Durametastasis of a Differentiated Follicular Adenocarcinoma of the Thyroid under the Clinical Aspect of a Frontal Parietal Convexity Meningioma

A.		Ohnsmann
W.		Sachsenheimer

Neurochirurgische Klinik Mannheim der Universität Heidelberg

Key Words

Durametastasis
Differentiated follicular thyroid carcinoma

Summary

Background: Intradural metastases of thyroid carcinoma occur very rarely. **Material and Methods:** We report about a purely intradurally growing metastasis of a differentiated follicular thyroid carcinoma based on the description of a case. **Results:** CT and cerebral angiography corresponded to a frontal parietal meningioma located next to the cortex. **Conclusion:** The initial tentative diagnosis could be refuted only after the removal of the tumor and the histological examination of the specimen.

A. Ohnsmann, c/o Neurochirurgische Klinik Mannheim der Universität Heidelberg, Theodor-Kutzer-Ufer 1-4, D-68167 Mannheim (FRG)

Schlüsselwörter

Durametastase
Differenziertes follikuläres Schilddrüsenkarzinom

Zusammenfassung

Hintergrund: Intradurale Metastasen des Schilddrüsenkarzinoms werden äußerst selten beobachtet.

Material und Methoden: Anhand einer Fallstudie wird über eine rein intradural wachsende Metastase eines differenzierten follikulären Schilddrüsenkarzinoms berichtet.

Ergebnisse: CT und zerebrale Angiographie deuteten auf ein rechts frontoparietal kortexnahe gelegenes Meningeom hin.

Schlußfolgerungen: Die ursprüngliche Verdachtsdiagnose konnte erst nach Entfernung des Tumors und histologischer Aufarbeitung des Präparats widerlegt werden.

Introduction

Thyroid carcinomas disseminate predominantly in the lung, the bones and, when craniospinal structures are involved, mainly in the vertebral column and in the skull of the cranium [1, 2]. In case of a differentiated type of the primary tumor, involvement of the neuraxon is very rarely observed [3-6]. In the relevant literature only a few cases of exclusive infiltration of the meninges are mentioned [7, 8].

The present case reports on a female patient with a differentiated follicular thyroid carcinoma with purely dural dissemination.

Case History

Our patient was a 62-year-old Turkish woman who had suffered for 15 years from headaches and whose vision had diminished constantly during the last 10 years. She complained about an increasing sensation of dizziness, acute emesis, as well as diminishing physical activity during the last few weeks before hospitalization. One year before she had suffered a myocardial infarction.

Clinical Findings

We diagnosed hypacusia on the right side. No papilledema could be detected. Otherwise we found a normal neurological and internal state. Routine laboratory results, including T3, T4, TSH, were within the limits of normal when the patient was hospitalized.

© 1993 S. Karger GmbH, Freiburg

Surgery and Histology

The total extirpation of the mass has been effectuated by a middle-line craniotomy. During the surgery we saw a tumor, resistant to touch, encapsulated, extending from the dura, repressing but not invading the neighboring corticocerebral structure.

The histological diagnosis was conducted by two independent pathologists (Institute of Pathology, University Clinics Mannheim and Heidelberg). It showed an encapsulated dura metastasis of a well-differentiated follicular thyroid carcinoma.

Postoperatively, after a mobilization without problems, the patient shows no neurological deficiency. For staging of the thyroid tumor, scintigraphy and ultrasound were planned.

Unfortunately the patient died of a myocardial reinfarction before any of these investigations were performed.

Fig. 1. Cranial CT of the patient.

Cranial Computed Tomography (CT)

CT shows a large neoplastic mass, frontal on both sides, slightly accentuated on the right, extended to the parietal zone, maximal dimensions $8 \times 6 \times 5$ cm, massively bone-destructive, sharply delimited, almost homogeneously taking up the contrast medium, discretely calcified, partially growing extracranially (fig. 1).

Cerebral Angiography

Angiography corresponds to a frontal parietal neoplastic mass, located partly intracranially and partly extracranially, with massive pathological vascularization, sharply delimited, persistent up to the venous phases. The feeding occurs primarily through branches of the external carotid artery with a considerably dilated temporal superficial artery, but to a less degree through the cerebral medial artery as well. Angioarchitecturally, this mass corresponds most likely to a meningioma.

Discussion

In this case, the clinical findings, including the hormonal status, gave no indication of the primary disease. The diminishing physical activity registered by the patient shortly before the hospitalization was interpreted as a symptom of an increasing cerebral pressure.

Neuroradiological examinations pointed to a meningioma. In most cases, cranial dissemination of thyroid carcinoma is localized purely osseously. The scattering focus is normally limited to the dura, which is supposed to accomplish the function of a barrier [1, 3, 4]. Cerebrally but also intraspinally growing scattering focuses of the thyroid carcinoma are observed very rarely, as described in the relevant literature. The exclusive invasion of the meninges is registered extremely seldom. Preoperatively, before the definitive diagnosis of the primary tumor, these

scattering focuses show clinically and symptomatically processes with pathological formations which absorb much contrast medium in the CT and angiogram [9]. They indicate much similarity to a meningioma, relative to the vessel structure. A hematogenic dissemination corresponds probably to the reported strong vascularization of these scattering focuses [1,4]. Besides iodine-based diagnostics (angiography and contrast-enhanced CT) which may interfere with scintigraphic staging and even iodine radiotherapy of the primary thyroid tumor, there are no sufficient preoperative tools to exclude meningiomas in such cases. To what extent nuclear magnetic resonance imaging will facilitate a preoperative differential diagnosis in these cases cannot be assessed at present.

References

- Andrews JT, McEneaney MR: Metastatic differentiated carcinoma of the thyroid and radioiodine. *Australas Radiol* 1987;31:41-46.
- Mizukami J, Michigishi T, Nonomura A, Hashimoto T, Terahata S, Noguchi M, Hisada K, Matsubara F: Distant metastases in differentiated thyroid carcinomas. *Hum Pathol* 1990;21:283-289.
- Bernstein K, Schreiber D, Schneider J: Tumormetastasen im Zentralnervensystem. *Zentralbl Allg Pathol Path Anat* 1987;126:53-63.
- Datz FL: Cerebral edema following iodine-131 therapy for thyroid carcinoma metastatic to the brain. *J Nucl Med* 1986;27:637-640.
- Panza N, De Rosa M, Lombardi G, Salvatore M: Pseudo-tumor cerebri and thyroid-replacement therapy in patients affected by differentiated thyroid carcinoma. *J Endocrinol Invest* 1985;8:357.
- Song S, Chan KF, Tey PH, Chot HH: An unusual case of thyroid carcinoma metastasis to the posterior fossa. *The Mount Sinai J Med* 1981;48:281-285.
- Olson ME, Norman LC, Hernik, Posner JB: Infiltration of the leptomeninges by systemic cancer. *Arch Neurol* 1974;30:122-137.
- Perrin RG, Livingston KE, Bizhan A: Intradural extra-medullary spinal metastasis. *J Neurosurg* 1982; 56:835-837.
- Hermann HJ, Kimmig B, Stumpf HP, Hüfner M: Computer-Tomographie in der Nachsorge des differenzierten Schilddrüsenkarzinoms. *Röntgen-Bl* 1985; 38:159-162.