Gastrointestinal Stromal Tumor Mimicking Ovarian Tumor

Özlem Seçilmiş KERİMOĞLU1, Füsun BABA2, Aybike TAZEGÜL1, Hüsnü ALPTEKİN1, Hasan ACAR1, Çetin ÇELİK1

Konya, Turkey

Malignant gastrointestinal stromal tumors are rare mesenchymal tumors originating from the gastrointestinal tract. Making a differential diagnosis with gynecologic masses may be difficult in the preoperative period. The patient was a 45- year-old woman who presented to our clinic with a palpable mass filling the pelvis. The CA 125 value was 42.7 U/ml. She underwent right hemicolectomy, total omentectomy, total abdominal hysterectomy, bilateral salpingo-oophorectomy and bilateral pelvic and para-aortic lymph node dissection since the frozen section assessment of the biopsy from the right colon was reported as a tumoral mass probably originating from the ovary. Tumoral tissue showed diffuse cytoplasmic membranous staining immunohistochemically with CD117, showed strong focal strong cytoplasmic staining with SMA. It was stained negative with desmin, S-100 and CD34. Molecular analysis of KIT gene was performed, we didn’t detect mutations of exon 9 or 11. Surgical exploration of pelvic masses with undetermined origins should be performed in multidisciplinary hospitals including gynecological oncology and surgical oncology teams. Histopathological examinations should be performed by experienced pathologists.

Key Word: Gastrointestinal stromal tumor, Ovary

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Introduction

Gastrointestinal stromal tumors (GIST) are rare mesenchymal tumors originating from the gastrointestinal tract. Its differential diagnosis among possible gynecological masses is hard due to the difficulty in the differential diagnosis using examination methods and radiological imaging methods in the preoperative period and limited contribution of the examination performed using frozen section histopathological evaluation methods intraoperatively.1 2 In this case report, we aimed to present a patient with a GIST who underwent an operation in our clinic with the prediagnosis of a pelvic mass.

Case Report

A 45 year old patient who had complaints of oligomenorrhea, abdominal and groin pain for the last 4 months presented to our hospital as she felt a palpable swelling in the abdomen. Her medical history did not included any gastrointestinal or gynecological complaints prior to these complaints. While there was a soft mass reaching the umbilicus on the physical examination, the uterus was normal in size; however, the ovaries could not be precisely evaluated on the abdominal ultrasonography, a big heterogenous mass lesion filling the pelvic area, consisting of approximately 106x87 mm of cystic component in the left upper quadrant and the origin of which could not be exactly distinguished, was detected. Minimal fluid was detected between the neighbouring intestinal loops. The uterus was normal in size; however, the ovaries could not be evaluated due to the pelvic mass on ultrasonography as well. CA 125 was mildly elevated, measured as 42.7 U/ml.

A mass of approximately 15x16 cm in size, filling the whole abdomen, originating from the ceacum was observed intraoperatively. The uterus was normal in size, and the bilateral fallopian tubes and ovaries were atrophic. The general surgery team participated the operation. Right hemicolecotomy was performed along with removal of the mass. Furthermore, a 10 cm portion of the intestinal loop in which a mass was detected was excised and an end-to-end anastomosis was performed. The patient was then handed over to the gynecology team after having performed an ileocolic anastomosis. The mass was sent for frozen section examination. Total abdominal hysterectomy, bilateral salpingo-oophorectomy and bilateral pelvic- para-aortic lymph node sampling were performed
since the mass was reported as a possible tumoral mass originating from the ovary according to the frozen section assessment.

On histopathological examination, a 16x12x8 cm portion of smooth, broad-based tumoral mass was observed in the serosal surface of the excised colon segment (Figure 1). Tumor cells comprising fusiform cells histologically showed moderate cellular pleomorphism (Figure 2). The number of mitosis was higher than 15/10 HPF; the Ki 67 score was higher than 10%. The tumoral mass showed diffuse cytoplasmic membraneous staining with CD 117, and focal strong cytoplasmic staining with SMA (Figures 3,4). It was stained negative with desmin, S-100, CD 34. The histopathological diagnosis was reported as malignant gastrointestinal tumor. Molecular analysis of KIT gene with DNA sequencing was performed to identify mutations of exon 9 and 11 after polymerase chain reaction and amplification of genomic DNA. Our patient had no mutations within KIT exon 9 or 11.

The patient completed the postoperative recovery period was handed over to the medical oncology department for adjuvant chemotherapy.

Discussion

Gastrointestinal tumors are among the rare tumors of this system and are most commonly seen in the stomach. In connective tissue, they are thought to originate from cells regulating the autonomous behavior of the gastrointestinal system. 3

Radiological and histopathological assessments may indicate a gastrointestinal stromal tumor; however, the definite diagnosis can be made immunohistochemically. 4 Most of these tumors express CD 117 (72-94%) and CD 34 (70-78%).

Indiscrimination of GIST with pelvic masses has also been formerly reported. The fact that these masses can seen with mild CA 125 elavation and heterogenous appearance makes their differential diagnosis with primary or metastatic ovarian neoplasms difficult. As in some case reports like ours, the gastrointestinal origin could only be understood postoperatively. 1,2 The fact that the definite diagnosis can be made immunohistochemically makes frozen section examination difficult.

While postoperative adjuvant therapy is not required for small (<5 cm) tumors with low mitosis rates (<5/50 HPF), treatment with a tyrosine kinase inhibitor (imatinib) is required for large cases with high mitosis rates as in our case. 5 The leading factor increasing the effectiveness of chemotherapy and affecting survival is complete removal of the tumor.
GISTs generally contain activating mutations of KIT proto-oncogene (75%-85%) or less frequently the platelet-derived growth factor receptor (PDGFRA) gene (5%-7%) (6-8). Imatinib inhibits receptor tyrosine kinases including KIT and PDGFRA. In addition to complete surgical resection, clinical response to chemotherapy with imatinib may correlate with mutational status of KIT and PDGFRA. Several studies reported that tumours containing KIT exon 11 mutations are more likely to respond imatinib treatment when compared with KIT exon 9 mutations or wild type8-11. Although the tumoral mass showed diffuse cytoplasmic membranous staining with CD 117 in our study, we didn’t detect mutations of KIT exon 11 or 9 which are the most common.

The possibility of non-gynecological factors of pelvic masses with suspicion of malignancy and obscure origin should be kept in mind and these cases should be operated in centers that possess gynecological oncology, surgical oncology and pathologists experienced in their field.

**References**