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Research Letter

# Synchronous occurrence of primary neoplasms of the uterus with mucinous carcinoma of the cervix and endometrioid carcinoma of the endometrium

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Two primary gynecological cancers are occasionally found, and most are a combination of ovarian and endometrial cancers. Synchronous primary malignancies of the uterus located on the cervix and endometrium are extremely rare. Therefore, the treatment and outcome of these patients are still uncertain. A case of combined adenocarcinoma of the cervix and endometrium is reported.

A 55-year-old female presented at our hospital because of postmenopausal bleeding. Pelvic examination and Pap smear were unremarkable. Transvaginal ultrasound showed a 14-mm thick endometrium. Diagnostic dilatation and curettage was performed with a pathologic diagnosis of endometrioid carcinoma, Grade 2 (Fig. 1). Therefore, she underwent laparotomy staging surgery, including total hysterectomy, bilateral salpingo-oophorectomy, and pelvic and para-aortic lymph node sampling. The final pathology confirmed the preoperative diagnosis [surgicopathological International Federation of Gynecology and Obstetrics Stage: IB (1988 revision), Grade 2, endometrioid carcinoma of the endometrium] (Fig. 2), but showed co-existence of cervical cancer [mucinous carcinoma of the cervix, 4.2 cm, with deep stromal and corpus invasion (International Federation of Gynecology and Obstetrics Stage IB2)] (Fig. 3). Because of the inadequacy of initial treatment for this patient with cervical cancer, a postoperative adjuvant therapy—concurrent chemoradiation, including external beam pelvic radiation of 5040 cGy/28 fractions and five-course weekly cisplatin (50 mg/m$^2$) chemotherapy was used as a rescue therapy. After complete treatment, she was free of disease for 2 years.

Multiple primary malignancies in a single patient have been well documented in the literature. The incidence of synchronous primary malignancies of the female genital organs is only 1–6% of all genital neoplasms [1]. The lesions can be limited to a single organ or may involve multiple organ systems. These lesions can be classified into 2 categories: (1) synchronous—in which the cancers occur or are diagnosed at the same time (a current case) or within 2 months and (2) metachronous—in which the cancers follow in sequence (more than 2 months apart) [1].

The etiology and pathogenesis of synchronous cancers remain unclear. Eisner et al [2] speculated that when similar tissues of the female genital tract in embryology are subjected to carcinogens or irritants, they may develop synchronous tumors. In addition to external carcinogens, an intrinsic susceptibility may influence the risk of developing a second primary tumor in patients with head and neck squamous cell carcinoma [3]. Several investigators have found that patients with endometrial

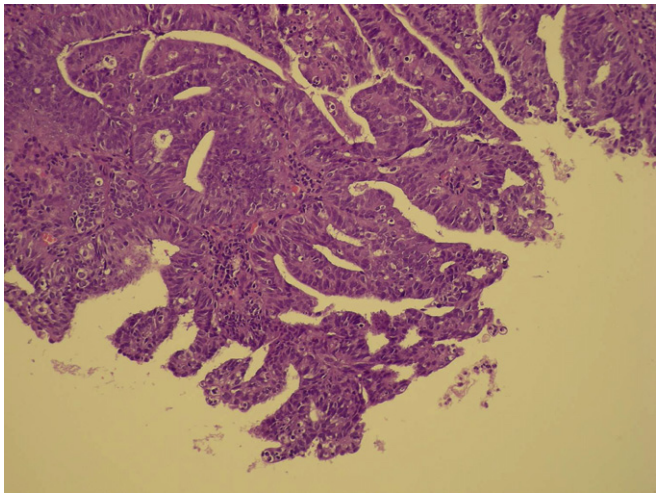

Fig. 1. The specimen derived from diagnostic dilatation and curettage showing endometrioid carcinoma, Grade 2 (hematoxylin and eosin staining 100×).

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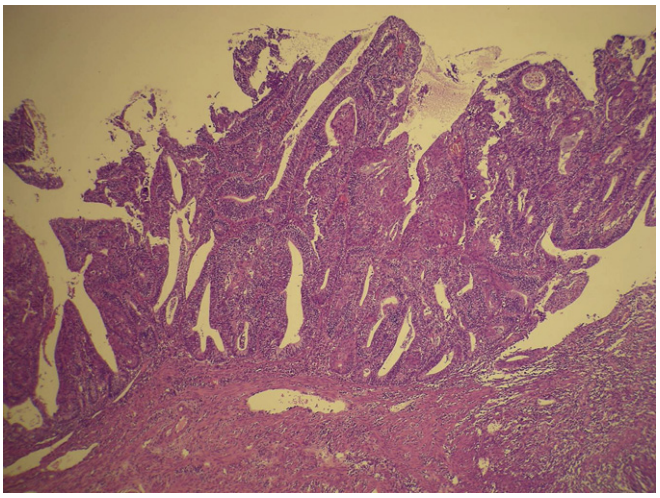

Fig. 2. Histology of the gross specimen (endometrial part) showing endometrioid carcinoma, Grade 2, with superficial invasion [International Federation of Gynecology and Obstetrics (FIGO) 2009 revision: Stage 1A; FIGO 1988 revision: Stage 1B] (hematoxylin and eosin staining 40×).

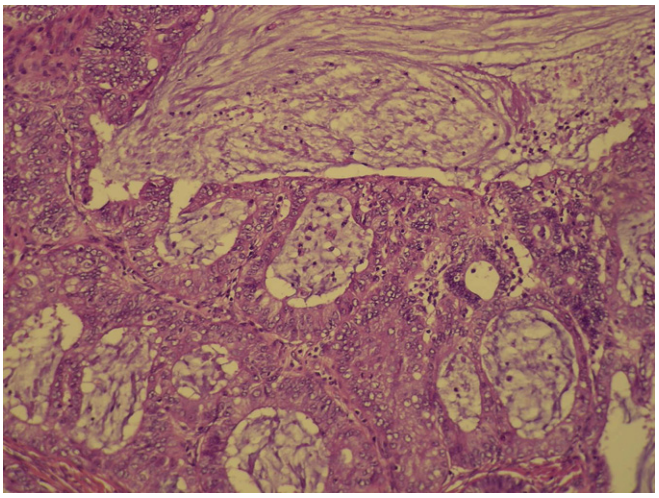

Fig. 3. Histology of the gross specimen (cervical part) showing mucinous carcinoma with mucin secretion, with the entire layer invaded (International Federation of Gynecology and Obstetrics: Stage IB2) (hematoxylin and eosin 200×).

cancer were at a statistically significantly higher risk for developing ovarian and cervical malignancy than the general population [4]. The genetic defect of a mismatch repair deficiency may be responsible for a small subset of double cancers of the colon-rectum and stomach [5]. Mutation of *p53*, a tumor suppressor gene, was identified in children and young adults with a second malignant neoplasm [5].

Coexisting ovarian and endometrial cancers are the most common synchronous gynecologic tumors in female patients [6]. Only four patients were diagnosed with synchronous endometrial and cervical cancer in Eisner's series [2]. However, all were a squamous cell carcinoma type of the cervix. The prognosis of synchronous tumors is often considered worse when compared with malignancies of a metachronous nature [2], despite some encouraging individual results [1]. Ayhan et al [6] reviewed the outcomes of patients with synchronous endometrial and ovarian cancer as well as other different synchronous tumors. They found that the survival of the patients is related directly to the original disease stage of either of the two cancers at the time of diagnosis. Early implementation of an aggressive treatment strategy for both primary cancers will provide a better outcome.

Treatment strategies in cases of synchronous cancers depend on the more severe or more advanced cancer and sometimes both tumors can be treated simultaneously. Although this patient's true diagnosis was missed in the preoperative diagnosis and she failed to receive an appropriate original therapeutic regimen, an intensive, immediate, and aggressive treatment provided a good outcome.

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