

## Case Report

## Open Access

# Eggshell calcification after intrathyroidal hemorrhage of retrosternal thyroid

Mehmet Fatih Yuzbasioglu<sup>\*1</sup>, Mesut Ozkaya<sup>2</sup>, Fikret Ezberci<sup>1</sup>,  
Nimet Senoglu<sup>3</sup> and Betul Kizildag<sup>4</sup>

Address: <sup>1</sup>Department of General Surgery, Kahramanmaraş Sutcu Imam University, Medical Faculty, Kahramanmaraş, Turkey, <sup>2</sup>Department of Endocrinology and Metabolism, Kahramanmaraş Sutcu Imam University, Medical Faculty, Kahramanmaraş, Turkey, <sup>3</sup>Department of Anesthesiology and Reanimation, Kahramanmaraş Sutcu Imam University, Medical Faculty, Kahramanmaraş, Turkey and <sup>4</sup>Department of Radiology, Kahramanmaraş Sutcu Imam University, Medical Faculty, Kahramanmaraş, Turkey

Email: Mehmet Fatih Yuzbasioglu\* - [f\\_yuzbasioglu@hotmail.com](mailto:f_yuzbasioglu@hotmail.com); Mesut Ozkaya - [mesutozkaya@hotmail.com](mailto:mesutozkaya@hotmail.com); Fikret Ezberci - [fiko4@yahoo.com](mailto:fiko4@yahoo.com); Nimet Senoglu - [nimetsenoglu@hotmail.com](mailto:nimetsenoglu@hotmail.com); Betul Kizildag - [betul@hotmail.com](mailto:betul@hotmail.com)

\* Corresponding author

Published: 25 May 2008

Received: 29 April 2008

Cases Journal 2008, 1:11 doi:10.1186/1757-1626-1-11

Accepted: 25 May 2008

This article is available from: <http://www.casesjournal.com/content/1/1/11>

© 2008 Yuzbasioglu et al; licensee BioMed Central Ltd.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## Abstract

We report a rare event of old hemorrhage into a thyroid causing respiratory distress. A 67-year-old man with chronic cough and recent dysphagia was found to have a retrosternal mass extending into the visceral mediastinum on chest roentgenogram. A computed tomographic (CT) scan confirmed eggshell calcification, which was 53 × 53 × 80 mm in size a retrosternal thyroid mass and revealed significant tracheal deviation to the right due to an extensive mass surrounded by a calcificated capsule in the left lobe of the thyroid gland with extension to the upper mediastinum. He successfully underwent left lobectomy of the thyroid gland with sternotomy. The pathological examination revealed intrathyroidal hemorrhage of the thyroid gland with massive intracystic old bleeding.

## Introduction

Eggshell calcification is one of the three patterns of intrathyroidal calcification. Others are dystrophic calcification, and fine stippled psammomatous calcification [1]. Calcification within the thyroid gland is not uncommon, and its presence has been reported in up to 21% of plain X-rays [2]. Generally, eggshell calcification is seen in benign nature, but this type of calcification has been reported in one case report associated with follicular thyroid carcinoma [3].

Hemorrhage into the thyroid has been well reported in the literature but eggshell calcification because of old haemorrhage is rare. We presented an unusual eggshell calcification retrosternally on the chest roentgenogram.

## Case Presentation

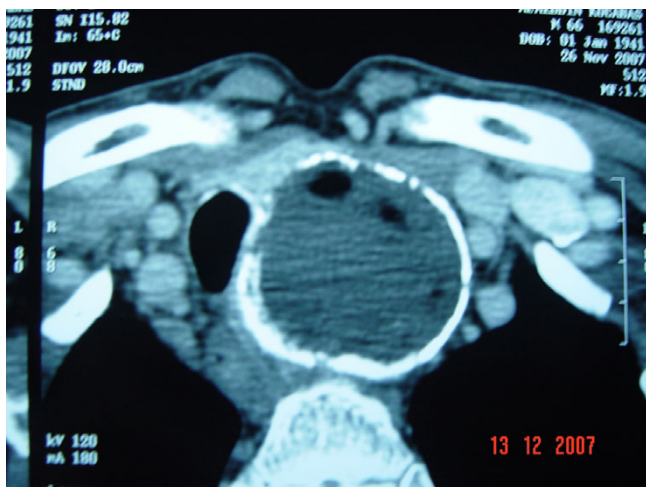
A 67-year-old male patient was investigated for nonproductive cough associated with dyspnea and recent dysphagia for solid foods. Clinical examination revealed tracheal deviation to the right side. Chest roentgenogram demonstrated an eggshell calcified mass to the left of the midline in the upper mediastinum pushing the trachea rightward (Figure 1). Computed tomography (CT) scan with intravenous contrast demonstrated an extensive mass surrounded by a calcification downside of the left lobe of the thyroid gland with extension to the upper mediastinum and significant tracheal deviation to the right (Figure 2). The mass was 53 × 53 × 80 mm in size. Angio-CT demonstrated that no communicated vessel with the mass. Tc-99m pertechnetate thyroid scan demon-



**Figure 1**  
Chest roentgenogram demonstration of an eggshell calcified mass.

strated a mass at the bottom of the left lobe in the thyroid gland with low uptake (0.1%, normal range: 0.5% to 3.50%) corresponding to the radiological demonstrated mass (Figure 3). Because of low uptake in thyroid scan, it was reported as thyroiditis.

In his previous medical history, he had cerebral hemorrhagic stroke in year 2000. His physician prescribed acetylsalicylic acid 100 mg (Coraspin 100 mg, Bayer). After a gastrointestinal bleeding, he left using acetylsalicylic acid with his physician recommendation. But he was not aware of an acute swelling in thyroid region and acute respiratory distress at the gastrointestinal bleeding term.



**Figure 2**  
CT scan demonstration of a calcified mass downside of the left lobe of the thyroid gland.

The WBC was 8300/L (normal, 3500–9700); hemoglobin was 12.0 g/dL (normal, 11.2–15.2); platelet count was  $241 \times 10^3$  K/uL (normal,  $142 - 424 \times 10^3$ ). Prothrombin time and partial thromboplastin time were 84% (normal, 80 – 120) and 26.9 second (normal, 26.0 – 38.0), respectively. Thyroid profile results demonstrated TSH of 1.25  $\mu$ IU/mL (normal, 0.4 – 4.0); free T3, 2.18 pg/mL (normal, 1.8 – 4.3); free T4, 0.975 ng/mL (normal, 0.2 – 1.9); thyroglobulin in blood, 24 ng/mL (normal, 0 – 55).

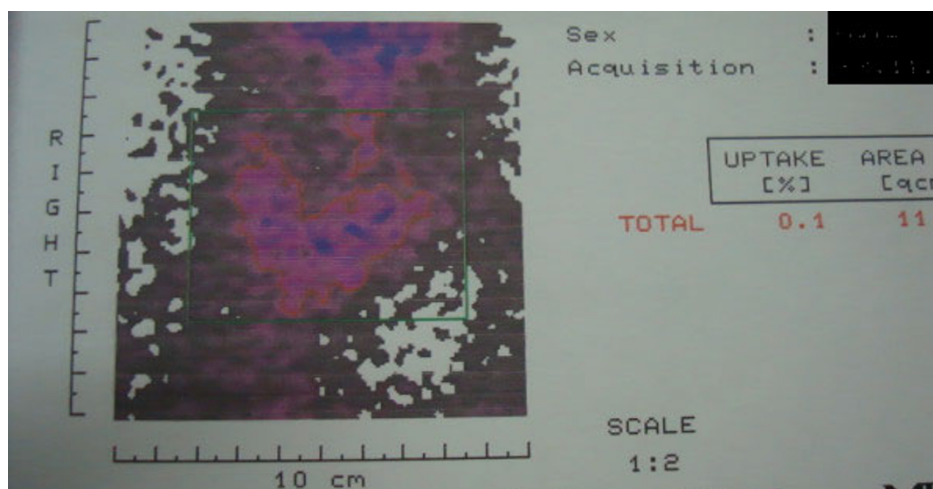
He was taken to surgery for thyroid exploration. The operative findings were that the left lobe of thyroid gland was swollen, tense, and calcificated, expanding to the superior mediastinum, whereas the right lobe was normal. Left lobectomy was successfully performed with sternotomy (Figure 4). On gross examination, the cut surface of resected lobe revealed a distinct yellow- brown muddy content, 8 cm in greatest diameter, located in the whole of the left thyroid gland (Figure 5). A rim of the calcification in the periphery was apparent (Figure 6). The pathological examination revealed eggshell calcification of the thyroid gland with old massive intrathyroidal bleeding. He recovered uneventfully. He was discharged in good condition on the 3rd postoperative day. Three months after the operation, the thyroid function was normal.

## Discussion

First report of hemorrhage into the thyroid gland is described by Simon in 1894. To date reported cases about haemorrhage into thyroid was caused by trauma, cervical hyperflexion, a manual blow to the back of the head, lifting a heavy weight, straining at defecation, and even during household work [2]. And to date eggshell calcification in thyroid gland was reported but none of them was caused after intrathyroidal hemorrhage as in our case report.

This case is unusual in that eggshell calcification of intrathyroidal hemorrhage was located in the retrosternal, a finding not previously reported in the English literature. Ring-shaped calcifications may simulate the eggshell appearance. These include aneurysms of the great vessels, parathyroid tumors, pulmonary arteries in pulmonary arterial hypertension, thymic cysts, and thyroid tumors [4]. We had performed angio-CT for communications of vessel with the mass. Angio-CT was reported as no communications occurred with the mass.

Bleeding is the most frequent complication of oral acetylsalicylic acid therapy. The most common locations for bleeding include gastrointestinal and genitourinary tracts. Platelet inhibition via acetylsalicylic acid can increase the risk of bleeding but it is used safely in cardiovascular diseases and stroke [5]. Our patient had no underlying coagulopathy except that he had acetylsalicylic acid usage for

**Figure 3**

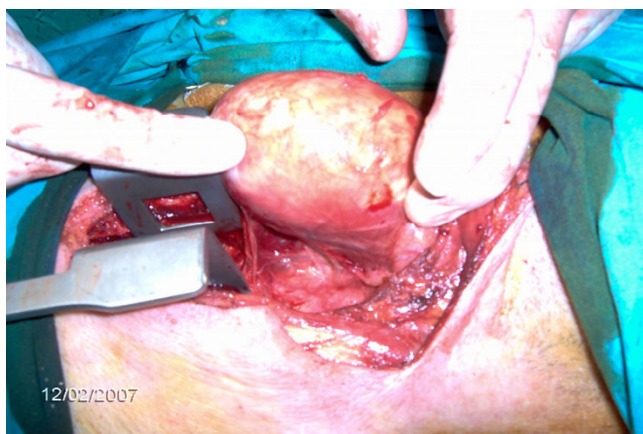
Tc-99m pertechnetate thyroid scan demonstrated a mass at the bottom of the left lobe in the thyroid gland with low uptake.

two years the gastrointestinal bleeding episode. It is possible, although unlikely, that a mild coagulopathy from aspirin ingestion predisposed him to this event. But in our case, we could not predict that acetylsalicylic acid usage was the main cause of intrathyroidal bleeding.

Eggshell calcification of thyroid is rare and only three cases have been reported. One was an ultrasonic appearance of an eggshell calcification of a thyroid nodule reported in 1978 by Gooding GA [6], other was eggshell calcification in follicular thyroid carcinoma reported in 2005 by Cheng SP and et al [3]. The last and recent one was double eggshell calcification in thyroid in 2007 by Vandemergel X [7].

Egg-shell calcification is one of the patterns of dystrophic calcifications and is often associated with multinodular goiters [8]. It was generally thought to be an indicator of benignancy [8], however, cases of papillary carcinoma [4] and undifferentiated carcinoma [9] associated with this type of calcification have been reported. In Taki S et al series, 43% (6/14) of this type of calcification was associated with cancer, and all of them were papillary carcinoma [10].

Typical benign nodules are well defined, mostly cystic, and hyperechoic relative to adjacent parenchyma (96% benign). These nodules have eggshell calcification and a

**Figure 4**

Left lobectomy with sternotomy.

**Figure 5**

The cut surface of resected lobe revealed a distinct yellow-brown muddy content.





**Figure 6**  
The calcification in the periphery.

thin, echolucent halo around the entire lesion, and they always contain internal debris. Lesions demonstrating eggshell calcification and a thin echolucent halo around the entire lesion are most often benign. Some authors have found that the halo sign is present in 21–33% of thyroid cancers. But Cheng SP considered that type of thyroid calcification is not a good indicator of benignancy [3].

### Conclusion

In conclusion, this is the first report on an eggshell calcification in intrathyroidal hemorrhage with unknown etiology. The cause of the intrathyroidal hemorrhage could not firmly be delineated, although it remains possible that an unusual trauma triggered this rare medical condition.

### Consent

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

### Authors' contributions

MFY carried out the operation, the design of the study and drafted the manuscript, FE participated in operation part, MO was involved the clinical preparation of the patient, NS conducted anesthesia of the operation, BK carried out the preparation of radiological findings. All authors read and approved the final manuscript.

### References

1. Khoo ML, Asa SL, Witterick IJ, Freeman JL: **Thyroid calcification and its association with thyroid carcinoma.** *Head Neck* 2002, **24**:651-5.
2. Komolafe F: **Radiological patterns and significance of thyroid calcification.** *Clin Radiol* 1981, **32**(5):571-5.
3. Cheng SP, Lee JJ, Lin J, Liu CL: **Eggshell calcification in follicular thyroid carcinoma.** *Eur Radiol* 2005, **15**(8):1773-4.

4. Park CH, Rothermel RJ, Judge DM: **Unusual calcification in mixed papillary and follicular carcinoma of the thyroid gland.** *Radiology* 1976, **119**:554.
5. Grace RH, Shilling JS: **Acute haemorrhage into the thyroid gland following trauma and causing respiratory distress.** *Br J Surg* 1969, **56**(8):635-7.
6. Gooding GA: **Ultrasonic appearance of a thyroid nodule invested in eggshell calcification.** *J Clin Ultrasound* 1978, **6**(1):41-3.
7. Vandemergel X, Jaumotte C, Renneboog B: **Image of the month. Double eggshell calcification.** *Rev Med Liege* 2007, **62**(2):66.
8. Bruneton JN, Livraghi T, Marcy PY, Tramalloni J, Tranquart F: **Thyroid gland.** In *Medical radiology. Radiological imaging of endocrine diseases* Edited by: Bruneton JN. Berlin: Springer-Verlag; 1999:145-58.
9. Vestini F, Di Gaetano P, Vigna E, Pascoli A, Cacciari M: **Anaplastic thyroid carcinoma in a 49 year-old woman with a long-standing goiter: A case report.** *Minerva Endocrinol* 2000, **25**:81-3.
10. Taki S, Terahata S, Yamashita R, Kinuya K, Nobata K, Kakuda K, Kodama Y, Yamamoto I: **Thyroid calcifications: sonographic patterns and incidence of cancer.** *Clin Imaging* 2004, **28**(5):368-71.

Publish with **BioMed Central** and every scientist can read your work free of charge

"BioMed Central will be the most significant development for disseminating the results of biomedical research in our lifetime."

Sir Paul Nurse, Cancer Research UK

Your research papers will be:

- available free of charge to the entire biomedical community
- peer reviewed and published immediately upon acceptance
- cited in PubMed and archived on PubMed Central
- yours — you keep the copyright

Submit your manuscript here:  
[http://www.biomedcentral.com/info/publishing\\_adv.asp](http://www.biomedcentral.com/info/publishing_adv.asp)

