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Triple primary malignancies in a patient with colorectal adenocarcinoma: A case report

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ABSTRACT

INTRODUCTION: While colorectal carcinoma is one of the most commonly diagnosed malignancies, its synchronous occurrence with other primary malignancies is rare.
PRESENTATION OF CASE: In this case, we describe the diagnosis and surgical intervention of a 55-year-old male patient who was found to have colonic adenocarcinoma at the hepatic flexure, right renal urothelial carcinoma, and malignant mesothelioma.
DISCUSSION: None of the previous studies reported these three distinct types of cancer, even in those patients with Lynch Syndrome. To the best of our knowledge, this is the first report of such case. The etiology and pathogenesis of multiple primary malignancies are complex. Common genetic and environmental risk factors that were found in different cancers might increase the risk of multiple primary malignancies.
CONCLUSION: The use of genetic testing and preoperative imaging studies should be considered to be invaluable tools for detecting synchronous malignancies. Practicing physicians should pay more attention to the risk of simultaneous separate primary malignancies.

1. Introduction

Colorectal carcinoma (CRC) is the one of the most common malignancies, affecting 42.4 per 100,000 men and women each year, with the death of 15.5 per 100,000 annually in the United States [1]. The concurrent presence of colorectal cancer and other primary malignancies is relatively rare [2]. Here we report a unique patient with colonic adenocarcinoma at the hepatic flexure, right renal urothelial carcinoma and malignant mesothelioma invading the duodenum and the inferior vena cava and the literature was reviewed.

This report utilized the definition of Warren and Gates to identified those synchronous tumors [3]: each tumor must have definite pathologic evidence and must be distinct that the possibility of cancer metastasis would be excluded. The most possible etiology and pathogenesis of triple primary CRC is that these involved tissues are simultaneously affected by the same carcinogens, including environmental and hereditary factors [4].

There have been some reports demonstrated that CRC is associated with other primary malignancies, such as pancreatic carcinoma [5,6], prostate cancer [7], and renal carcinoma [4,8,9]. Burgess et al. [10] reported a case that a patient with colonic carcinoma, renal cell carcinoma, and gastrointestinal stromal tumor. Capilna et al. [11] described a female patient presented with primary malignancies of the fallopian tube, endometrium and sigmoid colon synchronously. A patient with Lynch syndrome (LS) diagnosed with triple synchronous primary malignancies of the colon, endometrium and kidney has been reported recently [12]. And we described another patient diagnosed with three distinct malignancies in this article. This work has been reported in line with the SCARE criteria [13].

2. Case presentation

A 55-year-old male presented with intermittent abdominal pain in the right upper quadrant associated with liquid stools in the past 2 months. The patient had no family history of colorectal cancer. He lost 5 kg on his weight. Physical examination revealed an 8*8 cm

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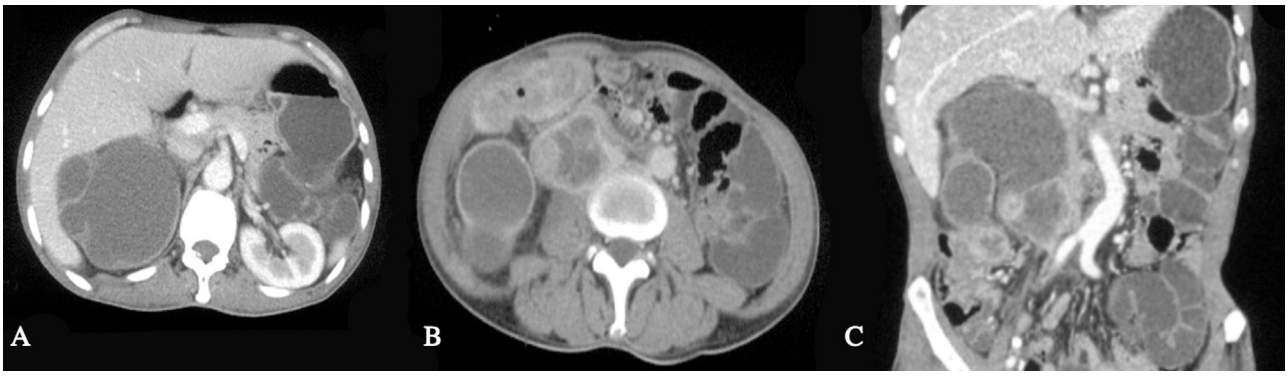

Fig. 1. Abdominal CT scan (A) revealed a severe hydronephrosis of the right kidney and bowel-wall thickening of the ascend colon.

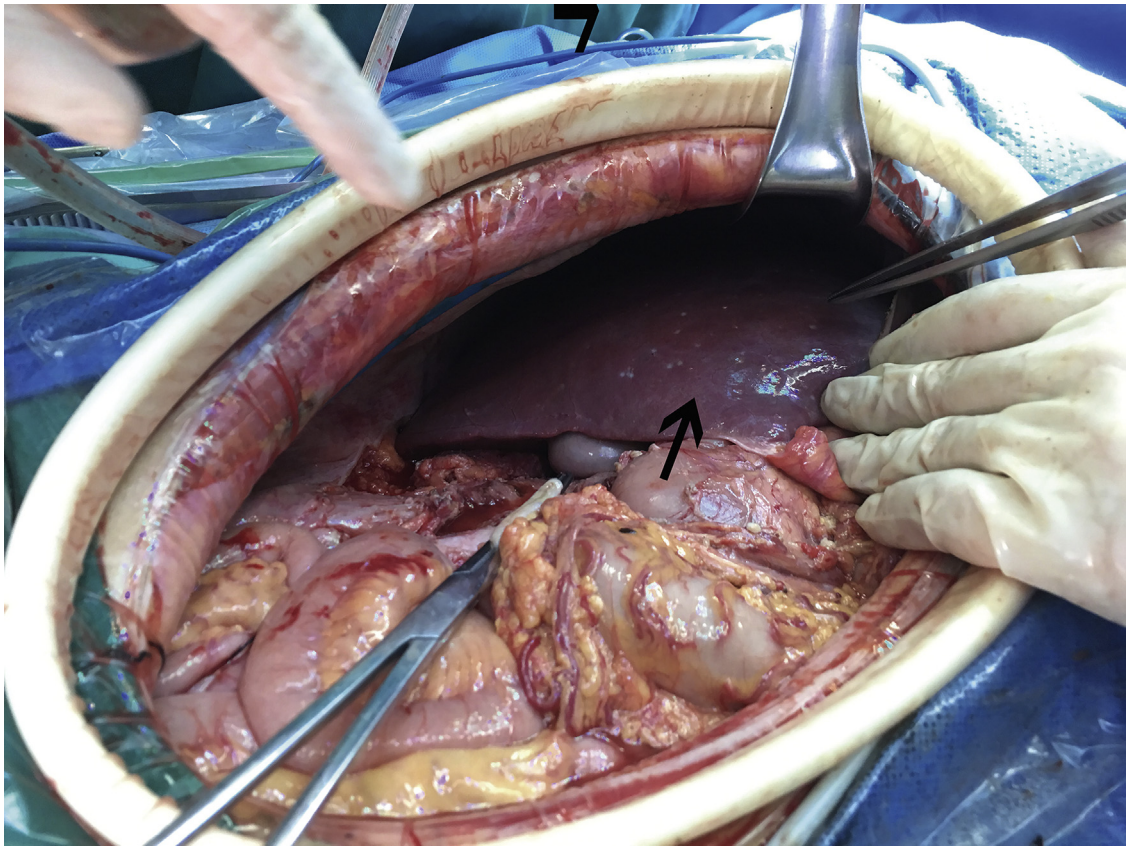

Fig. 2. Multiple diminutive ill-defined hepatic lesions (arrow) were visualized during the surgery.

mass palpable in the right upper abdomen and pain on percussion the right costovertebral angle. Colonoscopy and biopsy demonstrated that a well-differentiated adenocarcinoma in the hepatic flexure, multiple tubular adenomas in the transverse and sigmoid colon and hyperplastic polyps in the rectum. Initial computed tomography (CT) scan showed a 6.5*6.5 cm mass in the hepatic flexure (Fig. 1B and C), multiple low-density foci in the left lobe of liver, multiple small mesenteric nodules, and hydronephrosis of the right kidney. A large lymph node was also revealed on CT scan with a size of 5*5 cm, causing obstruction of the right ureter and hydronephrosis of the right kidney (Fig. 1A). The patient developed a severe flank pain during hospitalization and a percutaneous nephrostomy was performed under the guidance of Color Doppler Ultrasound.

After multidisciplinary discussion with the oncology department, an exploratory laparotomy was performed due to imminent bowel obstruction. During the surgical exploration, an 8*7*6 cm irregular globular clear-edged mass was identified in the ascending colon and multiple diminutive ill-defined hepatic lesions were visualized (Fig. 2), leading to right hemicolectomy (Fig. 3A) without hepatic resection. A 5*5 cm solid nodule was found posterior to the ascending colon, invading the right ureter, the second portion of the duodenum, the inferior vena cava, and the lumbar vertebra. The patient then underwent right nephrectomy (Fig. 3B). Wedge resection of the duodenum and nodules detaching before the inferior vena cava were performed including the invading mass.

Postoperative examination of the specimen (hematoxylin-eosin staining, HE staining) revealed a moderately or poorly differentiated adenocarcinoma (Fig. 4D) (T4b), positive for Ki-67 (70%), MLH1, MSH6, PMS2, CDX2, human epidermal growth factor receptor-2 (HER2), cytokeratin (CK) 20, carcinoembryonic antigen (CEA) and negative for MSH2, CK5/6, MC, CK7. Interestingly metastasis was found in none of the 54 lymph nodes (T4bN0M1).