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STUMP - A Rare Aftermath of Fibroid Surgery

Bhardwaj B, Aruna M and Shreekant D*

Department of Obstetrics and Gynecology, Armed Forces Medical College, India

Abstract

Background: In 1973 Kempson first introduced the term STUMP i.e. Smooth muscle tumor of uncertain malignant potential. They are a category of clinically smooth muscle tumors not yet distinct from sarcomas. WHO classifies STUMP as smooth muscle tumors between benign and malignant criteria? It is a rare entity. Out of total women undergoing hysterectomy/myomectomy, 0.01% receives the final diagnosis of STUMP on histopathology. The true prevalence of STUMP is difficult to determine due to rarity of this entity & inconsistency in diagnostic criteria.

Keywords: Smooth muscle tumors; Fibroids; Tumor

Introduction

STUMPs represent a group of rare and heterogeneous neoplasm from both a histological & a clinical point of view [1-6]. The incidence of STUMPs is not well known [7]. According to Picerno et al. [3], 0.01% of the leiomyomas are diagnosed as STUMP. There are no specific clinical symptoms which makes it difficult to diagnose this entity pre-operatively. It represents 1/3rd of uterine sarcomas and 1.3% of uterine cancers. STUMPs often present with symptoms consistent with benign leiomyomas.

The age of onset of this disease is similar to that of leiomyomas/leiomyosarcoma. Little is known regarding the specific risk factors that predispose to a diagnosis of STUMP [8-10]. Due to rarity of STUMPs, there is no demographic data to consolidate the hypothesis based on age of occurrence. Guntupalli et al. [6] reported that mean age for STUMPs is 45 years and most of the patients are in peri-menopausal age group (Table 1). In a retrospective study on 6 patients made by Bacanakgil et al. [7], the mean age of patients was 42 years and only 1 patient was postmenopausal.

Risk factors for STUMP

Family History, early menarche, nulliparity, late menopause, obesity and use of estrogen containing contraceptive pills have been implicated in the etiology of STUMPs.

Etio-pathogenesis

Leiomyomas harbor recurrent deletions affecting 7q22, 22q & 1p suggesting that these regions contain tumor suppressor genes. Deletions of chromosome 1p are associated with distinct histopathological features & possible malignant progression of leiomyomas.

Management

According to Shapiro et al. [11], there is no approved standard protocol for management of patients with suspected STUMP. In the event of diagnosis of STUMP in myomectomy specimens, considering the proven possibility of recurrence, hysterectomy represents the gold standard for those women who have completed their child bearing. Successful pregnancies following fertility sparing surgery have been reported in literature. However, these patients should be adequately informed and counseled about the risk of recurrence & strict follow up program through clinical examination & imaging techniques is mandatory.

Diagnosis is by histopathological analysis of the specimen in the post-operative period. The current criteria for the histopathological classification of smooth muscle tumor are based on Stanford Criteria including abundant mitosis (>10 mitosis/10 HPF), remarkable diffuse/focal atypia or borderline mitosis & areas of coagulative tumor cell necrosis [4,12].

STUMPs don't fulfill the complete diagnostic criteria of leiomyosarcoma. Uterine smooth muscle tumors that show some worrisome histological features (necrosis, nuclear atypia & mitosis) but fail to meet diagnostic criteria of leiomyosarcoma fall into the category of STUMP. This diagnosis should be sparingly used & every possible effort should be done to classify a smooth muscle tumor

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Correspondence:
Bikram Bhardwaj, Department of Obstetrics and Gynecology, Armed Forces Medical College, Room No 144/11, Faculty Block, Officers Mess, AFMC, Pune, Maharashtra, India, Tel: +91-7874551658;
E-mail: bikrambhardwaj@gmail.com

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Table 1: Clinical findings.

Symptomatology	Imaging	Diagnosis
Mean age-45 yrs or peri-menopausal age group	All of the following are suspicious of STUMP on USG	Based on histo-pathology
		WHO Diagnostic Criteria
Abnormal uterine bleeding	1) Presence of single large tumor	1) Mild/moderate atypia
		2) Coagulative necrosis ±
		3) Mitotic figures <10/10HPF
Postmenopausal bleeding	2) Absence of acoustic shadowing	Immuno-histochemistry
Pelvic mass	3) Presence of free fluid	P16-Negative
		P53-Negative
		Ki67 Index- <50%
		All suggest low recurrence potential of STUMP on IHC
Anemia		
Pelvic pain		

into a specific category if possible [13].

Prognosis

STUMPs have better prognosis than Leiomyosarcoma. Several studies have found a significantly reduced recurrence rate of STUMPs compared to leiomyosarcoma. Recurrence is delayed for a mean of 51 months after initial diagnosis. Five year survival rate for patients with STUMP is 92% to 100%. Median survival is 61.5 months. There is no difference in survival rate of patients who underwent myomectomy/ hysterectomy [5,14].

Follow-up

STUMPs usually have low recurrence potential if p16, p53 are negative on IHC & Ki67 Index is <50%. Regular 6 monthly follow-up for first 5 years followed by annual surveillance for next 5 years is recommended [15]. Follow up visits include complete history taking, general & pelvic examination & imaging studies annually including chest X-ray, USG abdomen & pelvis, MRI/PET-CT to detect recurrences.

Conclusion

STUMP is a rare heterogeneous tumor. Majority of the cases are operated with a pre-operative benign gynecological diagnosis. STUMP usually comes as a surprise for both the treating gynecologist & patient on final histopathological report. It is not possible to foresee the biological behavior & prognosis of STUMP. It is classified as intermediate form histo-pathologically, so calling it benign/malignant for sure is not possible. Final histo-pathological diagnosis is usually made using the WHO/Stanford criteria for STUMP. Pre-operatively sonographic discrimination from leiomyomas/leiomyosarcoma is not possible definitely. Still singularity, solid nature, hyper-echogenicity, heterogeneity & features of acoustic shadowing are suspicious of sonographic evidence of STUMP. STUMP is clinically benign but recurrence/metastasis after many years from initial surgery can be seen. So, the emphasis of long term follow-up for these patients needs to be emphasized.

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