

## *Skin Metastasis of Neuroendocrine Carcinoma Arising in the Rectum*

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*Neuroendocrine carcinoma is known to have features of neuroendocrine and epithelial differentiation through immunohistochemical and biochemical investigation. Cutaneous metastatic neuroendocrine carcinoma must be differentiated from Merkel cell carcinoma, a primary cutaneous neuroendocrine carcinoma and metastatic carcinoma from other visceral disease. Cutaneous metastases from neuroendocrine carcinomas of a variety of sites including the uterus, vulva, gall bladder and fallopian tubes have been reported. We report a 58-year-old Korean man with a metastatic skin tumor on his scalp from rectal neuroendocrine carcinoma. (Ann Dermatol (Seoul) 19(4) 163~165, 2007)*

Key Words: Neuroendocrine tumor, Metastasis, Rectum

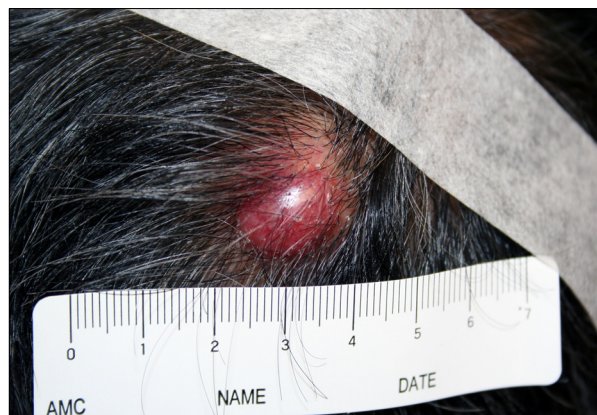
### INTRODUCTION

Neuroendocrine neoplasm have been described in virtually every organ where neuroendocrine cells are distributed throughout the body. It commonly exhibits multiple lines of divergent differentiation. Metastatic neuroendocrine carcinoma from distant sites, such as lung, and colon are high grade tumors with poor prognosis. Cutaneous metastatic neuroendocrine carcinoma must be differentiated from Merkel cell carcinoma by immunohistochemical stains. Cutaneous metastasis from neuroendocrine carcinoma of visceral origin is rarely described. We herein report a case of skin metastasis of neuroendocrine carcinoma which occurred in a patient with rectal neuroendocrine carcinoma.

### CASE REPORT

A 58-year-old man presented with 1-month history of several skin lesions on his scalp, which had started as a tiny skin-colored papule. This progressively enlarged to form a solitary 2 cm-sized tender tumor and several new lesions had developed. He had a history of rectal neuroendocrine carcinoma with multiple hepatic metastases.

Skin examination revealed a solitary well-demarcated, 1.7 cm-sized, reddish tumor and several



**Fig. 1.** Tender, solitary, 1.7 cm-sized, well-demarcated, reddish tumor on the scalp.

Received March 27, 2007

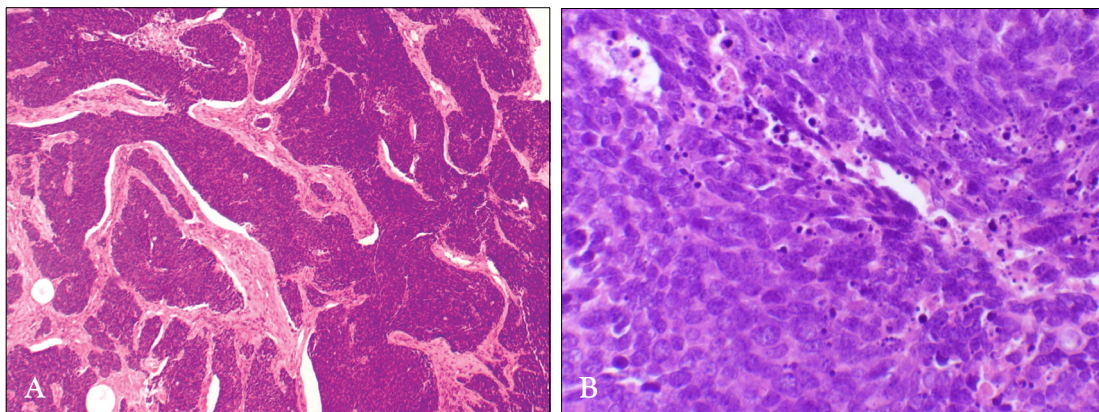
Accepted for publication July 25, 2007

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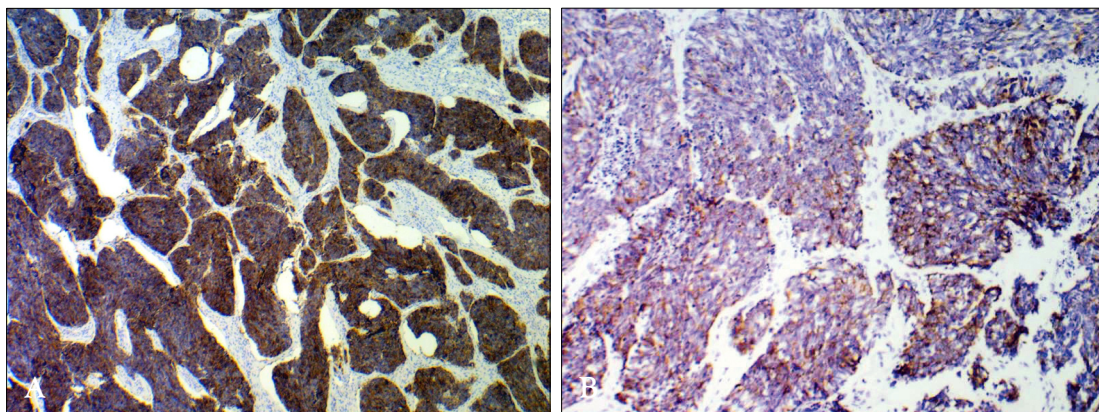
papules affecting the scalp (Fig. 1). Histology of skin biopsy had revealed multiple tumor nest which showed the same histological features as the primary rectal tumor (Fig. 2A, 2B). Tumor cells are arranged in various sized nests, broad and irregular strands, or solid sheets with focal necrosis in the dermis. Tumor cells are usually large and polygonal with scanty eosinophilic cytoplasm, coarse or salt and pepper chromatin, and frequent nucleoli and high mitotic rate. Some rosette-like structures are found. Tumor cells are stained diffusely with neuron-specific enolase (NSE), CD56, a pan-neuroendocrine marker and are weakly with cytokeratin 20 (Fig. 3A, 3B).

## DISCUSSION

Cutaneous metastasis from neuroendocrine carcinoma of visceral origin is rarely described. The primary sites of origin include the lungs, larynx, mediastinum, uterus, and thymus. Histologically, a rosette-like structure is regarded as the best marker for recognition of neuroendocrine differentiation and is described as a small and regular, oval or round lumina, deeply eosinophilic luminal surfaces, and the absence of or rare accumulation of non-mucous material but frequent apoptotic debris in the lumina. To confirm these neuroendocrine features, CD56, synaptophysin, neuron-specific enolase and chromagranin A were used as immunohistochemical staining and cytokeratin 20 was used



**Fig. 2.** (A) Multiple tumor cells arranged in irregular strands, or solid sheets (H & E,  $\times 40$ ). (B) The tumor cells are showing uniform, round to oval nuclei with scanty cytoplasm (H & E,  $\times 400$ ).



**Fig. 3.** (A) Immunohistochemical staining of tumor cells showing positivity for CD56 ( $\times 100$ ). (B) Immunohistochemical staining of tumor cells showing positivity for cytokeratin 20 ( $\times 100$ ).

to differentiate from a Merkel cell carcinoma. However, tumor cells were stained with cytokeratin 20 in our case. Cytokeratin 20, a low molecular weight cytokeratin, is found in a variety of normal tissues, including intestinal epithelium, gastric epithelium, urothelium, and Merkel cells. Most neuroendocrine carcinomas do not express cytokeratin 20, with the exception of Merkel cell carcinoma, and most colorectal adenocarcinomas express cytokeratin 20. Kato et al. reported a case of cytokeratin 20-positive large cell neuroendocrine carcinoma of the colon, suggesting a link between colorectal neuroendocrine carcinoma and conventional adenocarcinoma. These considerations also supported the notion that the present case shares common immunophenotypes with colorectal adenocarcinoma.

We also found similar histological and immunohistochemical features in surgically biopsied rectal cancer section. Colorectal neuroendocrine carcinoma is an extremely rare neoplasm that exhibits rapid progression showing aggressive behavior biologically, for example fulminant early distant metastasis to liver, lung, bone, distant lymph node, or peritoneum. To our knowledge, this is the first report of cutaneous metastasis of neuroendocrine tumor derived from the rectum.

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