case report

Ovarian hemangioma occurring synchronously with serous papillary carcinoma of the ovary and benign endometrial polyp

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Ovarian hemangiomas are extremely rare tumors, most of which are asymptomatic and of the cavernous type.[1] Considering the rich vascular supply of the ovary, the low incidence of ovarian hemangiomas is somewhat surprising. There are about 50 documented cases in the literature. The 12 described in Table 1 were associated with gynecologic tract disease including endometrial hyperplasia, endometrial carcinoma and endometriosis.[1-34] Ovarian hemangiomas have been reported in both adults and children and most of the reported cases have been unilateral and small.[2,3] Although often an incidental finding at operation, ovarian hemangioma may rarely be associated with gynecologic cancers.[4-8] The tumor in our case was an additional and incidental finding in a surgical specimen removed because of a serous papillary carcinoma involving the left tuba and ovary.

CASE

A 65-year-old woman was admitted to the Department of Obstetrics and Gynecology of Pamukkale University for irregular bleeding and pelvic pain. The medical history of the patient was unremarkable. The serum androgen, estrogen, and progesterone levels were not examined preoperatively, although they were within normal limits postoperatively.

Pelvic examination revealed a normal-sized uterus and palpable abdominopelvic mass. Serum hormonal levels including FSH (follicle-stimulating hormone), LH (luteinizing hormone), TSH (thyroid-stimulating hormone), prolactin, estradiol and tumor markers including CA125, CA19-9 and CEA (carcinoembryonic antigen) were within normal limits. On ultrasonographic examination, the mass was solid and measured approximately 6 centimeters. The patient underwent laparatomy for a left adnexal mass. Macroscopically a tumor mass 6×4×2.5 centimeter in size was recognized in the adnexal region. The right ovary measured 3×2×1 centimeter, and grossly was unremarkable. The patient underwent a total abdominal hysterectomy, a bilateral salpingo-oophorectomy, appendectomy, partial omentectomy, and pelvic lymph node dissection. Ascites was not detected at operation. Macroscopic examination of the uterus (125 grams) showed an endometrial polyp measuring 1×1×0.6 centimeters and no leiomyoma was observed.

The specimen was fixed in 10% neutral formalin. The paraffin-embedded tissue sections were stained with hematoxylin and eosin. Using the avidine-biotin peroxidase complex method, we performed an immunohistochemical analysis for vimentin, CD34, CD31, inhibin, estrogen and progesterone. Immunohistochemically, we found expression of CD34, CD31, vimentin and no expression of inhibin, estrogen and progesterone receptors.

Histologically, the tumor was a serous papillary carcinoma involving the left tuba and ovary (Figure 1). Also, a small capillary hemangioma was incidentally diagnosed, composed of numerous small vascular spaces lined by a single layer of endothelial cells. The hemangioma was clearly distinct from the neoplastic elements. Mitotic activity was not noted and no atypical cells were seen (Figure 2). Neither teratomatous components nor luteinization of the surrounding ovarian stroma was observed, even in the serial sections of the ovary. Microscopic evaluation of the endometrium revealed an endometrial polyp composed of irregularly shaped, crowded, hyperplastic glands.

DISCUSSION

Vascular tumors of the female genital tract, especially hemangiomas of the ovary, are uncommon. The first was reported by Payne in 1869.[9] A review of the literature reveals that our case was unique because of the co-existence of the hemangioma with a serous papillary carcinoma of the ovary and an endometrial polyp. In most

Table 1. Clinico-pathologic features of patients with ovarian hemangioma associated with gynecologic tract disease and coexistent lesions reported in the literature.

Author	Age	Symptom	Maximum size (cm)	Location	Type	Luteinization	Coexistent lesion
Payne et al 1869	25 DOD	Vaginal bleeding	NA	Bilateral	NA	No	Abdominopelvic hemangiomatosis, uterine polyp
Kusum et al 1980	45	Irregular vaginal bleeding	2	L	NA	No	Cystic hyperplasia of endometrium
Alvarez et al 1986	68	Abdominal discomfort	24	L	Cavernous	No	Simple endometrial hyperplasia
Grant et al 1986	59	Aching breasts, postmenopausal bleeding	1,5	R	Mixed	No	Cystic hyperplasia of endometrium
Savargaonkar et al 1994	69	Postmenopausal bleeding	NA	NA	NA	Yes	Endometrial hyperplasia, tubal carcinoma
Tanaka et al 1994	16	Abdominal mass	15	R	Cavernous	No	Turner's syndrome and bilateral gonadal tumors
Carder et al 1995	36	Dysfunctional uterine bleeding	0,5	L	Cavernous	Yes	Cystic hyperplasia of endometrium
Carder et al 1995	62	Postmenopausal bleeding	1	L	NA	Yes	Endometrial carcinoma
Rivasi et al 1996	46	Metrorrhagia, anemia	0,5	NA	Capillary	No	Endometrial cancer
Jurkovic et al 1999	32	NA	NA	L	Cavernous	No	Mucinous cystadenoma
Miliara et al 2001	71	Rectosigmoid carcinoma	0,8	L	NA	Yes	Rectosigmoid carcinoma, endometriosis
Gücer et al 2004	70	Postmenapousal bleeding	1,5	L	Mixed	Yes	Endometrial cancer
Current case	65	Irregular vaginal bleeding and pelvic pain.	0,5	L	Capillary	No	Serous papillary carcinoma of the ovary, endometrial polyp

NA=Not available, DOD=Died of disease.

patients, ovarian hemangiomas are discovered incidentally, and sizes range from 0.3 to 24 centimeter.[10,11] The tumor is usually unilateral, but bilateral tumors have been reported.[1,12,13] Although they have been found in different parts of the ovaries, the medulla and hilar region are the most common location of the tumor.[12]

The etiology of ovarian hemangiomas is unknown and controversial. A hemangioma is now considered a part of a mature teratoma or a benign pure ovarian parenchymal neoplasm.[14-17] Similarly, some authors have proposed that hemangiomas are either hamartomatous malformations or neoplasms; both origins are probable, and formation may be stimulated by hormonal influences, pregnancy, or infection.[18,19] A review of the literature revealed that some ovarian hemangiomas are associated with endometrial hyperplasia and malignancies including endometrial cancer and germ cell tumor.[4-6,8,10]

In a few reported cases, ovarian hemangioma was associated with stromal luteinization, generalized hemangiomatosis and Ascites, leading to abdominal and pelvic symptoms.[1,8,11,14,17,20,21] Miyauchi hypothesized that multicentric abnormal proliferation of endothelial cells is the underlying pathology in generalized hemangiomatosis.[13] Luteinization of the ovarian stromal cells was regarded as a reactive phenomenon to the presence of any expansile lesion, including hemangioma.[4] Although our patient did not have stromal

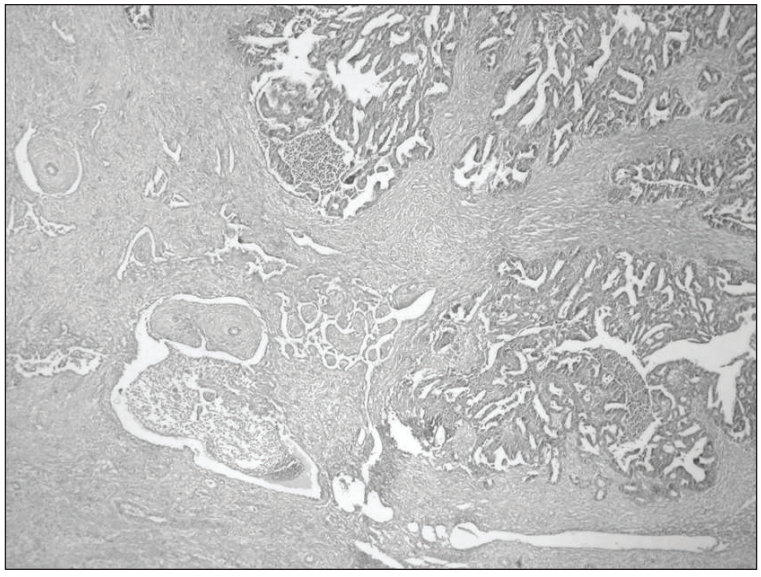

Figure 1. Papillary serous carcinoma involving the left tuba-ovary (H&E, ×10, original magnification).

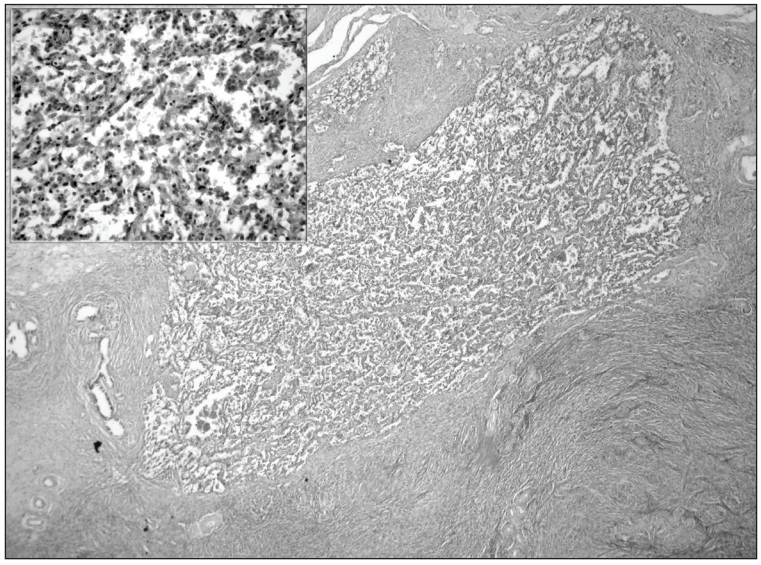

Figure 2. Ovarian hemangioma composed of numerous small vascular spaces. The inset shows vascular spaces lined by a single layer of endothelial cells with no nuclear atypia and mitosis (H&E, ◊10, ×40, original magnification).

luteinization in the affected and contralateral ovary, an endometrial polyp was observed. The pathogenesis of stromal luteinization remains controversial and there is a debate whether these luteinized cells promote the growth of the hemangioma and endometrial polyp or just represent a stromal reaction.[20,21] However, it is well known that luteinization may result in androgenic or estrogenic manifestations that could stimulate the development of endometrial hyperplasia, polyp and hemangioma, because the angiotropic effects of estrogens are well established.[4,7,8,10,20] It is obvious that the same growth factor may act on both the endometrial polyp and the endothelium, causing the concomitant growth of the two neoplasms. Postmenopausal bleeding and endometrial polyp-like endometrial hyperplasia may manifest hyperestrogenism. However, immunohistochemical studies have failed to reveal any affinity between the endothelium of our case and estrogen and progesterone receptors. Therefore, we suggest that ovarian hemangiomas may occur independently of stimulation by estrogen and progesterone.

Hemangioma must be differentiated from proliferations of dilated blood vessels. Shweta questioned the number of true ovarian hemangiomas because of the difficulty in distinguishing a small hemangioma from dilated hilar vessels. He proposed that a mass of vascular channels, large as well as small, and with minimal amounts of stroma, should form a reasonably circumscribed lesion distinct from the remainder of the ovary and can be regarded as true hemangioma.[2] Papillary tufting, significant cytologic atypia or mitotic activity, hemorrhage, and necrosis were not present, differentiating this lesion from angiosarcoma.[11]

Teratomas are included in differential diagnosis due to the prominent vascular component. In such cases careful sampling is important to exclude the presence of other teratomatous elements before diagnosing the tumor as a pure hemangioma.[14,15] We suggest that the tumor described in this report is an ovarian hemangioma arising from ovarian parenchymal cells rather than a teratoma originating from germ cells.

MR imaging is sometimes of value for making a preoperative diagnosis of ovarian hemangioma.[17,26] Hemangiomas should be considered when a richly vascularized tumor with prominent blood flow is detected on color Doppler sonography or MRI.[21,22]

Although some cases may not have been recognized or recorded, to the best of our knowledge this is the first case of a capillary ovarian hemangioma synchronous with a serous papillary carcinoma of the ovary. It should be noted that an ovarian hemangioma can be associated with gynecologic cancers and hemangiomatosis; therefore surgical removal of the involved areas and careful examination of the contralateral ovary and endometrium for a possible malignancy and examination of the abdominopelvic region for hemangiomatosis is essential.

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