Introduction

Brain metastases originate most commonly from carcinoma of lung, breast, and colon and from melanoma. Therefore, metastatic adenocarcinoma to the brain are common metastatic brain tumor. Generally, metastatic adenocarcinoma in the brain appears low density on the non-enhanced computed tomography (CT). However, in very rare case mucin-containing metastatic adenocarcinoma show high density mimicking cerebral hemorrhage. We report a case of a mucin-containing metastatic adenocarcinoma of the rectum mimicking cerebral hemorrhage.

Case Report

A 59-year-old man visited the emergency room with complaints of nausea, vomiting and headache that had progressively worsened over the previous one month. Neurological examination performed at our clinic was normal. His past medical history was notable for rectal adenocarcinoma and myocardial ischemia; he had undergone abdomino-perineal resection in 1996. In November 2000, lung metastasis was discovered. He received chemotherapy in our clinic. Brain CT revealed a moderate-to-high attenuation homogenous 5cm x 5cm x 3.5cm mass in the left posterior parietal area with surrounding edema (Fig. 1). The lesion had attenuation values of ranging from 86 to 128 Hounsfield units (HU). Plain skull x-ray revealed no definite abnormality. One week later, the patient underwent a left posterior parietal craniotomy for tumor resection. Tumor was removed totally. The lesion was found to be made up of nonhemorrhagic abnormal soft tissue. Pathology showed mucin-containing adenocarcinoma (Fig. 2). He died of myocardial infarction 20 hours after the operation.

Discussion

Brain metastasis from colorectal cancer is rare. Yoo, et al. reported that brain metastasis from colorectal cancer was noted in 7.6% of the cases of 178 metastatic brain tumors. Hepatic and lung metastases are the common sites of occurrence.
metastatic involvement of this cancer. Our patient had lung metastasis. Metastatic brain tumors are known to produce the symptoms of stroke and intracranial high density areas are demonstrated by CT scan\textsuperscript{1).}

Intra- or peritumoral hemorrhage, usually spontaneous, is responsible for about 25 percent of intracerebral hemorrhages\textsuperscript{8).} The majority are associated with melanoma, choriocarcinoma, renal cell carcinoma, and gestational or testicular malignancies but can be produced by any metastatic tumor\textsuperscript{4,8).} Of the primary brain tumors, glioblastoma appears to be the most common source of intracerebral hemorrhage; slightly more than 5 per cent of cases are complicated by bleeding\textsuperscript{6).} Oligodendroglioma also have a predilection for hemorrhage and do so more frequently than astrocytomas. Ependymomas and medulloblastomas also have been associated with intracranial hemorrhage\textsuperscript{7).}

Mucin-containing masses have often been reported to show low attenuation on CT\textsuperscript{4,5).} Due to its high water content, mucus has CT attenuation and MRI signal similar to that of water and does not enhance after injection of intravenous contrast medium; however, a chronic entrapped mucus collection can undergo a gradual transformation. The increased production of mucus protein is accompanied by a gradual reabsorption of water with a decrease in free water content and an increase in protein concentration\textsuperscript{9).} On CT, concentrated mucus may have attenuation values above 20 HU, and even as high as 130 HU\textsuperscript{2).} The values is similar to that of acute hematoma. In our case, the lesion was initially diagnosed as an intratumoral hemorrhage. On serial CT scan, high density lesion did not change. There was not found hemorrhagic components on the lesion during operation.

**Conclusion**

Mucin containing tumor must be included in the preoperative differential diagnosis of a high density, non calcified brain mass, although the incidence of high attenuating mucinous adenocarcinoma is quite low.

**References**