

## Atrial Septal Defect and Retrosternal Toxic Goitre Operated in the Same Session: A Case Report

Mustafa Kemal Demirag, MD,<sup>1</sup> Koray Topgöl, MD,<sup>2</sup> Atilla Sarac, MD,<sup>1</sup>  
and Hasan Tahsin Keceligil, MD<sup>1</sup>

**In this study, we present a 55-year-old female patient who suffered from atrial septal defect (ASD) and retrosternal toxic goitre simultaneously. The patient had been treated with a 300 mg/day dose of propylthiouracil for 20 days prior to operation. This patient has been operated on for both disorders and has recovered. (Ann Thorac Cardiovasc Surg 2007; 13: 272–274)**

**Key words:** atrial septal defect, retrosternal goitre

### Introduction

Both atrial septal defect (ASD) and retrosternal toxic goitre are frequently observed in clinics. The surgical treatment of these diseases are carried out successfully with low rates of mortality and morbidity. We have decided to present this case because there are no studies in literature about the operations of ASD and total thyroidectomy conducted simultaneously, despite the rare studies about patients on whom coronary bypass and total thyroidectomy have been performed simultaneously.

### Case Presentation

A 55-year-old female patient applied to our hospital with complaints of palpitation, breathing difficulty, and aches in the chest and back. The patient also suffered from loss of weight and lack of appetite. Anamnesis revealed that the patient had been suffering from goitre for 10 years and that she had been using propylthiouracil (Propycil). Blood pressure was 150/100 mmHg, pulse rate was 76/min, breathing was 22/min, and body temperature was 36.5°C. On auscultation, a grade 2–3/6 systolic ejection murmur was detected at the main pulmonary area. Hemoglobin

was 12.7 g/dL, leucocyte was 7,300/mm<sup>3</sup>, and thrombocyte was 208,000/mm<sup>3</sup> in the laboratory examinations. The urine examinations revealed hematuria and proteinuria. The chest roentgenography showed the cardiothoracic index as 0.60, and the cardiothoracic sinuses were open. The echocardiography (ECG) revealed 60/min of heart rate with sinus rhythm and an incomplete right bundle branch block.

Thyroid ultrasonography detected an extensive increase in the dimensions of the left lobe (73×56×46 mm), retrosternal extension, and a solid nodule covering the entire left lobe. The chest-computerized thorax tomography revealed that both lobes of the thyroid gland extended into the anterior mediastinum of the retrosternal region with a dimension of 4×7 cm. The tracheal lumen was significantly narrowed by the extended thyroid gland (Fig. 1). The ECG showed that the ventricular septum was slightly hypokinetic; that the right ventricle, right atrium, and left atrium (49 mm) were dilated; and that there was a shunt from left to right in the interatrial septum (ASD). Qp/Qs was 2.57, and grade 1 insufficiency was detected in the tricuspid and mitral valves. Coronary angiography revealed normal coronary arteries, and cardiac catheterization showed an ASD with Qp/Qs of 2.45. Pulmonary arterial pressure was measured as 45 mmHg. Afterward, the council of Surgery, Cardiology and Cardiovascular Surgery decided on an operation. Because a median sternotomy might be required as a result of the retrosternal goitre, we decided to perform both operations simultaneously after having the patient euthyroid. The patient, for whom The Clinic of Surgery arranged medical treat-

*From Departments of <sup>1</sup>Cardiovascular Surgery and <sup>2</sup>Surgery, Ondokuz Mayıs University Medical School, Samsun, Turkey*

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Address reprint requests to Hasan Tahsin Keceligil, MD: Department of Cardiovascular Surgery, Ondokuz Mayıs University Medical School, 55139, Samsun, Turkey.



**Fig. 1.** Computerized thorax tomography cross sections revealed that both lobes of the thyroid gland were extending in the mediastinum anterior.

ment, used Propycil 300 mg/day for 3 months.

After the thyroid function regained normal state, the patient was operated on. Median sternotomy was applied to the patient. Following the control of hemorrhage, the surgeons applied Kocher's incision for thyroidectomy. The left thyroid lobe extended toward the retrosternal region with a dimension of 10×15 cm, and the right lobe was multinodular. Intracapsular bilateral total thyroidectomy was applied. Following the control of hemorrhage, a piece of sponge was placed on the skin without closing it, and open heart surgery was commenced. We conducted the cardiopulmonary bypass by aortic-bicaval cannulation. We opened the right atrium and detected an ASD 3 cm in diameter. It was repaired with a Pericard patch, which we applied using a continuous technique and 4/0 polypropylene suturing material. Sufficient protamine was provided after completing deaeration and decannulation. Figure 2 presents the case after both operations. When the hemorrhage was controlled, the incisions of thyroidectomy and the chest wall were closed successively, and the patient was transferred to the intensive care unit. The patient, who had been extubated on the 4th postoperative hour, was transferred to the general ward on the following day. She was discharged on the 6th day and exhibited

no problems during the 6-month follow-up period.

## Discussion

The thyroid hormone has important effects on the cardiovascular system.<sup>1)</sup> When it is applied, a decrease in systemic vascular resistance and heart contractility and an increase in cardiac output are observed.<sup>1-4)</sup>

Thyroid disease is observed with a rate of 11% in either coronary or valvular cardiac patients.<sup>5)</sup> Thyroid dysfunction affects cardiovascular physiology. This effect is related to myocardial contractility, heart rate, cardiac output, and peripheral arterial reactivity.<sup>6)</sup>

The combination of cardiac surgery and thyroidectomy is rare in the literature. All case presentations concern thyroidectomy operations combined with either coronary or valvular surgery.<sup>7-9)</sup> The MEDLINE scan, which we have conducted, yielded no studies related to the combination of ASD and thyroidectomy.

The literature suggests the combination of thyroid surgery and cardiac surgery. The anatomical location of thyroid and heart enables a combined operation.<sup>7)</sup> The cumulative risk is less in the combined operation in comparison with that of a two-stage operation.<sup>8,9)</sup> One advan-



**Fig. 2.** The real image of the anterior portion of the trachea and mediastinum after both operations.

tage of the combined operation is that it does not require a second operation.<sup>9)</sup> There is a risk of thyrotoxicosis in the perioperative period when the cardiac surgery is performed prior to thyroidectomy. In our case, the simultaneous presence of goitre and the retrosternal growth of the thyroid gland significantly induced the combined operation. On the other hand, the thyroidectomy conducted prior to cardiac surgery may lead to an unstable cardiac function disorder, arrhythmia, and myocardial infarction in the perioperative period.<sup>8)</sup>

It is crucial to sustain the thyroid functions at the euthyroid or hypothyroid level in patients of hyperthyroidism in the perioperative period. It springs from

hyperthyroidism, which is observed after the cardiac surgery, perhaps leading to arrhythmia, fever, and an increased consumption of oxygen in tissues.<sup>10)</sup>

The anatomical location of the heart and thyroid enables a combined surgery.<sup>7)</sup> It was observed that a full-dosage of heparinization did not increase hemorrhage in the areas of surgical operation provided that a diligent hemostasis is conducted. Leaving the area of thyroidectomy open enables the follow-up of a possible hemorrhage in this area during cardiac surgery.<sup>7)</sup> Therefore the closing of thyroidectomy loge should be carried out at the end of the operation.

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