Primary Extragastrointestinal Stromal Tumor of the Sigmoid Mesocolon with Metastatic Spread to Greater Omentum: Case Report

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A B S T R A C T

A 71-year-old female complained of abdominal pain, weight loss and abdominal distension. Gynecologic examination revealed a hardly movable, palpable mass in the lower abdomen, reaching the umbilicus. An abdominal ultrasound and computed tomography (CT) scan suggested a large abdominal mass with the possible origin in the left ovary and without significant lymph node enlargements. The patient subsequently underwent complete evacuation of tumor tissue, omentectomy and total abdominal hysterectomy and bilateral salpingo-ovariectomy. Immunohistochemical examination revealed strongly positive staining of tumor cells for CD117. The final pathologic diagnosis was a primary extragastrointestinal stromal tumor (EGIST) of the sigmoid mesocolon with omental metstasis. The differential diagnosis of the tumor presented in the lower abdomen should consider the EGIST as well.

Key words: *immunohistochemistry, CD117, metastasis*

Introduction

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumor of the gastrointestinal (GI) tract. GISTs express c-kit protein also known as CD117, which is considered as a highly specific marker that differentiates it from other mesenchymal tumors[1]. Neoplasms with histology and immunohistochemistry similar to GISTs may occur outside the GI tract, for example in the soft tissue of the abdominal cavity (omentum and mesentery) or in the retroperitoneum[2]. GIST that arises primarily outside the GI tract is termed extragastrointestinal stromal tumor (EGIST). While the histogenesis, prognostic parameters and outcomes of GISTs are widely known, pathogenesis, incidence and prognosis of EGISTs have not yet been completely defined. We report the results of the macroscopic and microscopic examinations, including immunohistochemical studies, of an EGIST of the sigmoid mesocolon.

Case Report

A 71-year-old woman presented with abdominal pain and pressure of 3 months duration, accompanied by anemia and a weight loss of 4 kilograms. There was no family history of malignant diseases. Physical examination revealed a hardly movable, palpable mass in the lower abdomen, reaching the umbilicus. The abdominal ultrasound discovered a solid, highly vasculated mass (25x15 cm) with numerous shunts, located in the pelvic cavity (behind the uterus) and abdomen. The resistive index

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(RI) in the mass was 0.32 to 0.37. The laboratory values and common tumor markers (CA125, CEA, CA19-9) were within normal range with the exception of hemoglobin 83 g/L. The computed tomography (CT) scan suggested a large lower abdominal mass with possible origin in the left ovary and without significant lymph node enlargements noted. Intraoperatively, we found a large round-shaped mass located in the lower abdomen with multiple adhesions to the sigmoid mesocolon, sigmoid colon and uterus. The greater omentum was consumed with multiple tumor nodules whose size varied from 0.7 mm to 27 mm. After adhesiolysis the tumor was removed entirely (Figure 1) and total abdominal hysterectomy with bilateral salpingo-ovariectomy and total omentectomy were performed. Exploration of the abdominal cavity displayed no more tumor masses in abdomen.

Pathology analysis revealed that the uterus, both tubes and ovaries, were free of tumor cells.

Macroscopically, the tumor was lobulated, round-shaped, of 29x23x12 cm in size; it had free margins, central parts of local necrosis and hemorrhage in almost 20% of the tissue. Microscopically, the tumor consisted of nests, clusters and pseudoglandular cords of uniform appearance, epitheloid polygonal cells with eosinophilic, variably vacuolated cytoplasm (physalipherous-like cells). Transitions between large eosinophilic cells and spindle ones were interspersed. The tumor cells embedded in focally myxoid stroma were separated by fibrous tissue. The mitotic activity was 2–5 mitosis/50 high-power field (HPF). There was no residual muscular tissue from the gut wall in the tumor pseudocapsule. Immunohistochemistry showed positive reactions of tumor cells for vimentin, bcl-2 and CD99 as well as positive focal reactions for neuron specific enolase (NSE). Reactions of tumor cells for HBME-1, CA125, CK7, CK20, CK5/6 and CKAE1/AE3 were negative. Primitive neuroectodermal tumor (PNET) was first suspected and reverse transcription polymerase chain reaction (RT-PCR) was introduced to reach a final conclusion. RT-PCR analysis showed a negative reaction for EWS/FLI-1 for both types and negative reactions for SYT/SSX1 and SYT/SSX2. Therefore the initial diagnosis of PNET was rejected. Further immunohistochemical analysis revealed positive reactions of tumor cells for calponin, S-100, and diffuse strong CD117 positivity. Reactions of tumor cells for leucocyte common antigen (LCA), chromogranin, sinaptophisin, carcinoembryonic antigen (CEA), cytokeratin 19, CK18, Melan-A, HMB45, CD34, smooth muscle actin (SMA), desmin, epithelial membrane antigen (EMA) and glial fibrillary acidic protein (GFAP) were negative. These findings strongly supported a diagnosis EGIST. The patient recovered well and 8 days after the surgical procedure she was discharged from the hospital to home care. The 16-month follow-up has shown no tumor recurrence to date.

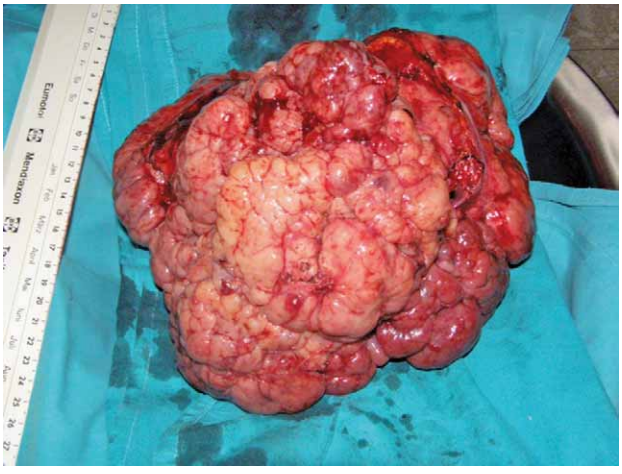

Fig. 1. Surgically removed tumor mass.

Discussion

The GISTs are the most common mesenchymal tumors of the GI tract with an incidence estimated at 7 to 14 per 1 million in the general population[3]. These tumors usually occur in the stomach (60–70%) and small intestine (20–35%), with rare occurrence in the colon and rectum (5%), esophagus (<2%) and appendix[3–5]. Some GISTs are unrelated to the tubular gastrointestinal tract and they are termed EGISTs. Incidence of EGISTs is not defined yet[3]. EGISTs are probably rarer than previously reported. Most cases of EGISTs are likely to represent mural GISTs with extensive extramural growth with eventual loss of contact with the muscle layer of the gut[6]. GISTs should be defined by virtue of any degree of association with the muscularis propria (supported by desmin immunoreactivity), but not by localization of the bulk of the tumor[6,7].

EGISTs arising in the mesentery of sigmoid colon are extremely rare. A total of 99 omental and mesenteric EGISTs have been reported in four published series from 1999 to 2008[3].

EGIST have various clinical behavior, and the parameters used for predicting the prognosis of GIST may not be completely suitable for EGIST evaluation. Miettinen et al. examined seven cases of mesenteric EGISTs and nine cases of omental EGISTs. Mesenteric EGISTs appeared more aggressive (higher mitotic activity, frequent malignant behavior)[8].

Reith et al.[9] noted that EGIST arising within the abdominal cavity (40 cases) and the retroperitoneum (8 cases) expressed CD117 (100%), CD34 (50%), neuron-specific enolase (44%), smooth muscle actin (26%), desmin (4%), and S-100 protein (4%). High cellularity, mitotic activity (>2 mitoses/50 HPF) and the presence of necrosis were factors indicative of a potentially aggressive clinical course for EGIST. Our patient displayed two high-risk features (mitotic activity >2/50 HPF and presence of necrosis). Tumor size, which is commonly used in GISTs as a prognostic factor, is not applicable to EGISTs[9,10]. EGISTs appear to have enough space to grow and they are often large size, presenting clinical symptoms only after a long time. Since the preoperative diagnosis based on clinical and radiological data is difficult, the patients

usually undergo a surgical operation for the generic diagnosis of »abdominal mass« or suspected gynecological tumor[3,11]. Our patient had nonspecific imaging features on abdominal ultrasound and CT scan that could mimic the ovarian tumor.

An aggressive surgical approach is the most effective treatment[12]. Lymphadenectomy is not required[13].

Conclusion

This case draws our attention to the importance of considering EGISTs in the differential diagnosis of a tumor mass in the lower abdomen. Especially surgeons as well as diagnostic pathologists should be aware of this possibility. In most cases a preoperative diagnosis is not possible.

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PRIMARNI EKSTRAGASTROINTESTINALNI STROMALNI TUMOR MEZENTERIJA SIGMOIDNOG DEBELOG CRIJEVA S METASTAZAMA U VELIKOM OMENTUMU: PRIKAZ SLUČAJA

SAŽETAK

Žena u dobi od 71 godinu žalila se na bol u trbuhu, nadutost i gubitak tjelesne težine. Ginekološkim pregledom palpirala se slabo pomična tumorska masa u donjem trbuhu koja je sezala do pupka. Abdominalnim ultrazvukom i kompjutoriziranom tomografijom prikazana je velika tumorska tvorba u trbuhu koja vjerojatno potječe od lijevog jajnika. Povećani limfni čvorovi nisu prikazani. Kirurškim je zahvatom u potpunosti odstranjeno tumorsko tkivo, učinjena je omentektomija i totalna abdominalana histerektomija s obostranom adneksektomijom. Imunohistokemijskim bojanjem dokazana je jaka pozitivnost tumorskih stanica na CD117. Konačna dijagnoza je bila primarni ekstragastrointestinalni stromalni tumor (EGIST) mezenterija sigmoidnog debelog crijeva s metastazama u velikom omentumu. Diferencijalano dijagnostički kod tumora donjeg abdomena uvijek treba uzeti u obzir EGIST.