

Retrosternal Goitre with Subclinical Hyperthyroidism Presenting with Trochanteric Fracture

Sarmishtha Mukhopadhyay*, Tirthankar Satpathi**

Abstract

We report a 55 year-old female who presented with trochanteric fracture of right femur. Examination and investigation revealed a huge retrosternal goitre with compression of great vessels which was asymptomatic for more than two decades. Subsequent investigation confirmed it as a case of toxic multinodular goitre with subclinical hyperthyroidism which is the possible cause of secondary osteoporosis and fracture. Unusual presentation makes the case reportable.

Introduction

A retrosternal goitre occurs when the thyroid gland enlarges downwards into the superior mediastinum. Although the great majority of retrosternal goitres are extensions from the neck, pure intrathoracic goitres do occur. Most retrosternal goiters reside in the anterolateral mediastinum with 10-15% limited to posterior mediastinum. Approximately 15-50% of the patients are asymptomatic. Most of the symptomatic patients present with compressive symptoms including dyspnoea, stridor, dysphagia, hoarseness, choking sensation and superior vena cava syndrome. Retrosternal goitre presenting with thyrotoxicosis is very uncommon. Here we report a case of retrosternal goitre with subclinical hyperthyroidism presented with trochanteric fracture of femur.

Case Report

A 55-year old postmenopausal female patient presented with trochanteric fracture of right femur. She was referred to Medical OPD from Orthopedic department for preoperative routine medical check up. She was looking much aged than her actual

age probably due to multiple child births and lack of proper nutrition. Previous treatment history was insignificant and no history of steroid therapy in any form was obtained. No other important history was revealed. Physical examination revealed a large thyroid swelling in the anterior part of the neck which was asymmetric, non-tender, non-pulsatile with nodular surface and the lower pole of thyroid could not be palpated. Percussion dullness was apparent over upper thorax. Several tortuous veins were visible on the anterior chest wall (Fig. 1). No bruit was audible over the thyroid swelling. No cervical lymph node was palpable. Her Body mass index was 21.6 Kg/m², pulse rate being 100/minute and blood pressure was 130/80 mm Hg. No features suggestive of thyrotoxicosis or hypothyroidism were present. There was no evidence of ophthalmopathy, pretibial myxedema or thyroid acropathy. Further interrogation revealed that the swelling was present for 25-30 years and the tortuous veins for more than 15 years. She was asymptomatic without any history of dysphagia, hoarseness or stridor. There were vitiligo patches over both palms present from her early age. Her thyroid function test was as follows: FT3-3.7pg/ml (N = 1.5-4.1pg/ml), FT4- 1.54 ng/dl (N = 0.9-1.7 ng/dl), TSH- 0.045 μ IU/ml (N = 0.3-4.2 μ IU/ml). Anti TPO antibody was 21.64 IU/ml (N=<60 IU/ml). Chest X-ray showed a superior mediastinal mass extending from the neck (Fig. 2). USG of neck was performed which showed enlarged thyroid with heterogenous echotexture extending in



Fig. 1 : Photograph of anterior chest wall showing tortuous veins and neck showing goitre.

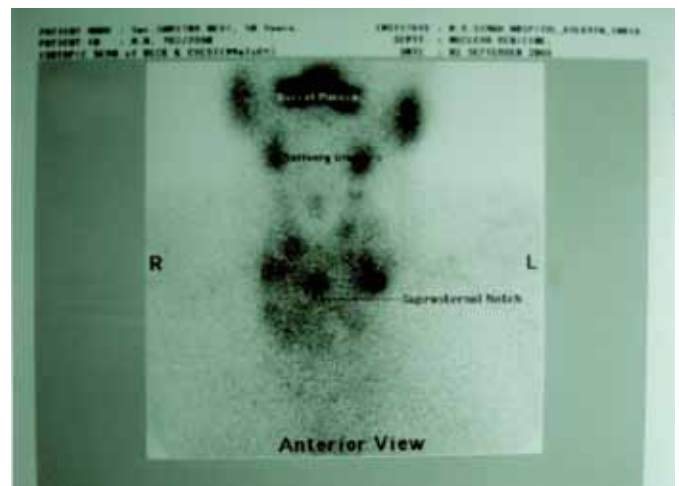


Fig. 3 : Tc⁹⁹ scan of thyroid

*Consultant Endocrinologist, **Post Graduate Trainee, Department of Medicine, B.R. Singh Hospital and Centre for Medical Education and Research, Eastern Railway, Kolkata 700014, West Bengal
Received: 16.03.2009; Revised: 19.05.2009; Accepted: 21.05.2009

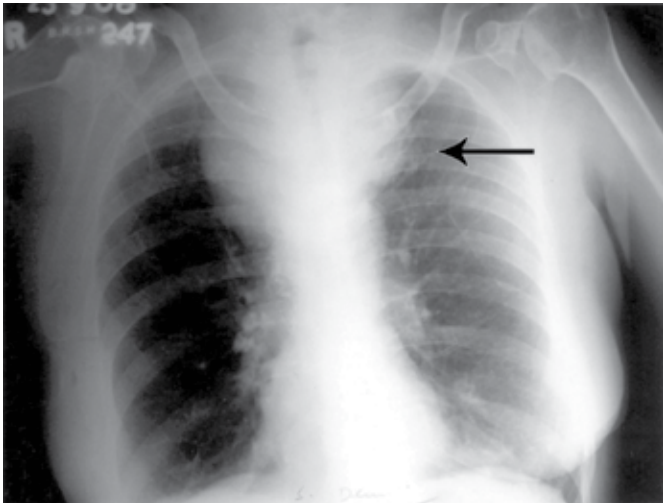


Fig. 2 : Chest x-ray PA view showing retrosternal goitre.

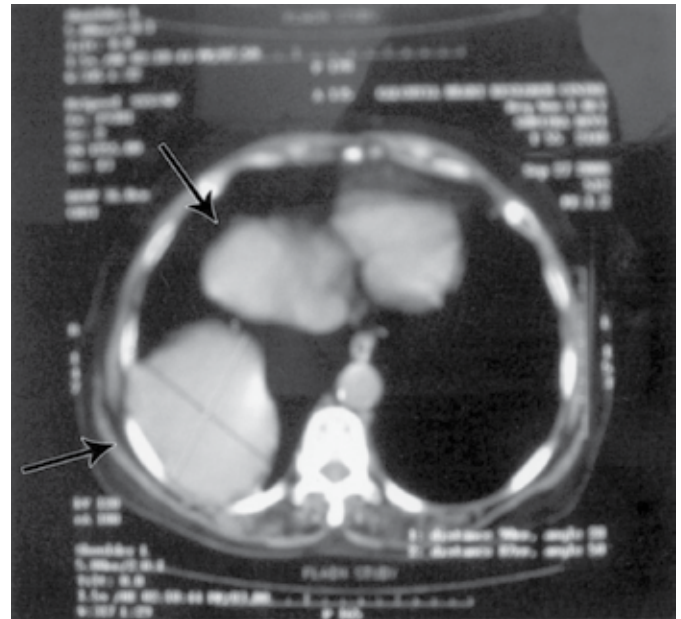


Fig. 4 : CT scan thorax showing thoracic extension of thyroid gland associated with multinodular goitre and retrosternal extension is probably responsible for unusually low BMD and resultant fracture. This observation enlightens us in the way that DEXA should be done in every case of subclinical hyperthyroidism to detect exaggerated osteoporosis which may result in fractures. So this observation demands that the treatment of subclinical hyperthyroidism may be indicated if there is significant osteoporosis.

the mediastinum with displaced great vessels. CT scan of thorax showed huge thyroid swelling with calcification and retrosternal extension in superior mediastinum displacing the great vessels (Fig. 4). The lesion encroached 2 cm. above carina leaving trachea and its bifurcation and esophagus free. Tc⁹⁹ scintigraphy revealed discrete areas of increased radiotracer uptake with relatively low uptake in other areas (Fig. 3). Fine needle aspiration cytology was done from low uptake area revealed abundant distended follicles filled with colloid with very few lymphocytes with no evidence of malignant changes. DEXA scan showed evidence of low BMD with T-score -3.1 and Z-score -2.2 in femur and T-score -4.1 and Z-score -2.9 in lumbar spine. The patient was advised surgical removal of the thyroid gland but refused as she was asymptomatic.

Discussion

There is no universally accepted definition of retrosternal goitre. Katlic et al¹ reported 80 cases of goitre where it was defined as goitre descending inferior to the thoracic inlet. Other authors² have defined it as more than 50% of thyroid mass residing inside the thorax. Goldenburg and co-worker³ as early as 1957 defined a retrosternal goitre as one reaching the level of the fourth thoracic vertebra. The natural history of retrosternal goitre is of a slow relentless increase in size, often presenting as an incidental finding on a chest x-ray in the fifth or sixth decade of life. The commonest symptoms are due to compression of mediastinal structures including airway compression, hoarseness, dysphagia and superior vena cava syndrome⁴. Retrosternal goitre with thyrotoxicosis is a very uncommon presentation.⁵ This lady having a huge goitre and tortuous veins over anterior chest wall was ignorant of this fact for 25-30 years and finally presented with trochanteric fracture as a result of subclinical hyperthyroidism and osteoporosis. Negative anti-TPO antibody and typical radiotracer distribution clinches to the diagnosis of toxic multinodular goitre which is a well-known cause of subclinical hyperthyroidism.⁶ Z-score less than normal suggest that she is more osteoporotic than her age-matched postmenopausal ladies. Subclinical hyperthyroidism

References

1. Katlic MR, Grillo HC, Wang CA. Substernal goitre analysis of 80 patients from Massachusetts General hospital. *Am J Surg* 1985;149:283-287.
2. Arici C, Dertsiz L, Altunbas H, Dermircan A, Emek K. Operative management of substernal goiter: analysis of 52 patients. *Int Surg* 2001;86:220-204.
3. Goldenberg IS, Lindskog GE. Differential diagnosis, pathology and treatment of substernal goitre. *J Am Med Assoc* 1957;163:527-529.
4. Maruotti RA, Zannini P, Viani MP, Voci C, Pezzuoli G. Surgical treatment of substernal goiters. *Int Surg* 1991;76:12-17.
5. Chakraborty KL, Sripathy G, Sekhri T. Imaging in a case of thyrotoxicosis. *In J of Nuc Med* 2005;20:14-16.
6. Bernadette Biondi, Emiliano Antonio Palmieri, Michele Klain, Martin Schlumberger, Sebastiano Filetti, Gaetano Lombardi. Subclinical hyperthyroidism: clinical features and treatment options. *European Journal of Endocrinology* 2005;152:1-9.