

Diagnosis of Post-Total Thyroidectomy Hypocalcaemia By An Ophthalmologist

Total Tiroidektomi Sonrası Gelişen Hipokalseminin Göz Doktoru Tarafından Tanımlanması

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ABSTRACT

To present a case of profound hypocalcaemia associated with the development of bilateral cataracts after total thyroidectomy. A 33-year-old woman applied to our clinic because of vision loss for 8 months. She had also mild paresthesia in distal extremities. Preoperative calcium level was 8.0 mg/dl (Reference Range: 8.6-10), thyroid stimulating hormone was 0.628 IU/ml (Reference Range: 0.4-4), free T4 was 1.12 ng/dl (Reference Range: 0.89-1.76), free T3 was 4.13 pg/ml (Reference Range: 1.8-4.7) and parathyroid hormone was 8pg/ml (Reference Range: 16-87 pg/ml). The patient was clinically euthyroid but parathyroid hormone level was low. Uncorrected visual acuity in both eyes were 0.016. Biomicroscopic examination revealed symmetric complete cortical cataract in both eyes. Patient had not taken sufficient treatment for hypocalcemia till she came to our hospital. After treatment, her paresthesia symptoms improved. It is very important not to overlook hypocalcaemia diagnosis which is a rare cause of cataract even without any obvious systemic symptoms. Ophthalmologists can be the first doctors that diagnose hypocalcaemia as in our case. Especially young patients presenting with cataract should be questioned about thyroid surgery and also checked for calcium levels.

Key Words: Hypocalcemia, hypoparathyroidism, cataract, total thyroidectomy.

ÖZ

Bu çalışmada total tiroidektomi sonrası çift taraflı katarakt gelişimi ile ilişkili hipokalsemi olgusunu sunmayı amaçladık. Otuzüç yaşında kadın hasta 8 aydır olan görme azlığı şikâyetiyle kliniğimize başvurdu. Aynı zamanda distal ekstremitelerde hafif parestezi mevcuttu. Katarakt cerrahisi öncesinde kalsiyum seviyesi 8.0 mg/dl, tiroid stimulan hormon seviyesi 0.628 IU/ml (Referans Aralığı: 0.4-4), serbest T4 seviyesi 1.12 ng/dl (Referans Aralığı: 0.89-1.76), serbest T3 4.13 pg/ml (Referans Aralığı: 1.8-4.7) ve paratiroid hormonu seviyesi 8 pg/ml idi (Referans Aralığı: 16-87 pg/ml). Hasta klinik olarak ötiroid idi fakat paratiroid hormon seviyesi düşüktü. Düzeltilmiş en iyi görme keskinliği 0.016 seviyesindeydi. Biyomikroskopik muayenesinde bilateral simetrik kortikal katarakt tespit edildi. Hasta bize başvurana kadar yeterli tedavi almıyordu. Tedavi sonrasında parestezi semptomlarında düzelme oldu. Belirgin sistemik semptomlar yokluğunda dahi hipokalsemi tanısını atlamamak çok önemlidir. Göz doktorları, bizim vakamızda olduğu gibi hipokalsemi tanısı koyan ilk doktorlar olabilirler. Özellikle katarakt ile başvuran genç hastalar tiroid cerrahisi açısından sorgulanmalı ve ayrıca kalsiyum seviyeleri kontrol edilmelidir.

Anahtar Kelimeler: Hipokalsemi, hipoparatiroidizm, katarakt, total tiroidektomi.

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INTRODUCTION

Removing total or partial thyroid tissue because of inflammatory, functional diseases, tumor of the thyroid gland and for cosmetic reasons, is called thyroidectomy.¹ While eliminating the disease with various surgical procedures, it is very important to minimize post-operative complications.^{2,3} In thyroid surgery, parathyroid glands are structures that relevant to trauma directly or indirectly.⁴ Permanent hypoparathyroidism is a rare complication that can develop during thyroid surgery depending on the type of operation and the underlying thyroid pathology. Permanent hypoparathyroidism can be seen in 0.5-2.9% of patients undergoing bilateral subtotal resection and 33% of patients undergoing total thyroidectomy. Permanent hypoparathyroidism causes the patient need for lifetime drug use and some other complications.⁵⁻⁷ One of these complications of chronic hypocalcaemia is cataract formation.

In this report we present a case of profound hypocalcaemia that presented eight years after total thyroidectomy which was associated with the development of bilateral cataracts.

CASE REPORT

A 33-year-old woman was referred to our clinic because of vision loss for 8 months. Patients' past medical history included total thyroidectomy 8 years previously for a large multinodular goiter. She was using L-thyroxin routinely but was not using the calcium (Ca) preparation. Bloods taken just before the cataract surgery showed Ca 8.0 mg/dl (Reference Range (RR) 8.6-10), thyroid stimulating hormone 0.628 uIU/ml (RR 0.4-4), free T4 1.12 ng/dl (RR 0.89-1.76), free T3 4.13 pg/ml (1.8-4.7) and parathyroid hormone (PTH) levels were 8 pg/ml (RR: 16-87 pg/ml). These results showed us that the patient was clinically euthyroid but PTH level was low. The results were consistent with hypocalcaemia

secondary to hypoparathyroidism, presumably due to removal or damage to the blood supply of the parathyroid glands during thyroidectomy. She told that she had been suffering from intermittent paresthesia in distal extremities. No evidence was found of any other systemic disease. With these results the patients' diagnosis was iatrogenic partial hypoparathyroidism. It was likely that chronic hypocalcaemia contributed to the development of cataract in this patient.

Patient underwent a detailed ophthalmic examination including best corrected visual acuity, slit lamp biomicroscopy, fundus examination, A and B-scan ultrasonography (USG). On examination, uncorrected visual acuity in both eyes was 0.016. The intraocular pressure with air puff applanation tonometry was 14 mmHg in right eye and 15 mmHg in left eye. Slit lamp examination revealed symmetric complete cortical cataract in both eyes. (Figure 1,2) Fundus examination could not be done because of cataract. In B-Scan USG there was no obvious pathology in posterior segment. Phacoemulsification and intraocular lens implantation for right eye was planned and surgery decision was made with the patient after informing the patient about all the risks of cataract surgery. Written informed consent was obtained from the patient.

Routine phacoemulsification surgery was done in the right eye under general anesthesia and there was no complication during the surgery. General anesthesia was preferred because of her anxiety and surgery of the left eye was postponed because of the patient's pregnancy. At postoperative first day the patients BCVA was 0.7, biomicroscopic examination revealed a trace amount of cellular reaction and fundus examination was normal. At postoperative first month her refraction was +0.50-0.50 170 and BCVA was 1.0 (Figure 3).

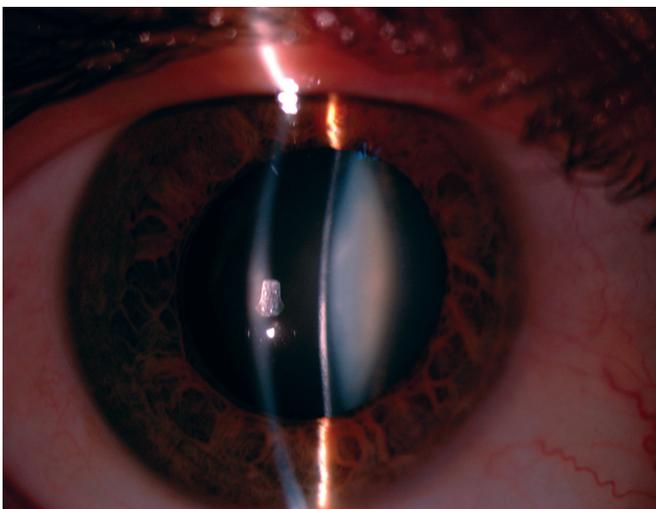


Figure 1: Slit lamp biomicroscopy of right eye.



Figure 2: Biomicroscopy of right eye after cataract surgery.

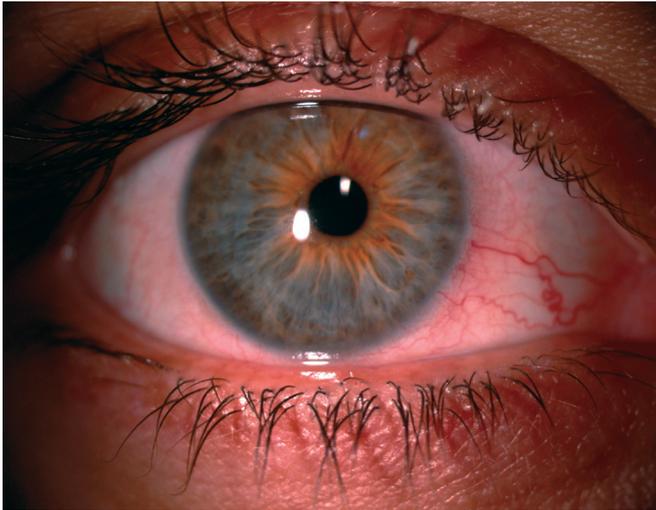


Figure 3: Biomicroscopy of left eye

DISCUSSION

Most important complications of total thyroidectomy are recurrent laryngeal nerve injury and hypoparathyroidism. Hypoparathyroidism with hypocalcaemia can be transient or permanent. Transient hypocalcaemia has been reported at a rate of 5.4-9.7% while permanent one is reported as 0.4%. Permanent hypocalcaemia can cause some important complications like cataract, calcification of basal ganglia and cerebellum, nephrocalcinosis, papilledema and prolonged QT interval. The diagnosis is made by low hypoparathyroid levels, hypocalcaemia, hyperphosphatemia. Symptoms of chronic hypocalcaemia include tetany, confusion, muscle weakness and parasthesiae.⁶⁻⁸ In partial hypoparathyroidism these symptoms can be mild. In our case there were no obvious hypocalcaemia symptoms except intermittent parasthesiae in distal extremities. So the patient did not seek any medical help until she had decrease in vision due to developed cataract. Moreover patient had not been informed about hypoparathyroidism disease after surgery.

Cataract is the most important disease causing 47.8% of blindness worldwide.⁹ There are multiple etiologies of cataract and surgery is the only choice for treatment. Senile cataracts occupy the most important part of cataracts but metabolic cataracts are also very important that can be seen in young patients. Chronic hypocalcaemia is one of the metabolic cataracts which

can be idiopathic or seen as a complication of thyroid surgery. These cataracts are usually seen in anterior and posterior cortex and typically they are bilateral punctate iridescent opacities. However, as in our case, these opacities can progress to complete cortical cataracts.¹⁰ Cataract was treated successfully with phacoemulsification and intraocular lens implantation.

It's very important to diagnose hypocalcaemia even in the absence of any obvious symptoms. Ophthalmologists can be the first doctor that diagnose or give the treatment of the hypocalcaemia as in our case. Our patient had not taken enough treatment till she came to our hospital. After taking appropriate treatment, her paresthesia complaints declined. Young patients presenting with cataract should be questioned about thyroid or parathyroid surgery and also checked for calcium levels. Moreover thyroidectomy patients should be followed up strictly by an internist or by surgeon.

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