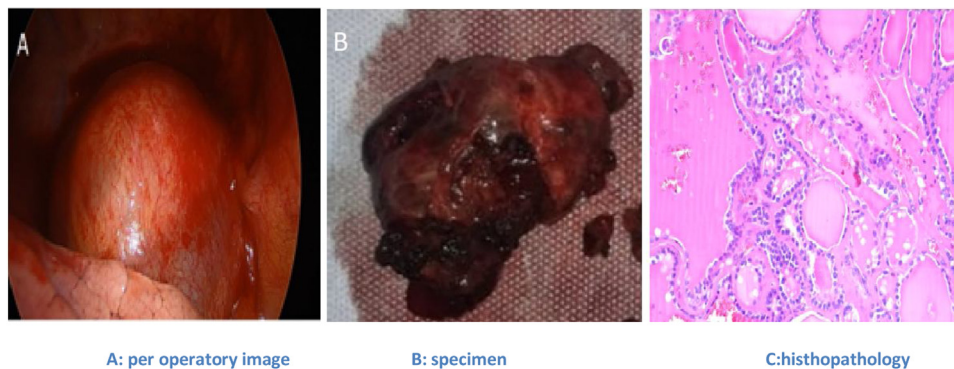


Fig. 2. A: per operative image B: specimen C: histopathology.

been described in the literature [12]. In our case, the patient was a woman who presented respiratory symptoms due to pulmonary actinomycosis and incidentally a right anterior mediastinal mass was discovered, which was successfully removed by U-VATS. The pathology revealed a Benign ectopic thyroid, and the patient was euthyroid with normal localization of the thyroid gland.

4. Conclusion

Ectopic thyroid is an unusual presentation of thyroid pathology and is the differential diagnosis of mediastinal tumors. There is no consensus for its therapeutic management. Complete surgical resection remains a therapeutic and a key diagnosis according to many authors. In our case the mass removal was successfully performed by the U-VATS approach, which has demonstrated its efficiency and feasibility but which requires a trained and experienced team.

Declaration of Competing Interest

None.

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Ethical approval

As per international standard, written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard, patient's consent has been collected and preserved by the authors.

Author contribution

This work was carried out in collaboration among all authors. Authors NI, HS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors NI, HS and SB managed the analyses of the study. Author HS managed the literature searches. All authors read and approved the final manuscript.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at <https://doi.org/10.1016/j.ijscr.2020.12.032>.

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