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Synchronous Colon and Advanced Gastric Cancer

Case Report

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Abstract

Aim: The development of synchronous cancers of the colon and the stomach is particularly rare. An unusual case of advanced synchronous colon and gastric carcinoma is described and the literature reviewed.

Case report: An 85 year-old female was admitted to our Department with a stenosing left colon cancer, without evidence of abdominal diffusion, diagnosed by means of abdominal computed tomography which was performed for lower crampy abdominal pain, gross blood in the stool, anaemia and mild fatigue. Colonoscopy revealed a friable, bleeding mass of the sigmoid colon and also detected two distal colon polyps, adjacent to the tumour. During laparotomy, in addition to colon cancer, an advanced antral gastric cancer was incidentally found. Subtotal gastrectomy (Billroth II) and partial left colectomy were performed. At histology, a moderately differentiated gastric adenocarcinoma and two moderately differentiated colon adenocarcinomas, one of which with a tubulovillous component and lymph node metastases, where revealed. Both tumours showed a low expression of p53 and C-erbB-2 oncoproteins. Nine months after the operation the patient is alive, with no evidence of recurring disease.

Conclusions: Despite the low probability of a primary neoplasm of the large bowel appearing with a synchronous, also primary, tumour of the GI tract, its presence mandate changes in the surgical planning of its excision, more often than not, intraoperatively, with all the difficulties that this entails.

Key words:
Colon cancer, Gastric cancer, Synchronous, Immunohistochemistry, Tumour markers

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Introduction

Multiple primary cancers are more likely to develop in organs of the same system [1] than in those of different systems. In Japan and Korea, colorectal cancer (CRC) is the most common synchronous neoplasm to be associated with gastric cancer (GC) [2-5].

The incidence of metachronous CRC has also been reported to increase after gastrectomy [6]. Moreover, the development of CRC has been linked to adenomas which are considered to be precancerous lesions [7].

In most of the reported cases, multiple synchronous or metachronous gastric and colon malignancies were found to be in the early stage [8].

Herein, we describe a case of advanced synchronous gastric cancer with two additional colon cancers.

Case report

An 85-year-old female was referred to the department of Surgery on account of a stenosing left colon cancer. Presenting with hypochromic anaemia, mild abdominal discomfort and lower gastrointestinal tract bleeding, she was first admitted to the Internal Medicine department. The patient also complained of mild epigastric postprandial discomfort. Her medical history included insulin-dependent diabetes, mild heart failure and arterial hypertension, for which she was being treated with insulin, captopril and an oral loop diuretic.

At the time of referral to our unit, the patient's familial history did not reveal any indication of gastrointestinal malignancies in first-degree relatives.

On admission, physical examination disclosed mild abdominal distension. Laboratory findings were within normal limits, with the exception of hypochromic anaemia. Tumour marker values of cancer antigens 19-9 (CA 19-9) and 50 (CA 50), alpha fetoprotein (AFP) and of carcinoembryonic antigen (CEA) were within normal range. Computed tomography (CT) revealed the presence of a stenosing left colon tumour without evidence of distant metastasis.

Colonoscopy identified a tumour in the sigmoid colon and two polypoid lesions adjacent to the tumour. The patient was transferred to the Surgical Depart-

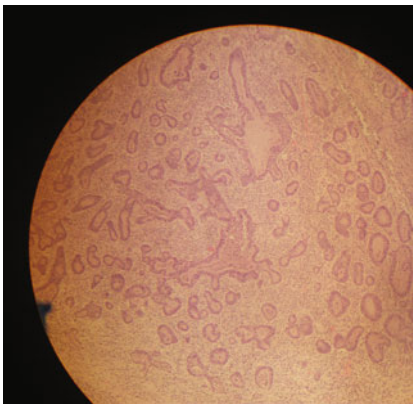

Fig.1 Moderately differentiated gastric carcinoma – enteric type infiltrating muscular propria. (H-E X 125)

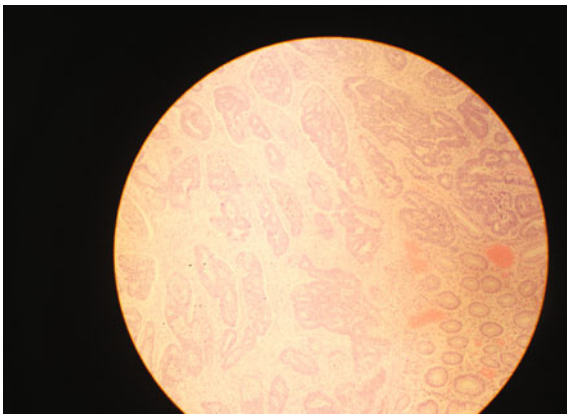

Fig.2 Moderately differentiated colonic carcinoma infiltrating muscle layer. (H-E X 125)

ment for preoperative evaluation and treatment.
A left colectomy was decided in view of the diagnosis of left colon cancer as well as the existence of two polyps measuring 1cm and 3cm in diameter respectively. During the operation, inspection of the abdomen incidentally revealed the presence of gastric cancer, in addition to colon cancer. Subtotal gastrectomy (Billroth II) was performed along with partial left colectomy. Digestive tract continuity was restored by means of Roux-en-Y (gastrojejunal) and end-to-end (colonic) anastomoses. The postoperative course was uneventful.

Histological examination of the resected gastric specimen revealed a moderately differentiated gastric adenocarcinoma (Fig.1), according to the Lauren's criteria (pT2pN0; stage 1B), and two moderately differentiated colon adenocarcinomas with a tubulo-villous component (pT3pN2; stage 3) and (pT2pN0; stage 2) respectively (Fig. 2). The other polypoid lesion measuring 1cm in diameter, included in the resected colon specimen, revealed a tubulo-villous adenoma with mild dysplasia.

Immunohistochemical analysis of the oncogene expression (p53 and C-erbB-2) was performed. Evaluation was effected focusing on the areas of highest expression of antigens. P53 positive nuclei were recorded in 5% of colonic cancer cells and in 5% of gastric cancer cells. C-erbB-2 membrane positive staining was observed in 6% of glands of colonic cancer and in 8% of gastric cancer cells. Gastric cancer cells also showed positive expression in epithelial markers CK7, CEA and focally in EMA. Colonic cancer cells showed positive expression in CK20, EMA and CEA as well as negative expression in CK [7].

No evidence of recurrence was seen at the 9-month postoperative follow-up. A large bowel endoscopy was negative in the screening of first degree relatives. *Informed consent has been obtained from the patient.*

Discussion

Digestive tract organs are the most common site for synchronous multiple primary malignancies and also the most frequent site for the first metachronous tumour, according to reports in the literature [2,3]. Gastric cancer was the most common form of cancer among colorectal cancer patients with synchronous cancer. The criteria of Warren and Gates [9] were used for the definition of multiple primary cancers: a) each neoplasm must be clearly malignant, as determined by histological examination; b) each cancer must be geographically separate and distinct; c) the possibility of a second cancer representing metastasis should be ruled out. Synchronous cancers were defined as these occurring within 6 months of the first primary cancers; otherwise they were regarded as metachronous. The incidence of synchronous CRC in patients with GC has been reported to vary from 3.4% to 5% [4,7,10,11,13,14]. Reasons for these wide ranges of incidence are related to different study populations and methods. The relatively high incidence of synchronous CRC in patients with GC could be attributed not only to improvements in diagnostic techniques but also to prolonged life span and increase in survival after treatment for malignancies. Preoperative esophagogastroduodenoscopy (EGD) is a routine procedure in some institutions [4,11]. Radiologic diagnostic tools, such as computed tomography (CT) and positron emission tomography (PET), have developed considerably over the intervening period, and diagnostic accuracy has improved [12].

Regarding the time of detection for such second cancers, 65% of colorectal cancers were detected synchronously [13].

The case described here presents some interesting aspects of the clinical profile. Most patients with

synchronous cancer reported in the literature were of male gender, aged from 51 to 81 years, and they had a well-differentiated type of cancer [7,13]. The present case refers to a female patient aged 85 years.

The presenting symptoms suggested a colonic disease, while gastric disease caused mild concern, and the patient was not submitted to any specific diagnostic investigation. Gastric cancer was detected incidentally during intraoperative examination. The possible explanations for the gastric cancer misdiagnosis were the mild clinical profile and the poor quality of CT images.

From the histopathological aspect, in most reported multiple synchronous tumours, one or more of the tumours represent an early stage well-differentiated cancer [4,7]. Our case, with triple cancers, had a simultaneous advanced colon carcinoma and an advanced gastric carcinoma of the intestinal type, according to the classification of Lauren, associated with extensive distribution of intestinal metaplasia. Early stage tumours have been found in 74.2% of colorectal cancers [7,13]. In cases of GC, most tumours were located in the antrum, as in our case. In cases of CRC, tumours were mainly located at the left side of the colon and rectum [14]. The association of colonic and gastric carcinoma may be incidental; however, there is some basis to support the existence of such a relation. One of the possible reasons for the more frequent combination of gastric and colorectal cancers might be that some alimentary carcinogens act on both organs. Another explanation could be that gastrectomy-related alterations of intestinal microflora and bile metabolism may favour colorectal carcinogenesis [6].

For some authors, the carcinogenesis of synchronous multiple primary gastric and colorectal cancer (MPGCC) was related to genetic alterations such as microsatellite instability (MSI) [14,15].

The prognosis of patients with MPGCC is better than that of patients with a single cancer, even in some cases diagnosed at an advanced stage [10]. The better prognosis of patients with MPGCC might be associated with frequent MSI or a deficiency in the mismatch repair (MMR) systems [14].

Despite the existence of conflicting data, there is a consensus that c-erbB-2 overexpression in GC with MSI tends to have a more aggressive phenotype and a poor prognosis [15].

In our study, we noted a low positive rate of C-erbB-2 (8%) immunostaining. The major factor to influence the treatment plan was the stage of cancer. In conclusion, careful pre-operative, intra-operative and postoperative screening for detection of second primary cancer is called for in patients with either GC or CRC. The detection of synchronous cancers enables us to treat both cancers simultaneously and thus beneficially influence the prognosis and quality of life of these patients.

Conflict of interest

The authors declare that they have no conflict of interest.

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