The Incidence of Sarcomas Among Patients Who Were Operated for Leiomyomas

LEİOMYOMA ÖN TANISIYLA OPERE EDİLEN HASTALARDA SARKOM İNSİDANSI

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Summary

Objective: To determine the incidence of sarcoma in patients who had myomectomies and hysterectomies for benign reasons.

Materials and Method: We reviewed the files of 1438 patients who had been operated for presumed benign leiomyomas between January 95 and January 2000 in Zekai Tahir Burak Women Health Training and Research Hospital. The incidences of leiomyosarcoma, endometrial stromal sarcoma and malignant mixed Mullerian tumor were investigated. The ages of the patients, presenting symptoms, the preoperative, intraoperative, operative and final pathological findings were reviewed.

Results: The overall sarcoma incidence was 0,42% (6 cases) in the study group of 1438 patients. The incidence of leiomyosarcoma was 0,07 % (one patient). Three (0,2%) of the patients had low grade endometrial stromal sarcoma. One (0,07%) patient had malignant mixed mullerian tumor. One (0,07%) patient had malignant mesenchymal tumor with low mitotic index. Among the 98 myomectomies no sarcomas were diagnosed and among the 100 vaginal hysterectomies no sarcomas were diagnosed pathologically, either.

Conclusion: The incidence of sarcoma among the patients underwent surgery for leiomyoma is very low. Furthermore, most of these sarcomas identified are low grade tumors.

Key Words: Leiomyoma, Leiomyosarcoma, Endometrial stromal sarcoma, Malignant mixed Mullerian sarcoma

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Özet

Amaç: Benign sebeplerle histerektomi ve myomektomi geçiren hastalarda sarkoma insidansını saptamak.

Materyel ve Metod: Zekai Tahir Burak Kadın Sağlığı Eğitim ve Araştırma Hastanesi'nde Ocak 1995 ile Ocak 2000 tarihleri arasında leiomyoma ön tanısıyla opere edilmiş olan 1438 hastanın dosyası geriye dönük incelendi. Leiomyosarkom, endometrial stromal sarkom ve malign miks Müllerian tümör insidansları araştırıldı. Hastaların yaşları, başvuru semptomları, preoperatif, operatif bulguları ve patoloji raporları incelendi.

Sonuçlar: Genel sarkom insidansı %0.42 olarak bulundu (6 hasta). Leiomyosarkom insidansı %0.07 olarak bulundu (bir hasta). Üç hastada (%0.2) düşük grade'li endometrial stromal sarkom saptandı. Bir hastada (%0.07) malign mikst Mullerian tümör bulunurken, bir hastada da (%0.07) türü belirlenemeyen düşük mitotik indeksli malign mezenşimal tümör saptandı. Myomektomi yapılan 98 ve vajinal histerektomi yapılan 100 hastada ise herhangi bir malignite saptanmadı.

Sonuç: Leiomyoma sebebiyle opere edilen hastalarda sarkom insidansı oldukça düşüktür. Bunların da çoğu düşük mitotik indeksli ve düşük grade'lidirler.

Anahtar Kelimeler: Leiomyoma, Leiomyosarcoma, Endometrial stromal sarcoma, Malignant mixed mullerian sarcoma

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Uterine sarcomas account for lower than 5% of all malignancies of the uterine corpus (1-4). Clinically the most common uterine sarcomas are carcinosarcoma (malignant mixed mesodermal tumor or malignant mixed Müllerian tumor), leiomyosarcoma (LMS), endometrial stromal sarcoma, and Müllerian adenosarcoma (1). The world-wide incidence is between 0.5 and 3.3 cases per 100.000 women (5-7).

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The commonly accepted and latest histological classification of uterine sarcomas (Table 1) is based on three main histologic types of uterine sarcoma: leiomyosarcoma, endometrial stromal sarcoma (ESS), and mixed mesodermal sarcoma (MMS). MMS is further divided, according to the absence or presence of heterologous sarcomatous elements, into the carcinosarcoma (CS) and malignant Müllerian mixed mesodermal tumor (8).

In this paper our objective is to present the incidences of various sarcomas in a population of patients who were operated for benign reasons.

Table 1. Simplified histological classification of uterine sarcoma's

	Histologic type	
Histologic form	Homologous	Heterologous
Pure	Leiomyosarcoma	LMS with heterologous element(s): rhabdomyosarcoma, chondrosarcoma, osteosarcoma, liposarcoma
	ESS	ESS with heterologous element(s): rhabdomyosarcoma, chondrosarcoma, osteosarcoma, liposarcoma
Mixed	CS	MMMT

LMS: Leiomyosarcoma
ESS: Endometrial stromal sarcoma
MMS: Mixed mesodermal sarcoma
CS: Carcinosarcoma
MMMMT: Malignant Müllerian mixed mesodermal tumor.

Materials and Method

The clinical and pathologic reports of patients who underwent histerectomy or myomectomy for uterine leiomyomas between January 95 and January 2000 at the gynecology clinic at Zekai Tahir Burak Women Health and Training Hospital, Ministry of Health, Ankara, were reviewed. The incidence of uterine sarcomas in the patients who were presumed to suffer from benign leiomyomas was looked for. Histopathologic examination of the surgical specimens had been performed by different pathologists at our institution.

Patient selection: Nulliparous women who had used GnRH agonists before the operation were excluded. The myomectomies performed for infertility were excluded because of multidrug-use. Patients who underwent vaginal hysterectomies for decensus uteri were included if the presence of leiomyomas were reported before the operation by physical examination or ultrasound. Patients with abdominal mass with suspicion of malignancy with physical examination and ultrasound findings were excluded because they had been operated in the gynecologic oncology clinic of the same hospital, therefore our study includes only incidental leiomyosarcomas in the presumed leiomyomas.

The histologic criteria used for diagnosis of sarcoma were the same as introduced by Hendricson and Kempson (9) and Zaloudek and Norris (10) :> 5 mitoses/10 HPF with cytologic atypia, >10 mitoses/10 HPF in a tumor not showing atypia. Atypia is defined as cells showing hyperchromatic nuclei with coarse chromatin and variation in size and shape. Myometrial invasion is defined as the neoplastic cells being observed irregularly through and between adjacent smooth muscle fibers. The term atypical or bizarre leiomyomata refers to a mixture of rounded polygonal cells and multinucleated giant cells present in epitheloid clear cell and plexiform patterns (11,12). Whether it is called bizarre or atypical depends on the choice of our pathologists

Patients' age and types of the operations performed and pathological findings were recorded. We did not make a category of rapidly growing uterus because the criteria for rapidly growing uterus is not clear, although there is proposals like an increase by 6 weeks' gestational size over one year (13). The patients' age, presumed diagnosis, ultrasonographic findings, operative and pathologic reports were recorded.

Results

One thousand four hundred thirty eight patients operated for uterine leiomyomas between January 95 and January 2000 met our selection criteria and included in the study. The ages of the patients were between 17 and 77. The mean parity was 3,1. Fifty percent of the patients were between 40 and 49. One hundred operations (6,9%) were performed via vaginal route. 1240 operations (86,2%) were abdominal histerectomies and 98 patients (6,8%) underwent myomectomies. Myomectomies were performed via laparotomy or vaginal excision.

Six patients (0,42%) were found to have sarcomas, three of which were low grade endometrial stromal sarcomas (Table 2). One patient had malignant mixed mullerian sarcoma with stromal invasion of more than ½ of myometrium, one leiomyosarcoma and one tumor the type could not be identified with a low mitotic index. The incidence of leiomyosarcoma was 0,07%. Three of the patients (0,2%) had low grade endometrial stromal sarcomas. One patient (0,07 %) had malignant mixed mullerian tumor. One patient (0,07%) had malignant mesenchymal tumor of low mitotic index.

Four of the six sarcomas in our serial of presumed leiomyomas are low grade. The most common symptom was vaginal bleeding, followed by abdominopelvic pain. All patients had uterine enlargement. All patients underwent total abdominal hysterectomy and bilateral salpingooopherectomy, except a 34 year old patient who underwent total abdominal hysterectomy and unilateral salpingooopherectomy. The case number four at the Table 2 was operated in the gynecologic oncology clinic in our hospital.

Table 2. Various properties of sarcoma patients

Patient	Complaint	Endometrial biopsy	Ultrasound	Physical examination	Pathology
1	Menometrorragia for 3 months	Blood fibrin and acute inflammatory cells	Uterine enlargement, intrauterine hematoma	Uterus 8 weeks size, cervical os 2 cm wide	Low grade endometrial stromal sarcoma,mitosis less than 10/10HPF
2	Menometrorragia	Desidual reaction, inflammatory infiltrations	Uterine enlargement, multiple myomas	Mass in the left adnexial site	Low grade endometrial stromal sarcoma, peritoneal washings negative,metastatic nodules on the omentum
3	Vaginal bleeding for 3 days	Endometrial cell and necrotic exudate	Uterine enlargement, submucousal myoma uteri, endometrial hiperplasia	Uterus 8 weeks size myometrial invasion	Low grade stromal sarcoma, deep
4	Abdominal pain	Endometrial carsinoma	Uterine enlargement	Uterus12 weeks size	Malignant mixed mullerian tumor, myometrial invasion more than ½, endometrial adenocarsinoma grade 2
5	Abdominal pain	Not obtained because of cervical leiomyoma	5cm cervical leiomyoma, diffuse uterine enlargement	Uterus 10 weeks size	Malignant mesenchymal tumor of low mitotic index
6	Postmenopausal bleeding	Benign	Multiple leiomyomas at least 5 cm in diameter	Uterus 10 weeks size	Leiomyosarcoma Extensive atypia and pleomorphism 10/10HPF

All of the 6 patients had preoperative ultrasound scannings. Four of them showed leiomyomas, whereas the two other showed only slight uterine enlargement. One of the two uterine enlargement cases is malignant mixed mullerian tumor, the other was low grade endometrial sarcoma. For the only leiomyosarcoma case there were multiple leiomyomas of 5 cm size. In the pathology report of this case, there were leiomyomas accompanying the sarcomatous region. For our youngest patient of 34 years with the post operative diagnosis of low grade endometrial stromal sarcoma, the clinical examination was adnexal mass, the preoperative diagnosis of leiomyoma was decided by the ultrasound scanning. For our only leiomyosarcoma patient, there were multiple large myomas in the ultrasound scanning with postmenopausal bleeding. In Table 2, various properties of these 6 patients are shown.

The youngest sarcoma patient in our study was 34 years old with low grade endometrial sarcoma and she had a few metastases on the omentum and they were removed in the same operation. Our only leiomyosarcoma patient was 69 years old that is relatively an old age for the leiomyosarcoma. Our low grade endometrial stromal sarcoma and low mitotic index tumors cases were in the 3rd and 4th decade and they were significantly earlier.

Among the 98 myomectomies no sarcomas were diagnosed and among the 100 vaginal hysterectomies no sarcomas were diagnosed pathologically, either.

There were one mitotically active leiomyoma aged 43. The ages of six hypercellular leiomyoma patients were 50, 48, 47, 42, 36 and 29. Ages of the five pleomorphic, atypical leiomyoma patients were 50, 40, 37, 36, and 30. One symplastic atypical leiomyoma patient was 37 years old. The ages of two myometrial hypertrophies patients were 50 and 46.

Discussion

Corscaden and Singh (14) reported 32 (0,21%) patients with leiomyosarcoma among 15000 patients with uterine fibroids. Montague(15) reported 38 (0,29%) patients in 13000 patients who had undergone hysterectomies for presumed leiomyomas. Leibsohn and colleagues found leiomyosarcoma in the uteri of 10 (0,7%) of 1432 women who underwent hysterectomy for symptomatic leiomyoma (16). Boutselis reported 14 (0,6%) women with leiomyosarcoma among 2361 gynecologic admissions for myoma (17). Parker (13) found that two (0,15%) women had endometrial stromal sarcomas and one woman had leiomyosarcoma (%0,08) in 1332 women with an overall incidence of %0,23.

Our patient group size is close to those of Leibsohn and colleagues and Parker and colleagues which were 1432 and 1332 in patient size, respectively (13,16). In the first study the leiomyosarcoma incidence was 0,49%, that is close to our sarcoma incidence but leiomyosarcoma in our study was 0,07%, the rest of the sarcomas in our study were low grade endometrial sarcoma and malignant mixed mullerian sarcoma. In the latter one, the overall sarcoma incidence was 0,23%, lower than ours, but the incidence of leiomyosarcoma was 0,08% and very close to that of ours 0,07%. The incidence of low grade endometrial stromal sarcoma was 0,15%, again close to that of ours (0,2%).

The other interesting feature of this study is that 5 of these 6 sarcomas are purely incidental, one of the patients was diagnosed by endometrial biopsy as endometrial adenocarcinoma but pathologic specimen showed that it was malignant mixed mullerian tumor. When we omit this case, we reach the purely incidental sarcoma incidence, that is 0,34%. This is comparable with Corscaden and Montague, 0,21 % and 0,29, respectively. The purely incidental sarco-

ma incidence in the study of Leibsohn and colleagues is 0,5%. Our study seems to be in between, but with a difference in our study four of the five such sarcomas were low grade sarcomas. The leiomyosarcoma incidence was only 0,07% in our study group.

So far, we can conclude that sarcomas which can be misdiagnosed as leiomyomas are very rare and most of them are low grade sarcomas.

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