

Frontal Epidural Metastasis of Follicular Thyroid Carcinoma

Frontal Epidural Folliküler Tiroid Kanseri Metastazı

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Abstract: Papillary-follicular thyroid carcinoma usually remains localized to the thyroid bed, and in cases of metastasis, almost always involves the lungs, bones, or liver. Brain metastasis is rare and there has been no reported case of epidural metastasis of thyroid carcinomas in the literature up to date. A frontal epidural mass lesion was excised and histologically found to be a follicular thyroid carcinoma metastasis.

Key words: Carcinoma, epidural, metastasis, thyroid.

Özet: Tiroidin papiller-folliküler karsinomu çoğunlukla tiroid beziyle sınırlıdır ve metastazları hemen daima akciğer, kemik veya karaciğerde görülür. Beyin metastazı nadirdir, kafa içinde epidural metastaz bildirilmemiştir. Frontal yerleşimli epidural kitle lezyonu saptanarak çıkarılan bir hastamızda histopatolojik inceleme sonucu folliküler tiroid karsinomu olarak bildirilmiştir.

Anahtar sözcükler: Epidural, karsinoma, metastaz, tiroid

INTRODUCTION

Treatment of metastatic brain tumors is still controversial. Thyroid carcinoma metastasis to the brain is rare and surgery alone is not successful. Aggressive surgery and radioactive iodine treatment should be performed. Recurrences are evaluated by serum thyroglobulin levels

CASE REPORT

A 50 year-old female patient presented with complaints of progressive headache and tinnitus. Neurological examination was normal. On plain skull radiographs, erosion of the frontal bone was seen. Computerized tomography (CT) revealed a left-sided frontal epidural mass lesion 7x4x6 cm in size with significant contrast enhancement and frontal bone erosion (Figure 1). A left frontal craniotomy was performed. The tumor was well vascularized and the dura was involved. During the operation severe bleeding occurred and was controlled by circular

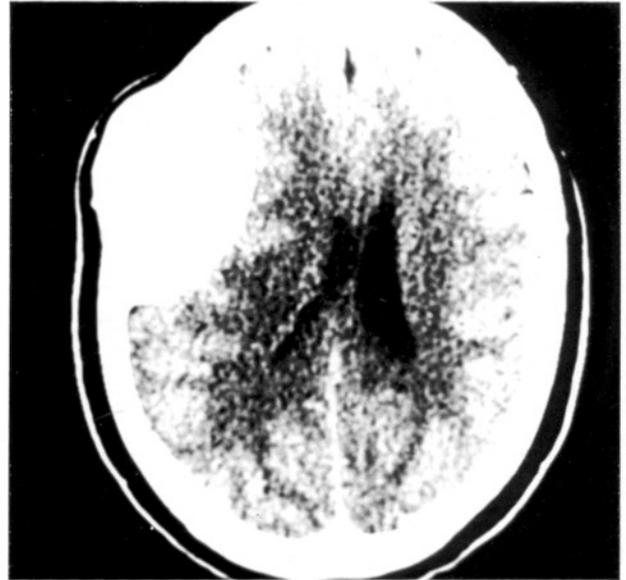


Figure 1: Preoperative CT scan shows a left frontal epidural mass lesion.

dural incision. The tumor was totally excised. There was no sign of subdural invasion. Histopathological examination revealed follicular thyroid carcinoma metastasis (Figure 2). Serum T3, T4 and TSH levels were normal but thyroid scintigraphy showed active nodules, and serum thyroglobulin level was 191 mg/mL (normal values: 0-75 mg/mL). Subtotal thyroidectomy was performed, and histopathological examination revealed follicular thyroid carcinoma (Figure 3). Radioactive iodine (100 mCi I¹³¹) was given. Postoperative thyroid scintigraphy showed minimal enhancement. Bone scintigraphy, chest x-ray, and abdominal ultrasonography showed no evidence of metastases. Throughout the postoperative nine month period, the patient had no neurological deficit and no sign of recurrence. Serum thyroglobulin level was still above normal value, 102 mg/mL.

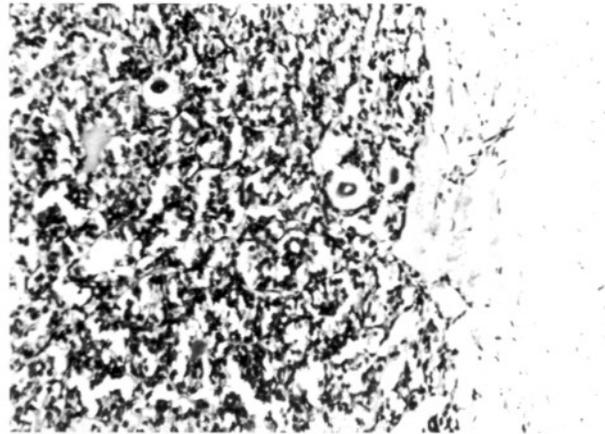


Figure 2: Histologic examination reveals the tumor and the intact dura. (H&E, X10)

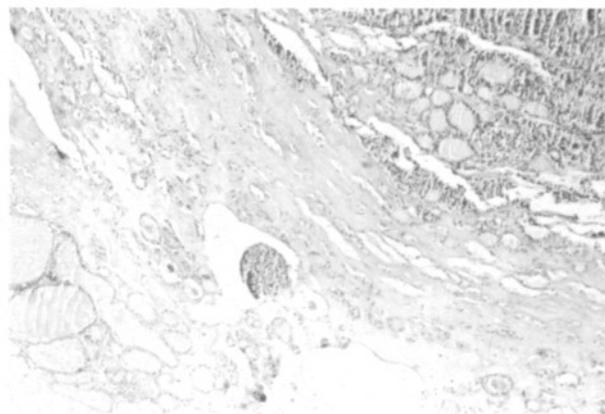


Figure 3: Microscopic appearance of the primary thyroid tumor. Area of the follicular carcinoma (right upper corner) with intravascular invasion and normal areas (left lower corner). (H&E, X100)

DISCUSSION

The incidence of thyroid carcinoma is estimated to be 1/25000 - 1/27000. Although metastasis to the lungs and bones occur commonly, brain metastasis is rare (9). Papillary-follicular thyroid carcinoma usually remains localized to the thyroid bed, and in cases of metastasis almost always involves the lungs, bones or liver. Parker et al. (8), and Venkatesh et al. (9) reported papillary-follicular thyroid carcinoma metastases to the brain parenchyma. Prevalence of brain metastasis in reported series of thyroid carcinoma is summarized in Table I.

Surgery, radioactive iodine treatment, and radiotherapy are the main therapies used in these patients (6,9). An aggressive surgical approach for isolated metastasis may be beneficial (9). We totally excised the intracranial tumor and two months later subtotal thyroidectomy was performed. Radioactive iodine treatment was also given.

Many thyroid carcinomas secrete thyroglobulin, and in the presence of metastasis high concentrations of this marker may be detectable in the serum. Thyroglobulin levels are used as a marker of recurrence during follow-up (1). In this patient, serum thyroglobulin level has increased two-fold at the beginning.

Table I. Prevalence of brain metastases in reported series of thyroid carcinoma

Source	Number of patients	Predominant Tumor Histology	Number of patients with local extension or metastasis to bone lung or liver	Number of patients with brain metastases
Ibanez et al. (5)	12	Papillary	5	1
	4	Follicular	2	0
Harness et al. (4)	260	Papillary	28	0
	73	Follicular	8	0
Mazzafferi et al.(7)	576	Papillary	77	0
Figg et al. (2)	105	Papillary	23	0
	20	Follicular	2	0
Frauenhoffer et al (3)	152	Papillary	27	0
	39	Follicular	7	0
Young et al. (10)	214	Follicular	20	0
Edmonds (1)	128 Total	Papillary	4	1
		Follicular	4	0
Venkatesh (9)	571 Total	Papillary	?	8
		Follicular		1
		Hurthle-cell		2
TOTAL	2154		207	13

Prognosis of thyroid carcinomas is poor in the presence of brain metastasis. Venkatesh et al. reported survival to be between 3-75 months (mean 8 months) from time of diagnosis in eleven cases (9). There was no sign of recurrence in our patient in the postoperative ninth month.

Metastasis of thyroid carcinoma to the brain is rare. Aggressive surgery, and radioactive iodine treatment should be performed. After treatment, serum thyroglobulin level should be checked periodically. Prognosis is poor.

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