



Papillary thyroid carcinoma with metastasis to the temporooccipital skull: a case report

Papiller tiroid karsinomunun temporooksipital kafatası metastazı: Olgu sunumu

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The patient was admitted to our clinic with the complaint of swelling in his left post-auricular region. The medical history revealed that he underwent thyroid surgery eight years ago and the specimen was reported as papillary thyroid carcinoma. Following required analyses, total thyroidectomy and biopsy from mastoid region were performed. Total thyroidectomy specimen was proved thyroid papillary microcarcinomas at five foci of the thyroid gland, while biopsy samples obtained from the mastoid region were reported as metastatic papillary thyroid carcinoma. The patient underwent radioactive iodine, followed by radiotherapy. In this article, we present a 61-year-old male patient with papillary thyroid carcinoma metastatic to the temporooccipital region, accompanied by multiple cranial nerve paralysis.

Key Words: Metastasis; papillary thyroid carcinoma; skull.

Hasta kliniğimize sol post-auriküler bölgedeki şişlik yakınmasıyla başvurdu. Hastanın tıbbi öyküsünden sekiz yıl önce tiroid ameliyatı geçirdiği ve patoloji materyalinin papiller tiroid karsinomu olarak bildirildiği öğrenildi. Gerekli incelemelerden sonra hastaya total tiroidektomi ve mastoid bölgedeki kitleden biyopsi yapıldı. Tiroidektomi materyalinde beş odakta papiller tiroid mikrokarsinomu ve mastoid bölgeden alınan biyopside de papiller tiroid karsinom metastazı saptandı. Hastaya radyoaktif iyot tedavisi sonrasında radyoterapi uygulandı. Bu yazıda, multipl kraniyal sinir paralizisine yol açan ve temporooksipital bölgeye metastaz yapmış olan papiller tiroid karsinomlu 61 yaşında erkek hasta sunuldu.

Anahtar Sözcükler: Metastaz; papiller tiroid karsinomu; kafatası.

Thyroid cancer is the most common malignant tumor of the endocrine system and papillary thyroid carcinomas (PTC) are the most common type of thyroid cancer.^[1,2] They originate from thyroid follicular cells and are characterized by slow growth and an indolent biological behavior with a reported 20-year survival rate as high as 90%.^[1,3,4] The first manifestation of PTC is usually a thyroid nodule or a neck mass and less frequently

metastases in regional lymph nodes such as jugulodigastric and paratracheal nodes.^[2,4,5] Apart from regional lymph node metastases, distant metastases occur rarely in advanced stages of the disease, especially in lungs and bones.^[2,6] Papillary thyroid carcinoma with metastasis to the skull is extremely rare.^[7] So far in the literature a papillary thyroid carcinoma with metastases to the skull base, invading occipital and mastoid bones and

showing intracranial invasion has never been reported. In this article we report such a PTC case with multiple cranial nerve paralysis also.

CASE REPORT

A 61-year-old male was admitted with the complaint of swelling and pain in his left post-auricular region. A detailed past medical history revealed that: he underwent thyroid surgery eight years ago. Apart from the pathology report that showed the specimen was papillary thyroid carcinoma no medical records could be obtained about the past medical history. After that operation, the patient had no medical follow-up and additional treatment. He lived asymptotically up to two years and at this time he noticed a mass that was growing slowly in this left post-auricular region.

On physical examination he had a hard fixed 5x3x3 cm mass, extending from the mastoid to the occipital region (Figure 1). An incision scar extending from mastoid apex to the neck was also present. From the patient's history and medical reports no information about this scar could be obtained. A biopsy may have been taken from this area in his previous thyroid surgery but no medical reports about this matter were obtained.

Cervical ultrasonography revealed absence of the left thyroid lobe while the right thyroid lobe was 32x23x38 mm in size with four nodules inside (largest was 13x11 mm in size). There were a few lymph nodes in left cervical region with the largest being 12x11 mm in size.

Thyroid function tests (T₃, T₄ and TSH) were normal. Computed tomography (CT) revealed a

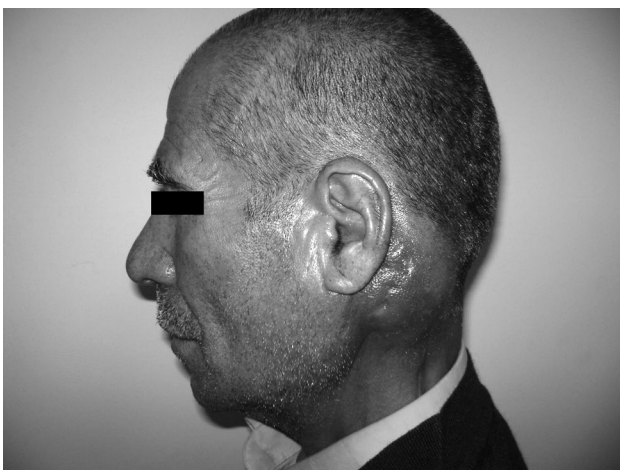


Figure 1. The mass in the postauricular region is seen.

54x55 mm mass in the left mastoid region with mild contrast enhancement, extending to the transverse process of the first cervical vertebra in the neck. It was destroying the mastoid process and lateral part of the occipital bone (Figure 2). Magnetic resonance imaging (MRI) revealed that the mass was located in occipital and retromandibular area. It showed intense heterogeneous contrast enhancement and destruction of the mastoid and occipital bones. Positron emission tomography (PET)-CT scans showed that the mass was 50x50x62 mm in size in the post-auricular region and slightly invading the occipital lobe of the brain. There was no other pathologic involvement in other parts of the body.

After essential preoperative preparations total thyroidectomy was performed under general anesthesia. The total thyroidectomy specimen showed thyroid papillary microcarcinomas in five foci in the thyroid gland and biopsies obtained from the mastoid region were reported as PTC metastasis. Upon neurosurgical consultation, because of the invasions at the dura, cerebellum prestyloid region and first and second cervical vertebrae the metastatic lesions was considered inoperable. Our hospital's oncology council evaluated the patient and radioactive iodine treatment was planned. Twenty-eight days after operation 200 mCi radioactive Iodine-131 was administered orally. His biochemical markers at the time of I-131 treatment were TSH: 68.6 micro international units (μ IU)/mL, Thyroglobuline: 46.2 ng/mL, anti-thyroglobuline

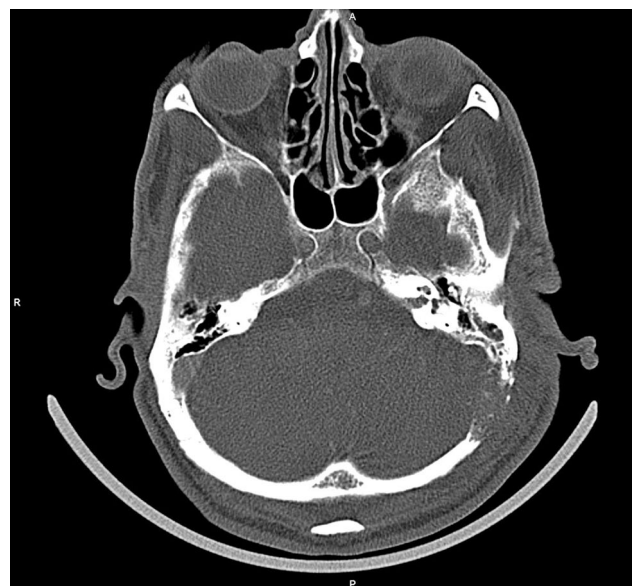


Figure 2. Computed tomography showing the mass that was destructing the mastoid process and occipital bone.

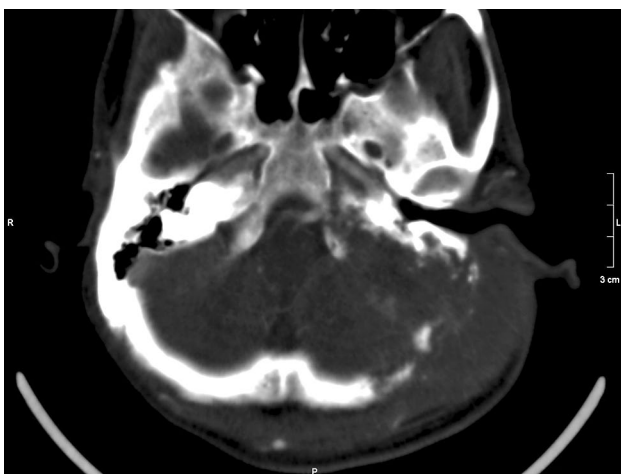


Figure 3. Computed tomography showing the destruction of the great part of occipital and mastoid bone.

>20 U/mL. Seven days after treatment whole body planar I-131 scan was performed. Post-therapeutic I-131 scan revealed focal iodine uptake on thyroid bed and anterior mediastinum and also increased uptake on left post-auricular region.

Twenty days after this treatment the patient was admitted again with the complaint of bleeding from the post-auricular region. The post-auricular mass had reached about 60x60x80 mm in size and there was a fistula over it. The fifth, sixth, ninth, tenth, eleventh and twelfth cranial nerves were paralyzed and the patient had difficulty in swallowing. A CT revealed that the mass was destroying a great part of the occipital and mastoid bone, invading the jugular and stylomastoid foramen and extending to the cerebellopontine angle (Figure 3). External beam radiation therapy (300 Rad per day) and total parenteral nutrition was started. On the 12th day the patient refused treatment and was discharged upon his request. A few days later we learned the patient died.

DISCUSSION

Patients with PTC when adequately treated generally have a good prognosis with a 10-year cancer specific mortality rate of less than <10%.^[8,9] However 10-15% of patients who have differentiated thyroid cancer develop distant metastases.^[9] The presence of metastases is an important prognostic factor that negatively affects survival.^[9] Distant metastases are usually occur in lungs, bones and thoracic lymph nodes and increase the mortality up to 50% in one year.^[3] Metastases to unusual

sites often arise after several years.^[4] In our case, however, the metastasis appeared eight years after the initial surgery.

Distant metastases represent the most frequent cause of thyroid cancer related death. According to Durante et al.^[10] I-131 treatment is highly effective in a selected group of metastatic patients with I-131 uptake. In the other patients when no response is attained after several I-131 treatment courses, I-131 treatment should be abandoned and other treatment modalities used when the tumor progression has been documented. Additional measures may include surgery and/or external beam radiation therapy and gamma knife radiosurgery.^[9,10] According to Hougen and Kane^[11] the goal of therapy for patients with extra cervical metastases should be to improve survival, relieve symptoms, and decrease morbidity. They suggest that patients with progressive metastatic disease should be considered for clinical trials or targeted systemic therapy (sorafenib or sunitinib), although these agents are not Food and Drug Administration (FDA) approved for patients with thyroid cancer.

Post-auricular and skull metastases of PTC are extremely rare and only a few cases have been reported in the literature.^[12] Our review of the literature yielded no PTC case with metastases to the skull base, destroying occipital and mastoid bones, invading intracranial structures and causing multiple cranial nerve paralysis. Therefore, a standard treatment has not been established in these sporadic cases, and the treatment should be individualized. In this case we did not see any decrease in tumor size with radioiodine therapy. In the treatment of such large and bone invading tumors, starting the radiation therapy first may be the most appropriate way of treatment.

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