



Mönckeberg's Medial Sclerosis of the Thyroid: An Unusual Case Presentation

ABSTRACT

Mönckeberg sclerosis (MS) is an idiopathic and non-inflammatory vascular disease. It is characterized by calcification of the medium layer of muscle arteries. In contrast to atherosclerosis, MS does not cause narrowing of the vessel wall. In this study, we present a rare case who underwent total thyroidectomy due to Graves' Disease, and whose histopathological examination revealed the diagnosis of Mönckeberg Medial Sclerosis.

Keywords: Cardiovascular events, Mönckeberg's sclerosis, thyroid

Mönckeberg sclerosis, a vascular disease identified initially in 1903, is characterized by calcification of the medial layer of muscle arteries (1). Although it typically affects persons over 50 years of age who have type 2 diabetes and chronic kidney disease, it can also affect younger people who do not have any concomitant conditions. It is often found in peripheral arteries, giving rise to "pipestem" arteries (2). It usually does not cause clinical symptoms because, unlike atherosclerosis, it does not cause narrowing of the vascular lumen (3).

In this study, we present a patient who underwent total thyroidectomy due to Graves' Disease at Ankara Etilik City Hospital and was diagnosed with Mönckeberg Sclerosis as a result of the histopathological examination of the excised specimen.

CASE

A 50-year-old female patient has been under follow-up for Graves' Disease for two years. She presented to the Internal Medicine clinic with complaints of palpitations and weight loss. The patient did not have diabetes mellitus or chronic kidney disease. She had no known comorbidities.

There were no pressure symptoms or ophthalmopathy. Medical treatment was started for hyperthyroidism, and the patient was using propylthiouracil regularly for 6 months.

The physical examination was normal. Goitre or palpable nodules were not detected during the physical examination. Laboratory findings showed hyperthyroidism. Thyroid Stimulating Hormone (TSH): 0.26 mIU/L, Free T4: 2.14 ng/dL, Free T3: 6.55 ng/L, TSH Receptor Blocking Antibody (TRB): 11 IU/L

Ultrasound findings revealed the right lobe size of 20x32x44 mm. There was an isoechoic nodule measuring 6x5x6 mm. The size of the left lobe was 17x17x40 mm. There was a hypoechoic nodule measuring 2x3x3 mm in superior-anterior diameters, and a nodule with mixed echogenicity, measuring 7x8x9 mm, located in the middle. The size of the isthmus was 4 mm. The parenchyma was observed to have an extremely heterogeneous appearance. Parenchymal echogenicity was decreased. Fibrous bands and pseudonodular appearance were present in some places within the parenchyma. No lymph nodes of pathological shape and size were observed in either cervical anterior chain.

The patient underwent total thyroidectomy. Histopathologically, Mönckeberg sclerosis was reported. Mönckeberg's medial calcific sclerosis is seen in this artery to the right of thyroid tissue. This finding occurs most often in the elderly. Small muscular arteries in the pelvis, neck, and breast regions can be affected. Calcium deposits are mainly found in the media

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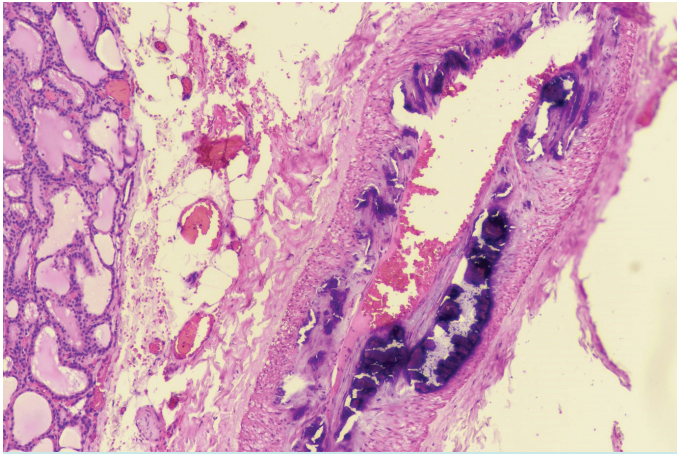


Figure 1. Calcium deposits mainly collect in the media of muscular arteries and as well both the media and internal elastic lamina are involved.

of muscular arteries. Some authors think that the media and internal elastic lamina are both involved (Figure 1). In addition to the obvious medial calcification, there is calcification of the internal elastic lamina (Figure 2).

The patient was consulted to the cardiology and cardiovascular surgery to rule out any comorbid-related diseases. The patient had no vascular or cardiac-related disease. The patient was discharged uneventfully after the second day of the operation.

DISCUSSION

The tunica media layer of the arteries to the extremities or visceral organs becomes dystrophically calcified in Mönckeberg's medial calcific sclerosis (4). The uterine, breast, and thyroid arteries in women have also been frequently mentioned, despite the fact that it was initially noticed in the lower limb arteries of aged men (5). According to Kröger et al. (6)'s study, its incidence in society was 6.9% for women and 13.3% for men. Despite the fact that its cause is unknown, Sato et al. (7)'s study provided evidence that physiological thyroid hormone concentration directly promotes MGP (Mönckeberg) gene expression in cells of smooth muscles via thyroid hormone nuclear receptors, preventing vascular calcification in vivo. In line with these findings, we have to mention that our patient had hyperthyroidism.

Mönckeberg sclerosis is thought to cause the loss of arterial flexibility, isolated systolic hypertension, hypertrophy of the left ventricle, and decreased myocardial perfusion, even though it was once assumed to be a harmless condition (8). MS-related decrease in arterial elasticity raises cardiovascular morbidity and mortality similar to non-insulin-dependent diabetes (9). Other areas of calcification should be carefully investigated, considering the rise in cardiovascular morbidity in people with this illness. To fully comprehend the connection between the thyroid gland, vascular calculi, and the related general disease, more research is required (10).

CONCLUSION

This case report is an unusual presentation of Mönckeberg sclerosis of the thyroid with hyperthyroidism. The diagnosis was con-

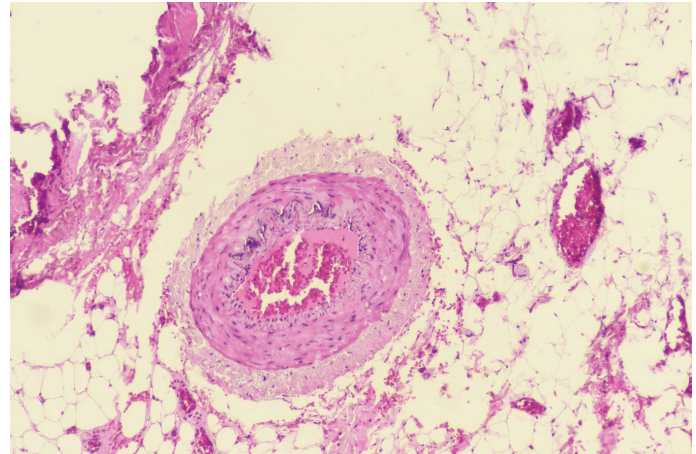


Figure 2. Early stages of calcification of the internal elastic lamina.

firmed with a pathological investigation of the surgical thyroidectomy specimen. Depending on the preponderance of the diseased areas, Mönckeberg sclerosis is a chronic degenerative disorder that affects the arteries and has a variety of clinical symptoms. People who are predisposed to systemic illnesses like diabetes and chronic kidney disease are more likely to develop the disease. Differential diagnosis is challenging because the condition is uncommon and asymptomatic.

Given that Mönckeberg sclerosis increases cardiovascular mortality and morbidity, additional testing should be conducted on patients who have a histological diagnosis of the condition to see if other large arteries are also involved.

Informed Consent: Written informed consent was obtained from the patients who agreed to take part in the study.

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