Journal of Gynecology and Neonatal Biology

ISSN:2380-5595
J Short Title : J Gynecol Neonatal Biol

OMMEGA Publishers
Answering Intelligence
OPEN ACCESS

Case Report

DOI: 10.15436/2380-5595.21.2740

Uterine Smooth Muscle Tumors of Uncertain Malignant Potential-Report of Two Cases and Review of the Literature

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Abstract

Uterine smooth muscle tumors of uncertain malignant potential (STUMP) represent a group of rare and heterogeneous neoplasms that cannot be unequivocally classified as benign or malignant on histologic examination.

The clinical presentation is similar to leiomyomas and conventional treatment includes hysterectomy or myomectomy. STUMPs are often slow growing tumors, which can relapse and metastasize in approximately 11-13% of the cases. A careful and long-term surveillance protocol is warranted.

We report two cases of women diagnosed with STUMP and present a review of the literature, highlighting the challenge management of this tumors.

Keywords: Smooth muscle tumor; Uterine neoplasms

Introduction

Uterine smooth muscle tumors are the most common gynecologic tumors, with a prevalence of 70% to 80% at age 50 years[1]. Uterine smooth muscle tumors are traditionally classified as benign (leiomyoma) or malignant (leiomyosarcoma) according to Stanford Scheme by combining the assessment of three histologic features: mitotic rate, cytological atypia and presence / absence of tumor cell necrosis. However, some tumors show ambiguous or unusual combinations of findings, precluding an unequivocal benign or malignant diagnosis. This small subset of tumors are termed smooth muscle tumors of uncertain malignant potential (STUMP)[2,3].

Unlike uterine leiomyoma or leiomyosarcomas, the prevalence of STUMP is still unknown. STUMPs are diagnosed mostly in patients in their forties. The clinical presentation is similar to leiomyomas, including pelvic pain and abnormal uterine bleeding, making preoperative diagnosis challenging[4,5]. Conventional treatment includes surgery, either hysterectomy or myomectomy[6]. STUMPs present unpredictable clinical courses and a careful surveillance protocol is warranted. Most STUMPs behave in a benign manner, although some have a malignant course, presenting with local and distant relapses[5,7].

Due to rarity of these tumors, the current literature lacks robust data on their clinical management, treatment, follow-up and prognosis[8,9]. Herein, we describe two cases of women with the diagnosis of STUMP and conduct a review of the literature.

Case Description

Case 1

A 37-years-old female, gravida 2, para 2, with past medical history of depression, was sent to our Gynecology consultation by pelvic pain and heavy menstrual bleeding, unresponsive

Received: July 1, 2020
Accepted: December 09, 2021
Published: December 13, 2021

Citation: Coutada, R., et al. Uterine Smooth Muscle Tumors of Uncertain Malignant Potential-Report of Two Cases and Review of the Literature. (2021) J Gynecol Neonatal Biol 6(1): 1-4.

to treatment with oral contraceptives. Ultrasound evaluation revealed an enlarged uterus with 11.3 x 7.5 x 9.6 cm and the uterine corpus occupied by an intramural myoma with 7.3 x 5.7 x 6.5 cm, with normal vascular map.

Since his fertility desire was completed, a laparotomic hysterectomy with bilateral salpingectomy was proposed. She had a surgery and a postoperative period without complications.

The anatomopathological analysis was compatible with the diagnosis of uterine STUMP. Grossly, the lesion was solid, round, well-circumscribed with white, whorled, bulging cut surface. Histologically, it was composed of fascicles and bundles of smooth muscle cells displaying multifocal moderate atypia, 4 mitotic figures per 10 high-power fields (HPF) and no tumor cell necrosis (figure 1).

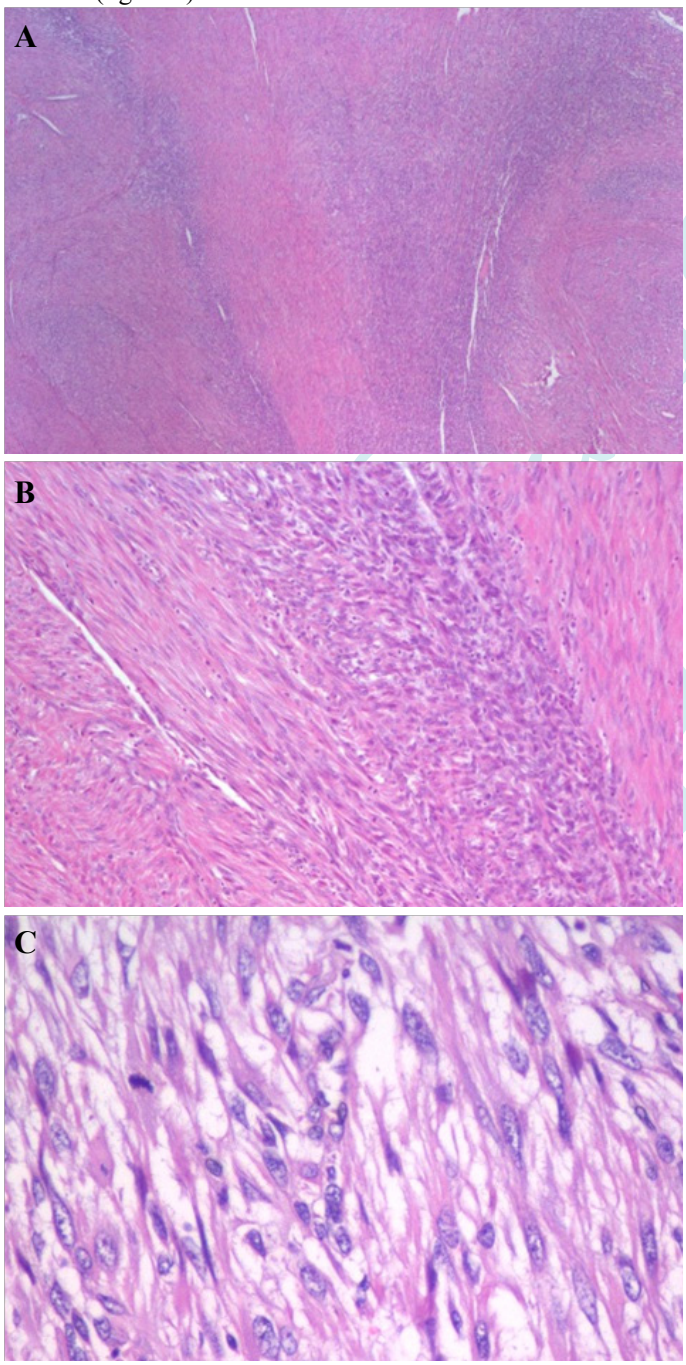


Figure 1: Foci of atypical tumor cells merging with background cytologically blend spindle cells (A – HE-20x ; B – HE-100x) and occasional mitotic figures (C – HE-400x).

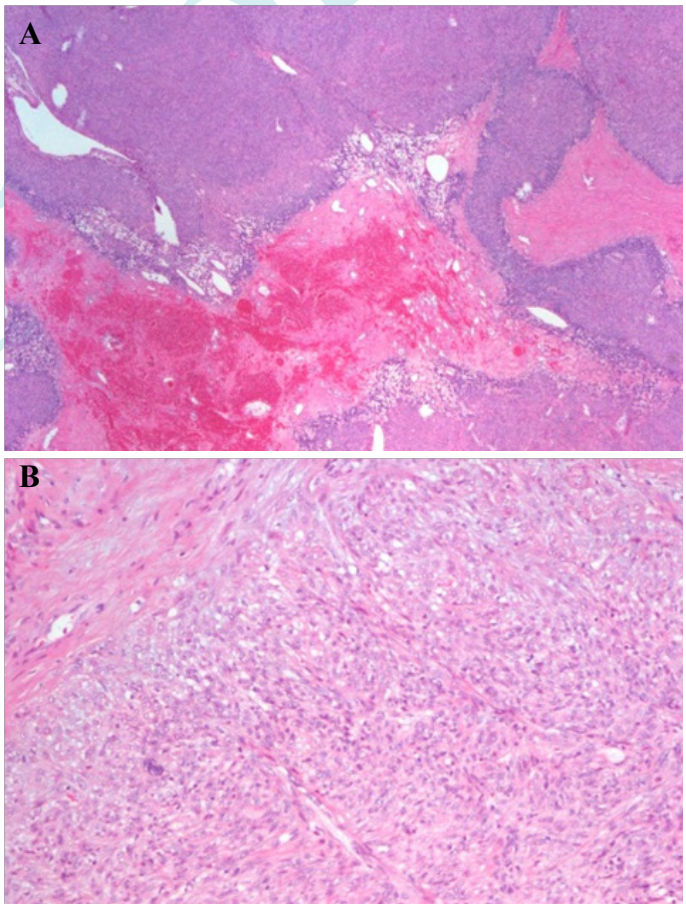
The patient was put on a close clinical follow-up schedule, with clinical evaluation every 6 months and chest X-ray and pelvic computed tomography (CT) scan every year. The patient is doing well without recurrence at 19 months later.

Case 2

A 67-years-old woman, gravida 2, para 2, with past medical history of hypertension and dyslipidemia, presented with post-menopausal bleeding with 4 months of evolution. Physical examination was notable for enlarged and stiffened uterus. Pelvic ultrasound exhibited a submucous leiomyoma, deforming the endometrial cavity, with 4.9 x 5.3 cm and marked vascularization. The pre-operative CT scan showed a tumor mass with 5.9 cm of greater dimension in the uterus cavity, without other significant findings.

It was performed a laparotomic hysterectomy with bilateral salpingo-oophorectomy.

The pathologic exam revealed a uterine STUMP. Grossly, the lesion was solid, round, well-circumscribed, white with red brownish areas. Histologically, it was composed of hypercellular areas alternating with areas of hemorrhage and fibrosis. There was focal marked pleomorphism with bizarre nuclei, 11 mitotic figures/10 HPF and no tumor cell necrosis (figure 2). On immunohistochemical analysis, tumor cells exhibited p53 “wild-type” staining, p16 was weak and focal and MKi67 (proliferation index) was 10%.



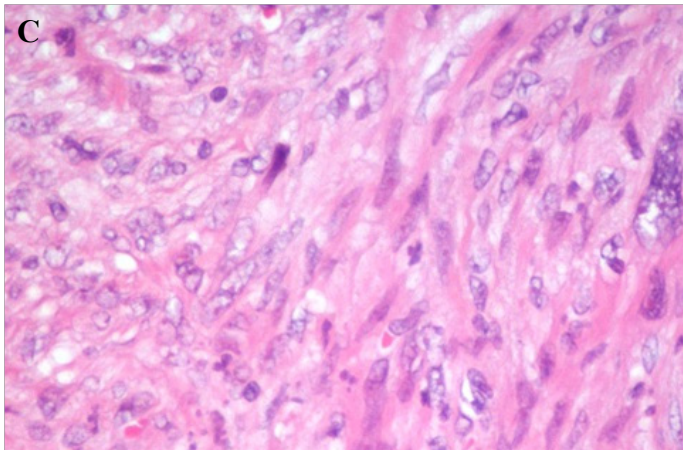


Figure 2: Hypercellular tumor areas alternating with fibrosis and hemorrhage (A – HE-20x). Multiple scattered atypical cells with marked nuclear pleomorphism (B – HE-100x; C – HE-400x).

After a 7-months follow-up period, the patient is currently disease free.

Discussion

The term STUMP, rather than a distinct diagnostic entity, encompasses a heterogeneous group of smooth muscle tumors that cannot be reliably classified as benign or malignant by current histopathological criteria and ancillary tools.[2,3]

It was first used in the literature by Kempson in 1973[10]. Since then our knowledge have evolved by trying to recognize morphologic predictors of clinical behavior, categorize and give labels to unusual patterns. As no single feature would sharply distinguish between clinically benign and malignant tumors, Bell proposed in 1994 a "three combined features" approach (Stanford Scheme). According to this system, a diagnosis of malignancy for standard smooth muscle tumors could be rendered if the tumor cell population displayed at least two of three features proven to be associated with malignant behavior: coagulative tumor cell necrosis, 10 or more mitoses/10 HPF and/or moderate to severe atypia. Standard leiomyomas and its variants lacked coagulative cell necrosis but could have focal/multifocal moderate /severe atypia or up to 10 mitoses/10HPF[11].

From then, criteria have been updated, the impact of factors such as hormones / drugs was defined and some authors suggested additional pathological features to Stanford Scheme. Currently and until we can better estimate their clinical behavior, the term STUMP is warranted for cases with ambiguous combinations of findings and when one of the "classic histologic features" is undetermined[2,3,12].

Clinical signs and symptoms of STUMPs are similar to leiomyomas or leiomyosarcomas and include abnormal uterine bleeding, pelvic pain and pressure, bulk effects to adjacent organs, infertility and recurrent pregnancy loss[3,6]. Most of the patients diagnosed with STUMPs are premenopausal, with a mean age of 45 years[5,13].

Preoperative diagnosis of these tumors is challenging, and this condition is commonly diagnosed after an histopathological evaluation of a surgical specimen in a patient with suspected leiomyoma. In imaging, STUMPs are generally indistinguishable from myomas or leiomyosarcomas. Some ultrasonographic features were suggested by Bacanakgil et al. to guide preoperative diagnosis: singularity, solidity, hyperechogenicity, heterogeneity, presence of acoustic shadowing and well-defined margins[5]. MRI did not shown unequivocal characteristics that could help in the preoperative diagnosis of this condition[14,15].

Surgery is commonly accepted as the optimal therapy.[7] Total hysterectomy with or without bilateral salpingo-oophorectomy is the gold standard definitive treatment in women who have completed their childbearing. Myomectomy can be considered in patients who desire to preserve fertility.[8] Successful pregnancies following fertility sparing surgery have been reported. An accurate evaluation to exclude recurrence should be performed before pregnancy and these women should be advised to perform an hysterectomy after the completion of fertility desire[4,6].

Although there is lack of consensus regarding follow-up protocols in patients with STUMP, seems reasonable manage this patients per protocols for leiomyosarcomas. This includes periodical controls every 6 months until the fifth year and, thereafter, annual surveillance for further five years. Each visit should involve medical history, general and gynecologic examination. Imaging studies should be carried out at least once a year, including chest radiography, pelvic and abdominal ultrasound and pelvic CT scan or magnetic resonance[1,13].

STUMPs are often slow growing tumors, that can relapse and metastasize in approximately 11-13% of the cases[4,7]. Recurrent disease may involve different sites, such as pelvis, abdomen, omentum, retroperitoneum, liver, lung, bone, brain and spine[5]. Recurrences appears in mean time of 51 months following the initial diagnosis, with a 5-year overall survival of 92%.[4,7] The treatment of choice in the event of a recurrence is surgical excision followed by adjuvant therapy, such as pelvic irradiation, chemotherapy (doxorubicin and cisplatin) or hormone therapy (progestins, aromatase inhibitors and gonadotropin-releasing hormone analogue)[5,8,13,16].

No clear prognostic factors for STUMPs are defined. Some authors failed to detect a relationship between the risk of recurrence and clinical features like smoking, ethnicity and type of initial surgery or between poor prognosis and pathological features.[9,17,18] Unlike, other studies proposed that relapses are more frequent in case of a subserosal location of the lesion and in younger patients.[3,4] Immunohistochemical studies and genetic profiling of these tumors seems promising in identification of STUMPs at greater risk of recurrence. It was suggested the role of p16, p53 and MKi67 in identification of clinically aggressive tumors[3,13,15,16].

Our study adds new two cases of women diagnosed with STUMP. According to the literature, both women presented with abnormal uterine bleeding and the preoperative evaluation revealed a single ultrasound lesion suggesting a leiomyoma. All patients performed hysterectomy and are enrolled in a strict surveillance program with a multidisciplinary team. No recurrences were documented, but the short follow-up periods preclude conclusions in this matter, as well as, prediction of poor prognostic factors.

Conclusion

STUMPs are a rare and interesting tumor group with a not fully understood natural history. For this nescience, contribute the different diagnostic criteria used in studies, the limited number of patients enrolled and distinct follow-up periods reported in literature. Until a better knowledge of this entity, a multidisciplinary management with a close and long-term follow-up is mandatory. Future research should focus on the detection of an ideal biomarker, able to predict the outcome of STUMPs and to personalize both surgical and oncological strategies.

Conflicts of Interest: The authors declare that they have no conflicts of interest.

Funding Statement: The authors received no specific funding for this work.

Acknowledgements: The authors thank Dr. Carla Bartosch (Department of Pathology, Instituto Português de Oncologia), for pathology consultation of case 2.

References

1. Vilos, G., Marks, J., Ettler, H., et al. Uterine Smooth Muscle Tumors of Uncertain Malignant Potential: Diagnostic Challenges and Therapeutic Dilemmas. Report of 2 Cases and Review of the Literature. (2011) J Minim Invasive Gynecol 19(3): 287-295.
Pubmed | Crossref | Others
2. Gupta, M., Laury, A., Nucci, M., et al. Predictors of Adverse Outcome in Uterine Smooth Muscle Tumors of Uncertain Malignant Potential (STUMP): A Clinico-pathological Analysis of 22 Cases with a Proposal for the Inclusion of Additional Histologic Parameters. (2018) Histopathology 73(2): 284-298.
Pubmed | Crossref | Others
3. Ip, P., Cheung, A., Clement, P. Uterine Smooth Muscle Tumors of Uncertain Malignant Potential (STUMP) A Clinicopathologic Analysis of 16 Cases. (2009) Am J Surg Pathol 33(7): 992-1005.
Pubmed | Crossref | Others
4. Şahin, H., Karatas, F., Coban, G. Uterine smooth muscle tumor of uncertain malignant potential: fertility and clinical outcomes. (2019) J Gynecol Oncol 30(4): e54.
Pubmed | Crossref | Others
5. Bacanakgil, B., Deveci, M., Karabuk, E., et al. Uterine Smooth Muscle Tumor of Uncertain Malignant Potential: Clinicopathologic-Sonographic Characteristics, Follow-Up and Recurrence. (2017) World J Onco 8(3): 76-80.
Pubmed | Crossref | Others
6. Campbell, J., Knudtson, J., Valente, P., et al. Successful pregnancy following myomectomy for uterine smooth muscle tumor of uncertain malignant potential: A case report and review of the literature. (2015) Gynecol Oncol Rep 15: 1-3.
Pubmed | Crossref | Others
7. Gadducci, A., Zannoni, G. Uterine smooth muscle tumors of unknown malignant potential: A challenging question. (2019) Gynecol Oncol 154(3): 631-637.
Pubmed | Crossref | Others
8. Dall'Asta, A., Gizzo, S., Musarò, A., et al. Uterine smooth muscle tumors of uncertain malignant potential (STUMP): pathology, follow-up and recurrence. (2014) Int J Clin Exp Pathol 7(11): 8136-8142.
Pubmed | Crossref | Others
9. Basaran, D., Usubutun, A., Salman, M., et al. The Clinicopathological Study of 21 Cases With Uterine Smooth Muscle Tumors of Uncertain Malignant Potential Centralized Review Can Purify the Diagnosis. (2018) Int J Gynecol Cancer 28(2): 233-240.
Pubmed | Crossref | Others
10. Kempson R. Sarcomas and related neoplasms. In: H. Norris, A. Hertig, M. Abell (Eds.). (1973) The Uterus. Williams & Wilkins, Baltimore 301–314.
Pubmed | Crossref | Others
11. Bell, S., Kempson, R., Hendrickson, M. Problematic uterine smooth muscle neoplasms. A clinicopathologic study of 213 cases. (1994) Am J Surg Pathol 18(6): 535–558.
Pubmed | Crossref | Others
12. Oliva E, Carcangiu M, Carinelli S, et al. Mesenchymal tumours. Smooth muscle tumour of uncertain malignant potential. In: R. Kurman, M. Carcangiu, C. Herrington, R. Young (Eds). WHO Classification of Tumours of Female Reproductive Organs. (2014) IARC 135-147.
Pubmed | Crossref | Others
13. Ip, P., Cheung, A. Pathology of uterine leiomyosarcomas and smooth muscle tumours of uncertain malignant potential. (2011) Best Pract Res Clin ObstetGynaecol 25(6): 691-704.
Pubmed | Crossref | Others
14. Karataşli, V., Çakır, I., Ayaz, D., et al. Clinicopathologic evaluation of uterine smooth muscle tumors of uncertain malignant potential (STUMP): A single center experience. (2019) J Gynecol Obstet Hum Reprod 48(8): 637-642.
Pubmed | Crossref | Others
15. Tanaka, Y., Nishida, M., Tsunoda, H., et al. Smooth muscle tumors of uncertain malignant potential and leiomyosarcomas of the uterus: MR findings. (2004) J Magn Reson Imaging 20(6): 998-1007.
Pubmed | Crossref | Others
16. Rizzo, A., Ricci, A., Saponara, M., et al. Recurrent uterine smooth-muscle tumors of uncertain malignant potencial (STUMP): State of the art. (2020) Anticancer Res 40(3): 1229-1238.
Pubmed | Crossref | Others
17. Shim, J., Han, A., Jeon, H, et al. Clinical experience of uterine smooth muscle tumor of uncertain malignant potential in two gynecological centers: Oncological and obstetrical aspects. (2020) Eur J Obstet Gynecol Reprod Biol 246: 7-13.
Pubmed | Crossref | Others
18. Guntupalli, S., Ramirez, P., Anderson, M., et al. Uterine smooth muscle tumor of uncertain malignant potential: A retrospective analysis. (2009) Gynecol Oncol 113(3): 324-326.
Pubmed | Crossref | Others