Case Report

Intracardiac Ectopic Thyroid Tissue: A Case Report

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Abstract

We present the case of a 36-year-old female who visited the OPD of a local hospital in Lahore, Pakistan, with history of chest pain, shortness of breath and palpitations. Echocardiogram and transesophageal echocardiography revealed right ventricular outflow tract mass, dilated coronary sinus and atrial septal defect. Surgery was advised, and successful excision of the mass was done and the specimen later sent to Chughtai Institute of Pathology for histopathological evaluation and diagnosis. The results revealed benign thyroid tissue with no evidence of malignancy. The patient was symptom-free on follow up after 6 months.

Keywords: Ectopic thyroid, echocardiography, intra-cardiac ectopic thyroid tissue, right ventricular outflow tract.

Introduction

Ectopic thyroid is an unusual developmental anomaly that in majority of the cases presents at the base of tongue.[1] Thyroid gland is the first endocrine gland to develop at 24th day of intrauterine life near base of tongue between first and second pharyngeal pouches from where it descends to its final location in front of trachea between 2nd to 5th tracheal rings.[1] Therefore, 90% of the cases of ectopic thyroid are reported at the base of the tongue. Various other sites including heart have been described.[2,3]

Case Presentation

A 36-year-old female presented in February, 2023, at the OPD of a local hospital in Lahore, Punjab, with complaints of shortness of breath, chest pain and palpitations for a couple of months. The chest pain was gradual in onset and constant. However, it was not associated with fever, weight loss and cough. She had no significant past medical, surgical, drug or family history. Her physical examination was unremarkable. Her laboratory parameters were normal. She underwent echocardiogram that showed an organized mass in right ventricular outflow tract causing obstruction. In addition, dilated coronary sinus and small atrial septal defect causing left to right shunt was also found. She was advised transesophageal echocardiography which was performed after two days followed by Gated cardiac CT and thoracic aortogram which showed a broad-based spherical contrast enhancing mass (29.2x29.9x31.2 mm) in right ventricular outflow tract attached to interventricular septum. Based on these findings, she was diagnosed to have a large right ventricular outflow tract mass, in addition to atrial septal defect. Closure of atrial septal defect and excision of right ventricular outflow tract mass was planned and successfully executed in March, 2023. Her specimen was received and processed in Chughtai institute of Pathology for subsequent histopathological evaluation and diagnosis. On gross inspection, it was an intact nodular piece of tissue measuring 3.0 x 2.5 x 1.5 cm and weighing 11 grams. Surface was smooth and shiny (Figure 1).

Serial slicing revealed myxoid cut surface with small cystic spaces (Figure 2). A total of 3 sections were submitted for microscopic examination. Microscopic examination revealed benign thyroid tissue composed of variably sized follicles. Atypical features or evidence of malignancy was not seen. At periphery, thick muscle bundles were present, but cardiac myocytes were not identified. The final diagnosis was concluded as an intra-cardiac ectopic thyroid tissue. The patient had an unremarkable postsurgical course and was asymptomatic on 6 months follow up.

Discussion

We reported a case of 36-year-old female diagnosed with ectopic thyroid tissue in the right ventricular outflow tract. This case is interesting and fascinating for pathologists, because intra-cardiac ectopic thyroid is a quite unusual and rare phenomenon. It was first reported in 1941 by Dosch during an autopsy examination and was successfully operated in 1984 for the first time. Most of the cases were reported after 1985 with approximately 10 cases every decade. Four Studies have shown that ectopic thyroid tissue is more frequent in middle to advanced aged females as compared to males, with a female to male ratio of 3:1 to 8:1, as in our case. Thyroid profile might also be normal, that makes diagnosis even complicated. Symptomatic patients usually

present with dyspnea and palpitation due to outflow tract obstruction. In our case, the patient had a complaint of chest pain, shortness of breath and palpitations for a couple of months with normal laboratory parameters. It is fascinating to mention that most of the reported cases of intracardiac ectopic thyroid presented as interventricular septal mass lesion which gradually increased in size causing ventricular outflow tract obstruction.[5] The proposed theory behind this phenomenon is an anatomical linkage of developing thyroid primordium with bulbus cordis of developing heart. Hence, during normal decent of heart and great vessels into the chest, ectopic thyroid may happen in the right ventricle. In our case too, an organized mass was identified in right ventricular outflow tract causing outflow obstruction. But there was an association with ostium secundum defect.[2,3] Rare cases of intra-cardiac ectopic thyroid at other sites such as ascending aorta and right side of atrial septum approaching the superior vena cava and aortic root have been described.[6] The patients with ectopic thyroid may be either completely asymptomatic or symptomatic depending on the site.[7] In our case, perioperative clinical suspicion was of myxoma but it surprisingly came out to be ectopic thyroid giving valuable information to the clinicians for patient management.

Figure 1: A single intact and nodular tissue fragment (3.0x2.5x1.5cm, 11 grams) with smooth and shiny surface.

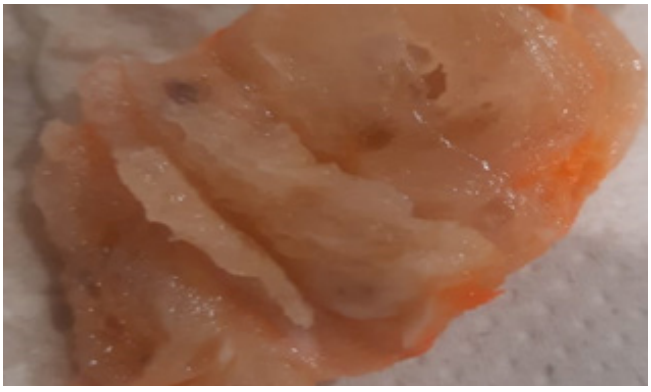

Figure 2: Gross Appearance: On serial slicing, cut surface is homogenous and myxoid.

Conclusion

Ectopic thyroid tissue should always be kept in differentials while diagnosing a mass present at any site other than its usual anatomical location, including the heart.

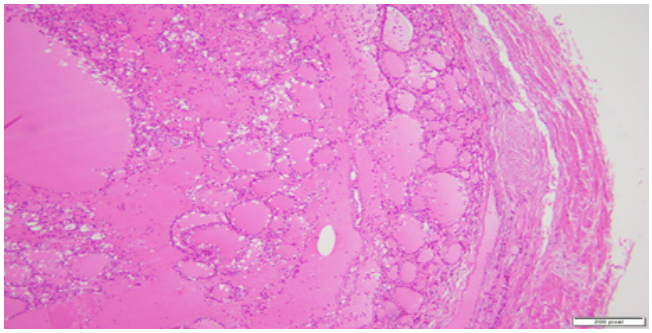

Figure 3: Low power (10x magnification): Ectopic Thyroid; A thyroid nodule showing variably sized follicles and abundant colloid. No thick capsule seen. No cardiac myocytes appreciated.

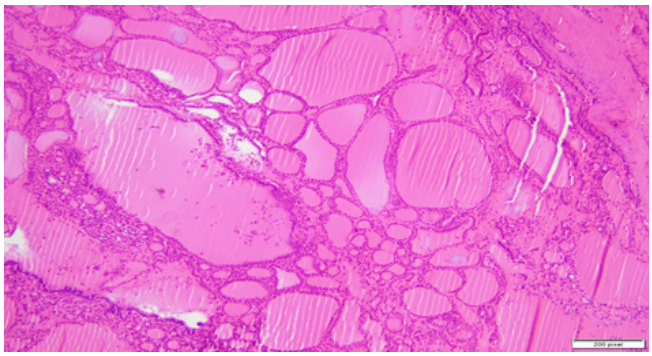

Figure 4: High power (40x magnification): Ectopic Thyroid; Variable sized dilated follicles with flattened to hyperplastic epithelium and abundant colloid. No cardiac myocytes appreciated.

Conflict of Interest: The authors have no conflicts of interest.

Informed Consent: An informed consent was taken from the patient for the purpose of this case report, without revealing her identity.

Authors' Contribution: The authors hereby validate their participation in the preparation of the manuscript in the following manner: The inception, formulation of the study and collection of information was done by HN; the analysis and interpretation of results was carried out by AB, FW & AA; overall supervision and final approval of the manuscript was done by ASC.

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