

## CASE REPORT

## Unusual Case of Skull Metastasis Secondary to Pancreatic Adenocarcinoma

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Skull metastasis must be kept in mind when considering the differential diagnosis of a skull tumor. Skull metastases cause local swelling that is usually painless, and rarely they lead to neurologic dysfunction. Despite the fact that hematogenous skull metastases can be caused by nearly all types of tumors (lung, prostate, thyroid carcinoma, malignant melanoma), breast cancer is associated with the highest rate of metastatic skull lesions. We report an

extremely rare case of skull metastasis from a pancreatic adenocarcinoma, in a 65-year-old woman, presented with painless frontoparietal scalp swelling which developed within three months. To the best of our knowledge, this is the second case involving the skull secondary to a pancreatic adenocarcinoma, and the first case when skull metastasis was the first evidence of a pancreatic adenocarcinoma. (Pathology Oncology Research Vol 11, No 3, 182–183)

*Key words:* adenocarcinoma, metastasis, pancreas, skull

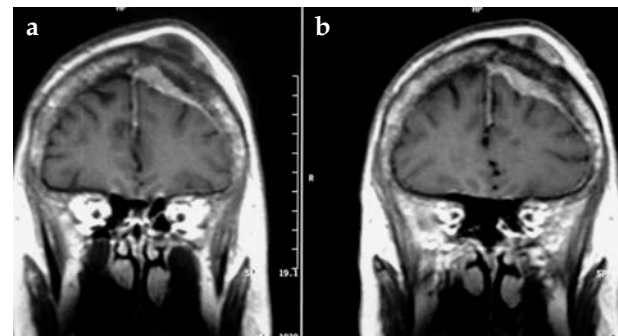
### Introduction

Skull metastasis must be kept in mind when considering the differential diagnosis of a skull tumor.<sup>9</sup> Most metastatic skull lesions are asymptomatic, but they can cause severe disability due to compression of dural sinuses and cranial nerves.<sup>2,3,7</sup> Skull metastases are rarely diagnosed clinically, but are frequently found in autopsies.<sup>4</sup> Despite the fact that hematogenous skull metastases can derive from nearly all types of tumors, breast cancer is associated with the highest rate of metastatic skull lesions.<sup>1,5,8</sup>

### Case report

We report an extremely rare case of skull metastasis from a pancreatic adenocarcinoma, in a 65-year-old woman, presented with painless frontoparietal scalp swelling which developed within three months. On neurological examination no neurological deficit was found. Computed tomography (CT) revealed an osteolytic mass that invaded and expanded through the skull tables in full thickness. On

magnetic resonance images following Gadolinium injection, a destructive lesion of the diploic mass, leptomeningeal thickening and contrast enhancement, and extension of the lesion to subcutaneous tissue was demonstrated (Figures. 1, 2a,b). More imaging studies were needed to exclude metastasis from a primary source, and on abdominal CT an irregular mass was detected on the tail of pancreas (Figure 3). The patient refused the recommended surgical treatment for the skull mass, but accepted



**Figure 1.** Postcontrast images, (a) coronal T1-weighted spin echo and (b) sagittal T1-weighted spin echo images demonstrating destructive lesion of the diploic mass, leptomeningeal thickening and contrast enhancement, and extension of the lesion to subcutaneous tissue

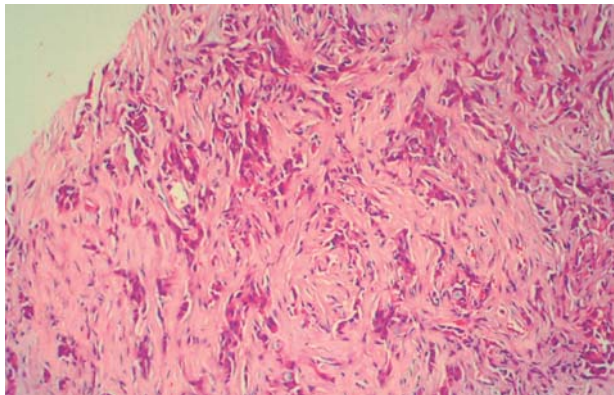
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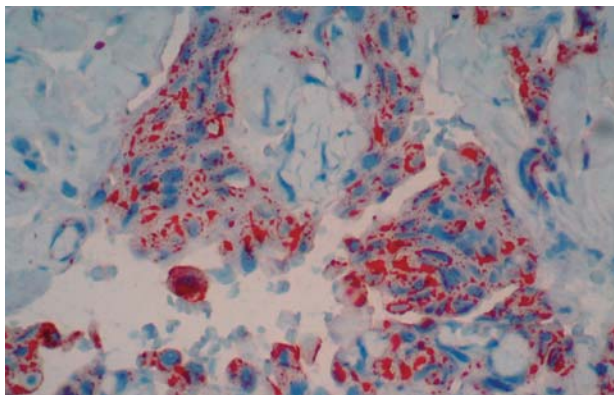
the CT-guided needle biopsy of the mass. She underwent computer-guided needle biopsy for the scalp mass. On pathologic examination, cells were positively stained for cytokeratin 19, which is more specific for tumors of pancreas and gall bladder, while cytokeratin 20 specific for



**Figure 2.** Postcontrast abdominal CT section showing the pancreatic mass lesion located in the tail of the pancreas



**Figure 3.** Atypical epithelial cells forming glands in the fibrous tissue. HE, 200x)



**Figure 4.** Cytokeratin 19 positive tumor cells. Immunohistochemistry, 200x)

colon tumors was negative. So the diagnosis was adenocarcinoma metastasis (Figure 4,5). Postoperative radiation therapy was ensued for metastatic adenocarcinoma, and the patient was well for the follow-up period of 4 months.

### Discussion

Patients presenting with skull metastases are often in an advanced stage of disease, although surgery can relieve symptoms quickly and effectively with low morbidity.<sup>2,7,8</sup> The differential diagnosis of metastasis should always be considered when a lytic skull lesion is identified. Multiplicity, irregular edges, and absence of peripheral sclerosis should arouse suspicion of malignancy.<sup>9</sup> Patients with skull metastases were characterized by higher age, shorter duration of symptoms, and less frequently presented with neurological deficit, when compared to primary skull tumors and benign tumor-like lesions.<sup>8</sup> Despite the fact that hematogenous skull metastases can be caused by nearly all types of tumors (lung, prostate, thyroid carcinoma, malignant melanoma), breast cancer is associated with the highest rate of metastatic skull lesions.<sup>1,2,5,8,9</sup> Skull metastases cause local swelling that is usually painless, and rarely they lead to neurological dysfunction. Surgical excision cannot influence the underlying disease but can be achieved with low morbidity, and the mean survival time after the development of a skull metastasis is approximately 20 months.<sup>8</sup>

In review of the literature, only one reported case of temporal bone metastasis from a primary adenocarcinoma, with seventh and eighth cranial nerve involvement, was found.<sup>6</sup> Our case presented with painless frontoparietal scalp swelling with no known other medical problems, and skull metastasis was the first evidence of malignancy.

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