Metastatic Follicular Carcinoma of Thyroid to Pericardium

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Abstract

A 62 year-old man presented with massive pericardial effusion and a thyroid nodule. One thousand ml of serosanguinous pericardial effusion was tapped and the cytology consistent with metastatic papillary carcinoma. Total thyroidectomy was done. The pathological report of the thyroid gland was follicular carcinoma, poorly differentiated with capsular and vascular invasion. The patient received a treatment of 150 mci I-131 without complications. The total body scan after I-131 treatment showed only residual thyroid tissue. There was no demonstrable abnormal uptake in other parts of the body. No significant reaccumulation of pericardial fluid occurred. The diagnosis was follicular carcinoma of the thyroid with pericardial metastasis. The patient was discharged from the hospital with an improved clinical status.

The histology of thyroid carcinoma is classified into 4 types: papillary, follicular, medullary and undifferentiated carcinoma. The most common histology is papillary carcinoma. In 1995, from the tumour registry in Siriraj Cancer Center, the incidence of thyroid carcinoma was 2.38 per cent of all cancers. Twenty per cent of thyroid carcinoma are follicular carcinoma. Sixty one per cent of thyroid carcinoma are papillary carcinomas. One per cent of thyroid carcinomas are Hurthle cell carcinoma and medullary carcinoma. The prevalence of undifferentiated carcinoma of thyroid is 6 per cent[1]. Papillary thyroid carcinoma tends to spread by lymphatic invasion causing cervical and mediastinal node metastasis in about 40 per cent in adults[2,3] and about 80 per cent in children[4]. In contrast, follicular carcinoma seldom metastases to lymph nodes but has a poor prognosis[5]. The incidence of lymph node metastasis in follicular carcinoma varies from 8 per cent to 13 per cent[6]. Ruegemer

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found that 7 per cent of 859 patients with papillary carcinoma, 19 per cent of 100 patients with follicular and 34 per cent of 24 patients with Hurthle cell carcinoma had distant metastases[7]. The common sites for distant metastases are lung and bone respectively. There was only one case of papillary thyroid carcinoma with pericardial metastasis reported by Haskell RJ[8].

CASE REPORT

A 62-year old Thai man presented with the history of significant weight loss and dyspnea on exertion for 1 month. His functional class was deterioration from functional class I to functional class II or III. He had no chest pain orthopnea or pitting edema. Physical examination revealed a cachexic man. His vital signs were normal except for his pulse rate which was 90 beats per minute with irregular rhythm. He was mildly pale. There was a movable thyroid nodule sized 4x3 cm at the left lobe of the thyroid. The nodule was hard in consistency. Neither lid lag nor lid retraction was detected. The cervical lymph node was also positive at the right lower neck. The size was 1 cm. It was firm to hard in consistency. The cardiovascular system examination showed decreased heart sound with normal S1 S2. There was no murmur. The respiratory system, abdomen and nervous system were normal.

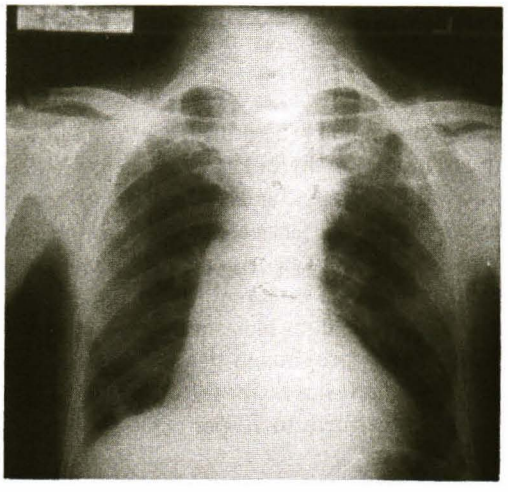

Fig. 1. Chest X-ray revealed generalized cardiomegaly with right pleural effusion.

The patient came to the emergency room with the chief complaint of dyspnea on exertion and significant weight loss. Chest X-ray (Fig. 1) revealed generalized cardiomegaly with right pleural effusion. Film of the lateral neck disclosed a soft tissue mass with egg shell calcification at the thyroid. The electrocardiogram showed atrial fibrillation. The echocardiogram was compatible with massive pericardial effusion. One thousand ml of serosanguinous pericardial effusion was tapped without complications. The cytological report of pericardial effusion was papillary carcinoma, metastasis. Fine needle aspiration of the thyriod nodule was done and the section showed secondary tumor suggestive of papillary carcinoma, metastasis. Pleural tapping was done. There was no malignant cell found. Technetium 99 m (Tc-99m) pertechnetate thyroid scan (Fig. 2) showed a large cold nodule at the left lobe of the thyroid. Total thyroidectomy was done. The finding at operation revealed a thyroid nodule about 4x5 cm in diameter. The histological report was follicular carcinoma, poorly differentiated, with capsular and vascular invasion at the left lobe. No tumor was seen on the right lobe and isthmus. The final diagnosis was follicular carcinoma. FNA of thyroid nodule is an effective screening, rather than a diagnostic procedure. Pericardial metastasis may have a different histology from a primary lesion. The patient had I-131 treatments (150 mci) without complication. Total body scan post treatment showed uptake at the residual thyroid tissue. There was no demonstrable abnormal uptake in other parts of the body. After follow-up of 4 months, there was no significant recurrence of pericardial effusion.

DISCUSSION

Metastasis thyroid carcinoma to the pericardium is very rare. From the literature review, the first reported case by Richard et al[8] was a 44 year old white woman having papillary adenocarcinoma with pericardial metastasis. The incidence of metastatic disease of the myocardium and/or pericardium ranges from less than 1 per cent to 18 per cent of all cancers and varies with type of malignancy[9-12]. There are three routes that malignancies may involve the pericardium and/or myocardium (1) hematogeneous, (2) lymphatic, and (3) local extension[12]. Lung and breast cancer are the most common cause. Melanoma, leukemia, and lymphoma are less common. From the pericardium,

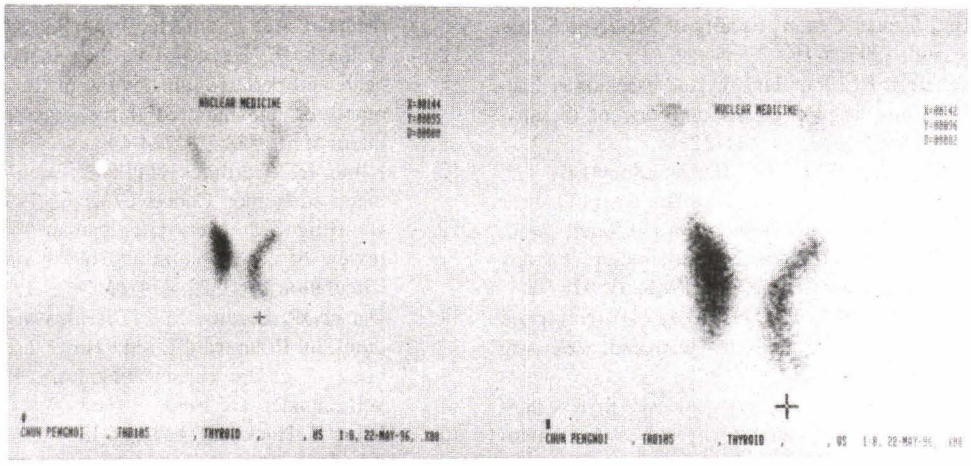

Fig. 2. Technetium 99m pertechnetate thyroid scan showed a large cold nodule at left lobe of thyroid.

the tumor may invade the myocardium and occasionally the endocardium. The most common signs of pericardial metastasis are pericardial effusion and pericarditis. The effusion may be serous or bloody[13]. Pericardial thickening, nodular deposits and an exudative or hemorrhagic pericardial effusion may be associated with thyroid carcinoma[14]. Thyroid cancer metastasis to the heart has rarely been reported. Thyroid cancer is not generally reported as the cause of metastatic disease to the heart[9-13,15,16]. Death is not from the cardiovascular cause but related to dissemination of underlying neoplasia[17]. Pericardiocentesis and examination of fluid cytology are able to diagnose correctly that the cause was from a malignancy in 74-90 per cent[9,17]. Richard J Haskell recommended that all patients with pericardial tamponade be evaluated for the presence of a malignancy[8]. Pericardial fluid cytology should be examined as part of the evaluation even if malignancy is not suspected. Zipf and Johnston[18] stated that pericardiocentesis and examination of fluid cytology is not valuable in making an early diagnosis of cancer. Many reports favour a conservative approach using pericardiocenthesis or surgical drainage and reserving pericardiectomy for established constriction[19].

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ผู้ป่วยมะเร็งของต่อมธัยรอยด์ชนิดฟอริคูร่าที่มีการแพร่กระจายที่ถุงเยื่อหุ้มหัวใจ

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รายงานผู้ป่วย follicular thyroid carcinoma ที่มี pericardial metastasis 1 ราย, ผู้ชายอายุ 62 ปี จากประวัติ ตรวจร่างกาย และการวินิจฉัยโรคพบว่ามีน้ำในถุงเยื่อหุ้มหัวใจและก้อนที่ต่อมธัยรอยด์กลีบซ้าย ได้เจาะเอาน้ำจำนวน 1000 มล. ในถุงเยื่อหุ้มหัวใจที่มีลักษณะเป็นสีน้ำปนเลือดและผล cytology เข้าได้กับ papillary metastasis ผู้ป่วยได้รับการผ่าตัด total thyroidectomy ผลชิ้นเนื้อเป็นมะเร็งธัยรอยด์ชนิด follicular ผู้ป่วยได้รับการรักษาด้วย Iodine-131 (I-131) จำนวน 150 มิลลิคูรี่ ไม่พบมีการแพร่กระจายโรคไปที่อื่น หลังการรักษาผู้ป่วยอาการดีขึ้นและไม่พบน้ำในถุงเยื่อหุ้มหัวใจอีก

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