A Rare Case of Adenocarcinoma Arising from Ovarian Mature Cystic Teratoma with Para-Aortic Lymph Node Metastasis

Overin Matür Kistik Teratomundan Köken Alan, Para-Aortik Lenf Nodu Metastazı Olan Nadir Bir Adenokarsinom Olgusu

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ABSTRACT A 72 year-old woman suffering from abdominal pain, was referred to our clinic with the finding of palpable pelvic mass. Transvaginal ultrasonography revealed a 107x95 mm cyst with hypo and hyperechogenities in the right ovary suggesting cystic teratoma. She was operated to rule out an ovarian or endometrial malignancy. An exploratory laparotomy, total abdominal hysterectomy, bilateral salpingoophorectomy and appendectomy were performed. Intraoperative frozen section examination of the right adnexal mass and the uterus was benign. However, the final pathologic diagnosis was adenocarcinoma arising from mature cystic teratoma. Afterwards, a staging laparotomy comprising bilateral pelvic, paraaortic lymphadenectomy and omentectomy was undertaken. Omentum and all lymph nodes were tumor free except a solitary grossly enlarged one at para-aortic region. Postoperatively 6 courses of adjuvant chemotherapy composed of paclitaxel and carboplatin were administered. At postoperative 33rd month follow-up, the patient is disease free. To the best our knowledge, this is one of the preliminary cases which an adenocarcinoma derived in a dermoid cyst with paraaortic lymph node metastasis.

Key Words: Teratoma; adenocarcinoma; lymphatic metastasis

ÖZET 72 yaşında karın ağrısı şikayeti olan kadın hasta, ele gelen pelvik kitle bulgusu ile kliniğimize refere edildi. Transvajinal ultrasonda sağ overde, içerisinde hipo ve hiperekojeniteler saptanan, 107x95 mm'lik kistik teratom ile uyumlu olduğu düşünülen yapı görüldü. Hasta ovaryan veya endometrial bir maligniteyi ekarte etmek amacıyle opere edildi. Eksploratuar laparotomi, total abdominal histerektomi, bilateral salpingoooferektomi ve appendektomi işlemleri yapıldı. Sağ adneksiyal kitlenin ve uterusun intraoperatif frozen biyopsi incelemeleri benign olarak bildirildi. Buna rağmen, nihai patolojik tanı matür kistik teratomdan kaynaklanan adenokarsinom olarak açıklandı. Sonrasında bilateral pelvik, paraaortik lenfadenektomi ve omentektomiyi içeren evreleme cerrahisi yapıldı. Para-aortik bölgede bulunan tek ve makroskopik olarak büyümüş olan lenf nodu dışındaki lenf nodları ve omentumda tümör yoktu. Postoperatif dönemde paklitaksel ve karboplatin içeren 6 kürlük adjuvan kemoterapi alan hasta, ameliyat sonrası 33. ayında hastalıksız olarak izlenmektedir. Bizim bilgilerimize göre bu olgu, dermoid kistten kaynaklanan adenokarsinoması ve eşlik eden paraaortik lenf nod metastazı olan olguların öncülerinden birisidir.

Anahtar Kelimeler: Teratom; adenokarsinom; lenfatik metastaz

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Teratomas, which might be found in many parts of the body (ovaries, testes, anterior mediastinum, retroperitoneal space, the presacral and coccygeal areas), consist of elements from the ectoderm, endoderm, and mesoderm.[1,2] Malignant transformation of a mature cystic teratoma (MCT) is an uncommon entity occurring in approximately 1-3% of all MCTs.[3] Even though any of the constituent tissues within a teratoma mass

has the potential to undergo malignant transformation, squamous cell carcinoma is the most commonly associated malignancy.[4] Here, we report a case of adenocarcinoma arising from ovarian MCT with a solitary para-aortic lymph node metastasis which is the only site of extraovarian spread.

CASE REPORT

A 72 year-old postmenopausal woman (gravida 3, parity 2, abortus 1), suffering from low abdominal pain, was referred to our clinic with the finding of palpable right adnexal mass. She had hypertension and diabetes mellitus on personal history. Bimanual vaginal examination revealed a 10 cm mobile cystic right adnexal mass with regular contour. Cervix and vaginal walls were normal on speculum examination. There was no nodularity on the Douglas pouch. And also rectal examination was normal. Transvaginal ultrasonography revealed a 107x95 mm cyst with hypo and hyperechogenities inside in the right ovary suggesting cystic teratoma, and a 26 mm endometrial thickness suggestive of endometrial polyp. Whole blood count, urine analysis, liver function tests, upper abdominal sonography and chest radiograph were unremarkable. The tumor marker levels were as follows; CA19-9: 56.53 IU/mL, CA125: 111.4 U/mL, CA15-3, carcinoembryonic antigen (CEA) and alpha-fetoprotein levels were within normal limits. Upper and lower gastrointestinal system endoscopic studies were normal. An exploratory laparotomy, total abdominal hysterectomy (TAH), bilateral salpingoophorectomy (BSO) and intraoperative frozen section examination of the adnexal mass and the uterus were planned to exclude an ovarian or endometrial malignancy.

During infraumbilical midline laparotomy on pelvic view; an 11x9 cm, bilobulated, gray colour, soft cystic right ovarian mass was found. Capsule covering the tumor was intact and no ascites were detected. Appendix seemed erectile and congested. The uterus, left fallopian tube and ovary showed grossly normal appearance. At the beginning, peritoneal washing fluid was obtained then TAH, BSO and appendectomy procedure were performed. The uterus and right ovarian mass were sent for frozen section examination.

In frozen section; macroscopically, the right adnexal mass was enlarged and measured 13x10x8 cm. The mass in gross form had both cystic and solid components with an intact smooth capsule . A section of the cystic areas contained soft yellow sebaceous material with hairs and a section of solid areas was tan-brown with extensive areas of necrosis and hemorrhage. The uterus was measured 7.5x4.5x3 cm. Outer surface of the uterus was normal but there was an endometrial polyp in the endometrial cavity with a size of 5x2,5x1,5 cm. Two sections from right adnexal mass and two sections from endometrial polyp were taken for an intraoperative examination of frozen sections and revealed endometrial polyp for uterus and MCT for the adnexal mass.

Because both of the specimens were reported as benign at the frozen section examination, the operation was ended. Postoperative course of the patient was uneventful and she was discharged home at the fourth day.

Thereafter, the right adnexal mass was investigated in permanent section with more samples. Microscopically, cystic areas of the right ovarian mass were typical of MCT lined by squamous epithelium and skin adnexal structures. There were also respiratory mucosa, skeletal muscle and adipocytes (Figure 1). No immature elements were identified in the mass. Solid areas of the mass con-

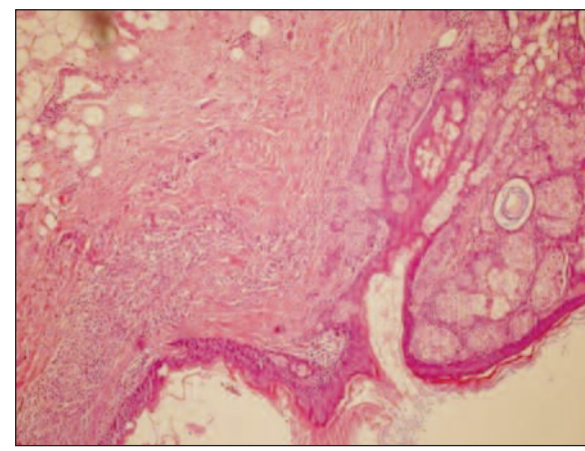

FIGURE 1: Mature cystic teratoma containing squamous epithelium, respiratory mucosa, skin and adipocytes (HE, x100).
(See color figure at http://jinekoloji.turkiyeklinikleri.com/)

tained small adenocarcinoma focuses consisting of atypical epithelial cells with hyperchromatic nuclei and eosinophilic cytoplasm among extensive areas of hemorrhage and necrosis. Mitotic figures were common (Figure 2). Immunohistochemically, these cells were diffusely positive for cytokeratin 7 (Neomarkers, OV-TL 12/30), but negative for vimentin (Clone V9, Neomarkers), WT 1 (Thermo, 6F-H2), S-100 (Clone 4C4.9, Neomarkers), and SMA (Clone 1A4, Neomarkers). There was no capsule and lymphovascular invasion. There was endometrial polyp in the uterus. The uterus, left ovary, fallopian tubes, appendectomy specimens and pelvic washings were free of the tumor. The final histological diagnoses were adenocarcinoma arising from MCT in the right ovary, endometrial polyp in the uterus and acute appendicitis in appendix rendering the initial operation as incomplete.

Three weeks after the initial operation; CA 125 level of the patient was 110 U/mL, CA 19-9 was normal, abdominopelvic computed tomography revealed a solitary 30x27 mm enlarged lymph node over the inferior vena cava (IVC) at the level of the inferior mesenteric artery. We undertook a staging laparotomy via an infra and supraumbilical midline incision consisting of systematic bilateral pelvic, paraaortic lymphadenectomy up to the level of renal veins and omentectomy and excised completely the 3 cm sized metastatic lymph node over the IVC. Her postoperative course was uneventful.

Microscopically, grossly enlarged paraaortic lymph node was reported as metastatic adenocarcinoma (Figure 3). All other 37 lymph nodes excised and omentum were tumor free.

Two weeks after the complementary operation, CA-125 value returned to normal and 6 courses of adjuvant combination chemotherapy composed of paclitaxel and carboplatin were administered. She was advised pelvic examinations, vaginal cytology, and tumor marker follow-up every 3 months and abdomino-pelvic computered tomography screening every 6 months. Presently, at postoperative 33rd month follow-up, she is disease free and continues to be well.

DISCUSSION

Mature cystic teratomas, also named as dermoid cysts, generally consist of mature tissues with elements of all three germ cell layers, and are usually benign in all age groups.[1,2] On the other hand, 1-3% of MCT cases have malignant changes especially in postmenopausal women. Squamous cell carcinoma transformation is the most common type among these malign forms.[3,4] Basal cell carcinoma, sebaceous tumor, malignant melanoma, sarcoma, neuroectodermal tumor and adenocarci-

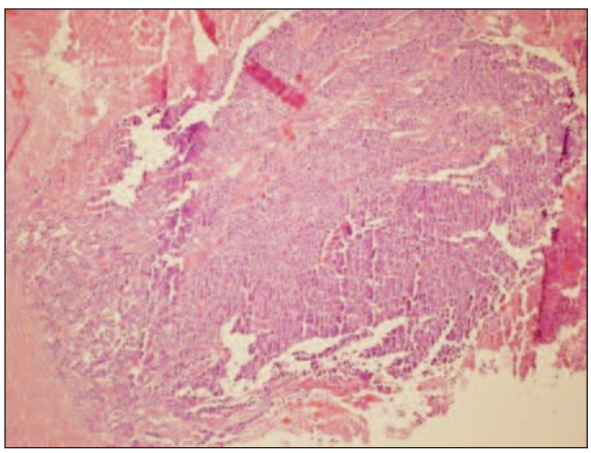

FIGURE 2: Adenocarcinoma focus consisting of atypical epithelial cells with hyperchromatic nuclei, eosinophilic cytoplasm and mitotic figures (HE, x100).
(See color figure at http://jinekoloji.turkiyeklinikleri.com/)

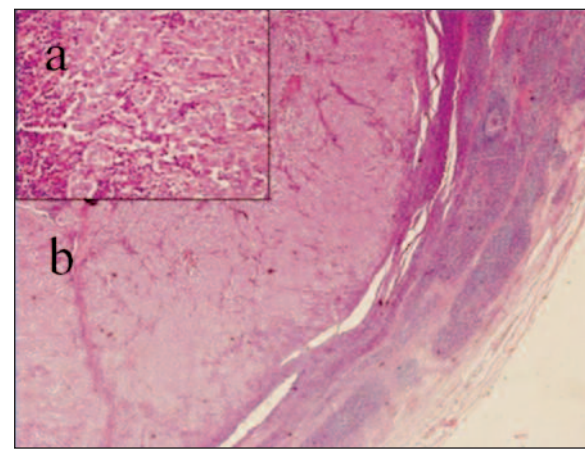

FIGURE 3: Lymph node with adenocarcinoma metastasis from paraaortic region (HE; a, x100, b, x400).
(See color figure at http://jinekoloji.turkiyeklinikleri.com/)

noma are other reported tumors arising in MCT.[4,5]

In 1957, Peterson reviewed 15 cases of adenocarcinoma in a total of 227 dermoid cysts with malignant transformation.[5] Thenceforward, some case reports emphasizing the rarity of this situation were published. The tissue origin in these reports varied from sweat glands, salivary glands, mammary glands to respiratory ciliated epithelium, gastrointestinal and thyroid glands.[5,6]

In 2008, Park et al. reported a patient with a 16x10 cm left adnexal mass, para-aortic lymph node enlargement and ascites. Hysterectomy with bilateral salpingo-opherectomy, appendectomy, omentectomy, pelvic and para-aortic lymph node dissection, and peritoneal lavage procedures were performed. The pathologic diagnosis was mucinous adenocarcinoma arising from a MCT of the left ovary. They also mentioned that findings of metastasis from poorly differentiated adenocarcinoma with the existence of cytokeratin 7 and cytokeratin 20 in para-aortic lymph nodes indicated the possibility of this metastasis originating from the solid area of ovarian lesion. This case was unique because there was no report before presenting para-aortic lymph node metastasis in a mucinous adenocarcinoma arising from a MCT.[7] From this point of view, our case is one of the preliminary ones who had dermoid cyst, adenocarcinoma focuses arising in it and solitary grossly enlarged para-aortic metastasis. Interestingly our case and the mentioned case had a very good prognosis despite metastasis.

Unfortunately there are difficulties in preoperative diagnosis of malignant transformation from benign cystic teratoma. One of the previous studies investigating this subject found that; among age, tumor size, serum CEA and squamous cell carcinoma (SCC) antigen level, the combined two criteria of patient's age (under 40 years old or younger) and serum SCC antigen level (under 2.5 ng/mL) were determined as a proper marker for differential diagnosis between benign MCTs and malignant transformation.[8] In another one, it was mentioned that patients older than 45 years who had a MCT-like ovarian tumor larger than 99 mm in the greatest diameter should have a preoperative serum SCC and CEA levels in making a differential diagnosis.[9] These findings were related to squamous cell carcinomas arising in MCTs. In addition, Lee et al. reviewed 9 patients with adenocarcinomas deriving in MCT and reported that specific tumor markers and tumor size were ineffective in contributing to the preoperative diagnosis of adenocarcinomas arising from MCT.[10] CA 125 level in the present case elevated and may be thought as a sign of malignity.

Although, after the initial operation, our case seemed as an early stage ovarian cancer, para-aortic lymph node metatasis was detected in the staging laparotomy comprising bilateral pelvic, paraaortic lymphadenectomy and omentectomy. This finding was in accordance with the data mentioning the possibility of 10 to 20% lymph node involvement in clinically stage I disease and positive aortic nodes in the absence of positive pelvic nodes.[11-13] But actually the above mentioned data is related with epithelial ovarian cancers and from this point of view; there is lack of data about the skip metastasis rate in adenocarcinomas arising from mature cystic teratomas, the incidence of which is extremely rare.

In conclusion, even it is rare, the malignant transformation property of dermoid cysts should be kept in mind particularly by the pathologists examining the frozen section coming from especially older age and high risk group patients who are operated with the suspicion of malignancy.

REFERENCES

1. Templeman CL, Fallat ME, Lam AM, Perlman SE, Hertweck SP, O'Connor DM. Managing mature cystic teratomas of the ovary. Obstet Gynecol Surv 2000;55(12):738-45.
2. Kahraman K, Tülek F, Taşkın S, Tolunay E, Dökmeci F. [Ovarian mature cystic teratomas: Analysis of 83 cases]. Turkish Journal of Gynecologic Oncology 2010;13(4):97-102.
3. Griffiths D, Wass J, Look K, Sutton G. Malignant degeneration of a mature cystic teratoma five decades after discovery. Gynecol Oncol 1995;59(3):427-9.
4. Rose PG, Tak WK, Reale FR. Squamous cell carcinoma arising in a mature cystic teratoma with metastasis to the paraaortic nodes. Gynecol Oncol 1993;50(1):131-3.
5. Peterson WF. Malignant degeneration of benign cystic teratomas of the overy; a collective review of the literature. Obstet Gynecol Surv 1957;12(6):793-830.
6. Song YJ, Ryu SY, Choi SC, Lee ED, Lee KH, Cho SY. Adenocarcinoma arising from the respiratory ciliated epithelium in a benign cystic teratoma of the ovary. Arch Gynecol Obstet 2009;280(4):659-62.
7. Park JH, Whang SO, Song ES, Choi SJ, Lee WY. An ovarian mucinous cystadenocarcinoma arising from mature cystic teratoma with para-aortic lymph node metastasis: a case report. J Gynecol Oncol 2008;19(4):275-8.
8. Mori Y, Nishii H, Takabe K, Shinozaki H, Matsumoto N, Suzuki K, et al. Preoperative diagnosis of malignant transformation arising from mature cystic teratoma of the ovary. Gynecol Oncol 2003;90(2):338-41.
9. Kikkawa F, Nawa A, Tamakoshi K, Ishikawa H, Kuzuya K, Suganuma N, et al. Diagnosis of squamous cell carcinoma arising from mature cystic teratoma of the ovary. Cancer 1998;82(11):2249-55.
10. Lee JM, Kim JW, Song JY, Lee JK, Lee NW, Kim SH, et al. Adenocarcinoma arising in mature cystic teratoma: a case report. J Gynecol Oncol 2008;19(3):199-201.
11. Powless CA, Aletti GD, Bakkum-Gamez JN, Cliby WA. Risk factors for lymph node metastasis in apparent early-stage epithelial ovarian cancer: implications for surgical staging. Gynecol Oncol 2011;122(3):536-40.
12. Burghardt E, Girardi F, Lahousen M, Tamussino K, Stettner H. Patterns of pelvic and paraaortic lymph node involvement in ovarian cancer. Gynecol Oncol 1991;40(2): 103-6.
13. Baiocchi G, Raspagliesi F, Grosso G, Fontanelli R, Cobellis L, di Re E, et al. Early ovarian cancer: Is there a role for systematic pelvis and para-aortic lymphadenectomy? Int J Gynecol Cancer 1998;8(2):103-8.