



Case Report

Co-existence of gastric adenocarcinoma and neuroendocrine carcinoma: a rare entity

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Keywords:

Adenocarcinoma;
Carcinoma;
Collision;
Neuroendocrine

ABSTRACT

A mixed adenoneuroendocrine carcinoma is a tumor composed of both adenocarcinoma and neuroendocrine carcinoma components, with each comprising at least one-third of the lesion, as defined by the World Health Organization classification of neuroendocrine neoplasms in 2010. A 67-years-old male was admitted to the hospital with symptoms suggesting gastric cancer. Histopathology examination from endoscopic biopsy revealed adenocarcinoma. Later partial gastrectomy specimen examination the lesion show presence of well differentiated adenocarcinoma along with neuro endocrine carcinoma.

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Received : February 26th, 2017 ; Accepted : June 2nd, 2017; Published : September 1, 2017

Citation: Mainali N, Nepal N, Choudhary PK, Sinha A, et al. Co-existence of gastric adenocarcinoma and neuroendocrine carcinoma: a rare entity. J Pathol Nep. 2017;7:1121-3. doi: 10.3126/jpn.v7i2.18030

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INTRODUCTION

A mixed adenoneuroendocrine carcinoma is a tumor composed of both adenocarcinoma and neuroendocrine carcinoma (NEC) components, with each comprising at least one-third of the lesion, as defined by the World Health Organization (WHO) classification of neuroendocrine neoplasms in 2010.¹ Before 2010, this tumor was reported as a mixed or composite tumor. In general, neuroendocrine carcinoma is considered to grow rapidly and have a poor prognosis,³ whereas mixed adenoneuroendocrine carcinoma tumors grow based on the component with greater malignant potential.⁴ Most neuroendocrine carcinomas, including mixed adenoneuroendocrine carcinoma lesions, are diagnosed at an advanced stage and mainly treated with surgical resection or chemotherapy. Diagnosis is mainly based on the tumor architecture, being completed by the immunostains with specific neuroendocrine markers

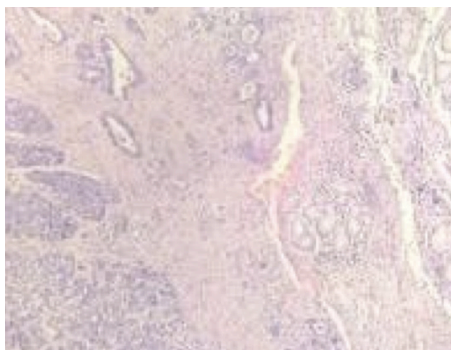


Figure 1: Photomicrograph showing normal gastric mucosa adenocarcinoma and neuroendocrine carcinoma (HE stain; X 50).

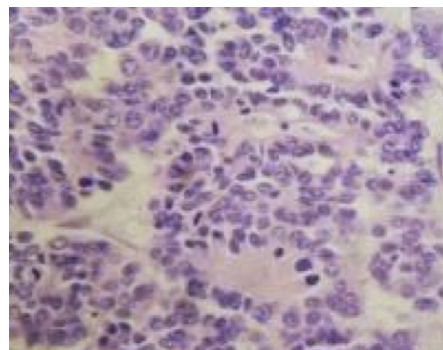


Figure 2: Photomicrograph showing rosettes and mitotic figures in neuroendocrine carcinoma (HE stain; X100).

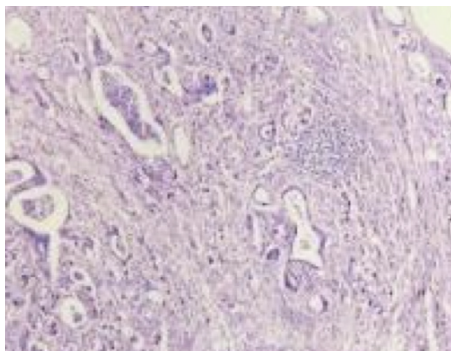


Figure 3: Photomicrograph showing tumor cells arranged in glandular pattern (HE stain, X40).

such as chromogranin, synaptophysin, CD56, and neuron-specific enolase (NSE), combined with the markers on non-endocrine differentiation such as keratin 7 (for gastric tumors) and Keratin 20, CDX2, and carcinoembryonic antigen (CEA), respectively, for colorectal segments.⁵

CASE REPORT

A 67-years-old male was admitted to the hospital with symptoms suggesting gastric cancer: weight loss, hematemesis and melena. Ultrasonography revealed a hypoechoic mass in the submucosal layer. On upper gastrointestinal endoscopy, ulcerating lesion was found in the antral region. Biopsy was taken and sent for histopathological examination in the department for histopathology. Microscopy examination reveals adenocarcinoma. Partial gastrectomy was done and the specimen was sent for histopathological examination. 3.5 cm sub epithelial grey white mass was found 2 cm away from proximal resected margin with normal looking mucosa. Seven lymph nodes were dissected out. On histopathological examination the lesion shows presence of well differentiated adenocarcinoma along with neuroendocrine carcinoma (fig.1). Tumor cells with various shape and size glands were seen with cells having high N/C ratio, hyperchromatic nuclei and occasional visible nucleoli without mucinous component. Proliferations of small round

cells with stippled chromatin with rosette formation were also seen (fig.2). Other area shows malignant cells arranged in well and poorly formed glandular pattern. (fig. 3) Both of the components covered about half of the dissected tumor part. Seven lymph nodes were dissected out, out of which three showed metastatic deposits of both entities. Perineural and blood vessel invasion were not noted. Immunohistochemistry could not be done due to its unavailability in the department.

DISCUSSION

A new classification system of digestive neuroendocrine tumors (NETs) was formulated and presented in the 2010 revision of the WHO classification of digestive tumors. This system recognizes three main categories according to the Ki-67 index: NET G1, NET G2 and NEC. The submucosal component in the present case corresponded to NEC. The original definition of mixed endocrine-exocrine carcinoma (MEEC) was incorporated into the WHO classification of gastroenteropancreatic endocrine tumors in 2000, which states that an MEEC is a tumor with two different cell populations, each of which composes at least one-third of the tumor area. Thereafter, the new WHO classification proposed the term MANEC to classify this type of tumor based on similar criteria.¹ In the present case, each of the NEC and adenocarcinoma components accounted for nearly half of the tumor; thus, the lesion was consistent with the definition of MANEC. The carcinogenesis of MANEC is unclear⁶ but the role of unusual intestinal metaplasia and hypergastrinemia needs to be under consideration.⁷ Previous reports have noted the coexistence of gastric NEC with a scant amount of adenocarcinoma tissue. Nishikura et al. noted that 70.6% of gastric NEC cases include an adenocarcinoma component in the mucosa and/or submucosa.⁸ In the present case, the endoscopic findings showed a reddish area of erosion, which corresponded to the adenocarcinoma component, and endoscopic ultrasonography revealed a hypoechoic mass in the submucosal layer, which reflected the NEC component. When the tumor was resected, the NEC and adenocarcinoma components were each found to

occupy approximately half of the tumor. Three out of seven lymph nodes show metastatic deposits of both the entity in our case where as in the study done by gurzu et al 22/32 lymph node showed deposits in the excised lymph node.⁵

Conflict of Interest: None

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