Case report

A case of colon adenocarcinoma with neuroendocrine differentiation

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Abstract

The present case report describes a 59-year-old man with colon adenocarcinoma with neuroendocrine differentiation. The initial presentation was defect in the visual field and an elevated lesion in the retina. Positron emission tomography, contrast-enhanced computed tomography, and colonoscopy led to the diagnosis of descending colon cancer with metastasis to the bones, adrenal glands, choroid, and regional and distant lymph nodes. Despite administering CapeOX (capecitabine plus oxaliplatin) treatment after performing palliative surgery for colonic obstruction, ileus occurred due to the rapid growth of the dissemination and remnant metastatic lymph nodes. Thus, further treatment was not possible.

Although adenocarcinoma with neuroendocrine differentiation in the colon is a rare disease, its aggressive nature and poor prognosis highlight the need for further research and development of standard therapy.

Keywords: Choroidal metastasis, colon cancer, neuroendocrine tumor

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Introduction

The simultaneous existence of adenocarcinoma and neuroendocrine components in single mass lesions of the colon is rare. When both components account for more than 30% of tumors, the terminology mixed adenoneuroendocrine carcinoma (MANEC) is applied, with an estimated frequency of 3.2% for colorectal cancers. Meanwhile, tumors with neuroendocrine components accounting for less than 30% are diagnosed as adenocarcinoma according to the World Health Organization classification. Due to its rarity, standard treatment for MANEC or adenocarcinoma with neuroendocrine differentiation has not yet been developed, and multidisciplinary treatment is often required.

In the present report, we present a 59-year-old man with adenocarcinoma with neuroendocrine differentiation, which rapidly progressed despite treatment.

Case presentation

A 59-year-old man had a one-week history of defect in the visual field. Fundoscopy revealed an elevated lesion in the retina of his right eye. Because of the suspicion of choroidal metastasis of cancers of other organs, the patient was referred to our hospital for examination and treatment.

Blood tests revealed normal levels of tumor markers, such as carcinoembryonic antigen and carbohydrate antigen 19-9. Positron emission tomography revealed accumulation of 18F-fluorodeoxyglucose at the iliac bone, vertebra, left adrenal gland, and descending colon (Fig. 1). Abdominal contrast-enhanced computed tomography also demonstrated a thickened descending colon and enlargement of the para-colic lymph nodes (Fig. 2).

Intraoperatively, nodules on the mesentery, suggesting dissemination, were observed. The resected specimen revealed that...
Fig. 1 Preoperative FDG PET-CT, and enhanced CT
(A) Accumulation of FDG is demonstrated at the ileac bone and vertebra (white arrow), and the left adrenal gland (circled). The strong accumulation in the descending colon is suggestive of the existence of the primary tumor (white arrowhead). (B) Contrast-enhanced CT revealed an enhanced and thickened descending colon (white arrowhead) with para-colic lymph node swelling (white arrow). FDG, 18F-fluorodeoxyglucose; PET, positron emission tomography; CT, computed tomography

Fig. 2 Resected specimen and pathological findings
(A) A type 5 circumferential tumor with a maximum diameter of 70 mm was removed by partial resection of the descending colon. Because the arteries were involved in the metastatic LNs, the oral side of the tumor at descending colon and blood vessels were widely resected. (B) Hematoxylin and eosin staining shows the extension of the tumor cells in the mucosa. The surface epithelium appears intact. (C) Part of the tumor is composed of chromogranin A-positive cells within the nest structure. LN, lymph node
the majority of the tumor was composed of adenocarcinoma, and only part of the tumor (less than 30%) was composed of tumor cells with neuroendocrine differentiation (positive for chromogranin A and synaptophysin). The metastatic para-colic lymph nodes tested positive for chromogranin A and synaptophysin.

Because of postoperative complications, the patient received chemotherapy one month after the surgery. After the first course of capecitabine and oxaliplatin (CapeOX) treatment, the patient discontinued capecitabine due to the development of nausea and ileus due to rapid tumor growth within the abdomen. Further chemotherapy was ceased due to the worsened general condition.

**Discussion**

A gastrointestinal tumor that simultaneously harbors adenocarcinoma and neuroendocrine components is rare. Even when a tumor is not diagnosed as MANEC, tumors with neuroendocrine components confer poor prognosis\(^3\). Although pathological examinations were not performed for the distant metastatic lesions in the present case, the fact that the para-colic lymph nodes were composed of tumor cells with neuroendocrine differentiation support the idea that the neuroendocrine component caused the early extension of the disease in the present case.

Only a few reports have described the results of chemotherapy for MANEC or adenocarcinoma with neuroendocrine tumors. Case reports have suggested that oxaliplatin-based chemotherapy with bevacizumab demonstrate effectiveness for stage IV tumors\(^4\). Accordingly, our patient received CapeOX treatment with a plan for the later introduction of bevacizumab. However, the expected efficacy was not observed in the present case; the lack of clinical benefit could be explained by the cessation of capecitabine before completion of the first course of treatment. Further accumulation of cases, ideally via nationwide surveys, is necessary to understand the treatment recommendations for this aggressive type of cancer.

Choroidal metastasis is rare and often presents at an advanced stage of gastrointestinal cancer\(^5\). In the present case, the initial presentation of the tumor was ophthalmia, and fundoscopy raised the possibility of a metastatic tumor. The analysis of choroidal metastasis suggests that the primary tumor is often breast cancer, followed by lung cancer. Gastrointestinal cancer accounts for only 4%\(^5\) of cases of choroidal metastasis. Unusual metastatic sites such as the choroid and adrenal glands without lung and liver metastases at the initial presentation may be related to the biological nature of the neuroendocrine component. The treatment includes radiation therapy and/or chemotherapy, which is aimed at preventing the deterioration of quality of life due to impairments in eyesight.

In conclusion, we encountered a patient with colon adenocarcinoma with neuroendocrine differentiation, which showed an aggressive nature. Further accumulation of cases is necessary to assess the recommended treatment options.

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