CASE REPORT

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Familial Adenomatous Polyposis with Synchronous Colorectal, Bilateral Ovarian, and Uterine Malignancies

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ABSTRACT

We present a case of a 47-year-old female with three primary malignancies. This is an unusual presentation and highlights the dilemmas in the workup and formulation of treatment plans. Genetic studies to identify mutations may help explain the pathophysiology.

Familial adenomatous polyposis (FAP) is an autosomal dominant disorder resulting from a germline mutation in the APC gene located on chromosome 5q 21-22. Most patients develop colorectal cancer (CRC) by the age of 35–40 years if left untreated. In addition, they have an increased risk for the development of other extracolonic malignancies. There are reports of ovarian and endometrial malignancy with FAP.[1] MUTHY associated polyposis (MAP) may be more associated with the significant increase in the incidence of ovarian, bladder, and skin cancers and a trend of increased risk of breast cancer.[2]

Seven percent of ovarian masses are metastatic malignant tumors.[3] Approximately 3.6% to 7.4% of patients with colon cancer have ovarian metastasis at the time of initial presentation, of which 45% are mistaken for primary ovarian tumors.[4,5] When primary versus metastatic mucinous carcinomas were compared, primary mucinous carcinoma were much less likely to be bilateral (0–17%) than mucinous tumors metastatic to the ovary (75–77%), which are usually bilateral.[6–8]

CASE REPORT

A 47-year-old female presented with a mass in the abdomen associated with diffuse abdominal pain, altered bowel habits, and significant weight loss of five months duration. On clinical evaluation, it was a large abdominal mass arising from the pelvic region, not moving with respiration. There were no ascites. There was a family history of carcinoma rectum (the patient's sister).

Contrast-enhanced computer tomography (CECT) of the abdomen reported ovarian mass (28 cm × 21 cm × 27 cm) with multiple polypoidal lesions within the bowel and omental deposits. Colonoscopy showed rectal ulcer with multiple polyps until the sigmoid colon, and the endoscope could not be negotiated further. Biopsy of the rectal ulcer was reported as adenocarcinoma. The multi-disciplinary tumor board discussed the case. We determined a working diagnosis of primary rectal malignancy in the background of FAP with bilateral ovarian neoplasm. Immunohistochemistry (IHC) on the rectal ulcer specimen showed positive CK 20 (4+), CDX2 (4+), and carcinoembryonic antigen (CEA) (4+), and negative CK 7 (0), confirming the mass was originating from the large bowel and not an ovarian mass eroding into the rectum. The plan was that if IHC of the rectal ulcer showed an ovarian origin, the patient was to be started on anterior chemotherapy. Given rectal malignancy with possible FAP and synchronous bilateral ovarian masses with omental metastasis, the patient was given the option of exploratory laparotomy with a total abdominal hysterectomy and bilateral salpingo-oophorectomy,

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on table colonoscopy, and total colectomy with omentectomy. After obtaining informed consent, exploratory laparotomy was carried out. Frozen sections of both ovarian mass and omental deposits were suggestive of mucinous neoplasm; however, further characterization was not possible on the frozen section. On table colonoscopy showed > 200 polyps in the transverse and descending colon. Total proctocolectomy with end ileostomy was done. Ileal pouch-anal anastomosis was not done in view of the patient's poor nutrition status.

The final histopathology report showed right and left ovarian lesions reported as mucinous ovarian neoplasm; colon showing adenocarcinoma in the rectum and sigmoid and multiple tubular adenomas (> 200) with omentum showing metastatic mucinous adenocarcinoma and uterus showing endometrioid carcinoma. She was started on adjuvant chemotherapy. A modified FOLFOX regimen with 750 mg 5-fluorouracil on days one, two, and three with 90 mg oxaliplatin at three weekly intervals was instituted. She underwent six cycles of chemotherapy. She was doing well at six months post-surgery. Evaluation showed increased CEA level. Repeat CECT abdomen showed metastatic deposits over the small bowel. She was advised a folinic acid, fluorouracil, and irinotecan regimen but was lost to follow-up after six months. She also had an incisional hernia. The ileostomy was functioning well, and she enjoyed a good quality of life.

In view of FAP on the colectomy specimen, she was advised mutation analysis for APC gene and polymerase chain reaction for microsatellite instability, IHC for mismatch repair gene, and screening of family members to rule out FAP or Lynch syndrome, and regular surveillance endoscopy.

DISCUSSION

The incidence of CRC is higher in countries with diets rich in fat and low in fiber.[9] Furthermore, there are a number of distinct genetic syndromes that predispose persons to CRC development. There are two genetic entities (FAP and hereditary non-polyposis CRC) that predispose persons to an extremely high risk of developing CRC at a young age. Extracolonic manifestations are common in FAP.

FAP is associated with gastric and small intestinal polyp formation, but the malignant potential of the gastric fundal polyp is low. The prevalence of gallbladder, bile duct, thyroid-adrenal, hepatoblastoma, and pancreatic cancer is increased in patients with FAP. Lynch syndrome and MAP may be more associated with extracolonic manifestations in the ovary, uterus, and breast compared to FAP.[10]

In this case, the patient presented with bilateral cystic mass lesions of the ovaries, which were diagnosed as mucinous cystadenocarcinoma of the ovaries. The bilateral and synchronous nature of the tumor was more in favor of metastatic lesion from primary adenocarcinoma of rectum. However, histopathology showed the presence of multiple tumors. The large number of polyps in the colon is more suggestive of FAP than Lynch syndrome or MAP. However, no genetic studies were carried out to identify the mutations. Our patient presents a scenario of uterine and ovarian synchronous primaries with colonic malignancy, probably from FAP.

CONCLUSION

A female patient, especially in the premenopausal age presenting with a pelvic mass should always be suspected for ovarian malignancies, whether primary or metastatic. In our setting, the role of IHC in distinguishing bowel and ovarian metastases from primary ovarian tumors needs emphasis. Genetic studies for mutations will enable us to identify the exact cause. The following learning points can be gathered from this case: IHC and microsatellite instability analysis tests ought to be part of the diagnostic package to manage CRC. FAP can be associated with uterine and ovarian malignancies as part of rare extracolonic manifestations.

Disclosure
The authors declared no conflicts of interest.

REFERENCES

1. Stoffel M, Rysavy MB, Rose SL, Laffin J, Rehrauer WM, Hafez GR, et al. Multiple concurrent unusual neoplasms presenting in a patient with familial adenomatous polyposis: a case report and review of the literature. Human Pathology: Case Reports. 2018;14:41-46.
2. Vogt S, Jones N, Christian D, Engel C, Nielsen M, Kaufmann A, et al. Expanded extracolonic tumor spectrum in MUTYH-associated polyposis. Gastroenterology 2009 Dec;137(6):1976-1985.
3. Lash RH, Hart WR. Intestinal adenocarcinomas metastatic to the ovaries. A clinicopathologic evaluation of 22 cases. Am J Surg Pathol 1987 Feb;11(2):114-121.
4. MacKeigan JM, Ferguson JA. Prophylactic oophorectomy and colorectal cancer in premenopausal patients. Dis

Colon Rectum 1979 Sep;22(6):401-405.

5. Blamey S, McDermott F, Pihl E, Price AB, Milne BJ, Hughes E. Ovarian involvement in adenocarcinoma of the colon and rectum. Surg Gynecol Obstet 1981 Jul;153(1):42-44.
6. Seidman JD, Kurman RJ, Ronnett BM. Primary and metastatic mucinous adenocarcinomas in the ovaries: incidence in routine practice with a new approach to improve intraoperative diagnosis. Am J Surg Pathol 2003 Jul;27(7):985-993.
7. Lee KR, Young RH. The distinction between primary and metastatic mucinous carcinomas of the ovary: gross and histologic findings in 50 cases. Am J Surg Pathol 2003 Mar;27(3):281-292.
8. Khunamornpong S, Suprasert P, Pojchamarnwiputh S, Na Chiangmai W, Settakorn J, Siriaunkgul S. Primary and metastatic mucinous adenocarcinomas of the ovary: Evaluation of the diagnostic approach using tumor size and laterality. Gynecol Oncol 2006 Apr;101(1):152-157.
9. Willett WC, Stampfer MJ, Colditz GA, Rosner BA, Speizer FE. Relation of meat, fat, and fiber intake to the risk of colon cancer in a prospective study among women. N Engl J Med 1990 Dec;323(24):1664-1672.
10. Syngal S, Brand RE, Church JM, Giardiello FM, Hampel HL, Burt RW; American College of Gastroenterology. ACG clinical guideline: genetic testing and management of hereditary gastrointestinal cancer syndromes. Am J Gastroenterol 2015 Feb;110(2):223-262.