EJGO European Journal of Gynaecological Oncology

Case Report

Uterine curettage prior to supracervical hysterectomy identifies a placental trophoblastic tumor – a case study

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Summary

Uterine fibroid surgical preparation should take into account the risk of an unexpected concurrent malignancy. Curettage prior to uterine fibroid surgery isn't standard procedure, but incorporation of curettage may discover rare pathologies. This case study shows that routine curettage prior to uterine fibroid surgical treatment correlates with diagnosis of unexpected pathological findings -even a neoplastic transformation as rare as placental site trophoblastic tumor (PSTT).

Key words: Placental site trophoblastic tumor; Uterine curetage; Pathology.

Introduction

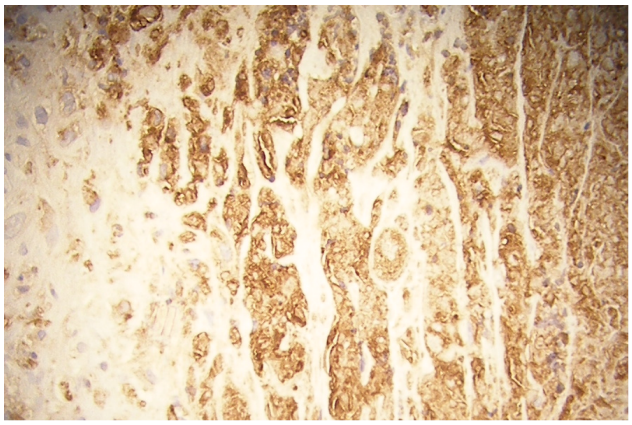
Curettage is a routine procedure, but is not typically performed prior to uterine fibroid surgery. Subject matter experts continue to discuss whether this procedure is beneficial – some argue that histological verification of the endometrium is needed while others contend curettage isn't necessary. When preparing for uterine fibroid sugery, the risk of an unexpected concurrent malignant neoplasm should be taken into account [1, 2], not only for a cancerous sarcoma, but also for rare neoplasm transformations such as placental site trophoblastic tumor (PSTT). Gestational trophoblastic disease (GTD) is a group of rare diseases. GTD occurs when abnormal trophoblast cells grow inside the uterus after conception and PSTT is an aggressive and rare form of this disease. Since PSTT incidence is so rare, this makes clinical diagnosis difficult and treatment efficacy unpredictable. PSTT accounts for 0.23-3% [1, 2] out of the total diagnosed with gestational trophoblastic disease. Lan et al. states 300 cases of PSTT have been reported in the literature [3]. Due to the rare nature of PSTT, limited diagnostic and prognostic data is available to clinicians. Making a histological distinction between benign and malignant trophoblastic lesions is challenging, even in biopsies with defined morphologic and immunohistochemical characteristics. PSTT lesions arise from chorionic-type intermediate trophoblasts, namely placental site nodule and epithelioid trophoblastic tumors, and these lesions can be distinguished by existing criteria. [4]. Several studies support the notion that clinical characteristics or criteria can predict PSTT outcomes, other publications contend this is false. In this report, the authors present a case study and propose uterine curettage may help to identify PSTT.

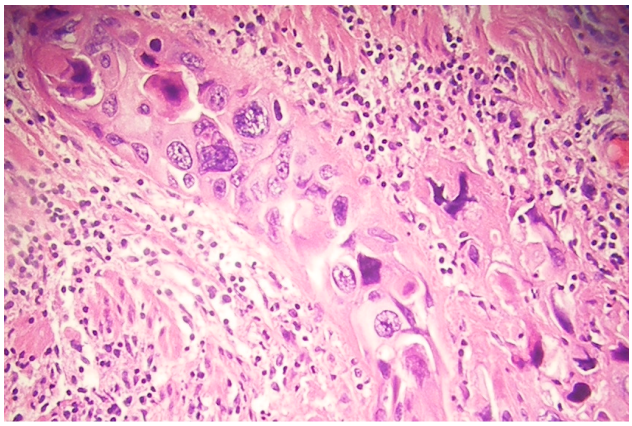
Case Report

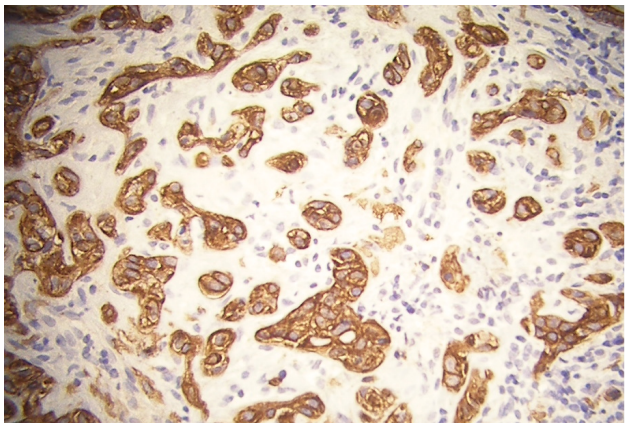
A 35 year old female patient was triaged for uterine fibroid surgery due to heavy menstrual bleeding. She had two normal deliveries within the past 12 years. Clinical examination confirmed the presence of uterine fibroids. Based on uterine volume, the fetus corresponded to that of a 16 week pregnancy and her Papanicoloua (Pap) smear did not reveal any cervical abnormality. Diagnostic curettage of the uterine cavity was performed in preparation for a supracervical hysterectomy. Histopathologic results confirmed a neoplasm composed of large, polygonal, and eosinophilic cells with large, pleomorphic, single and diffuse multinuclei. The Ki-67 index was scored at 30% - indicating a greater than grade 3 tumor. These results, taken together with results from other ancillary immunohistochemical tests, confirmed our PSTT diagnosis. Additional diagnostic testing was performed - including biochemical tests and a thoracic-abdominal-pelvic CT scan. The image revealed an oversized uterus displaying a heterogeneous appearance and giving rise to a uterine myomas. A decison was made to remove the adnexa at the time of vaginal hysterectomy. Intraoperative exploration was unremarkable. Final histology confirmed PSTT and a trophoblast infiltration of $>$ 50% into the myometrium. Infiltration into the myometrium was also confirmed in the perimetria. There were no metastasis in the pelvic and periaortic lymph nodes and no vascular space invasion. Postoperative treatment was uneventful and the patient was put under the care of a gynecological oncologist. The follow up CT scan after one year showed no sign of tumor recurrence.

Published: 15 April 2020

Eur. J. Gynaecol. Oncol. - ISSN: 0392-2936
XLI, n. 2, 2020
doi: 10.31083/j.ejgo.2020.02.4927







Discussion

This case study highlights a patient that underwent routine uterine curettage before planned uterine fibroid surgery. The curettage procedure may help diagnose concurrent unexpected pathology, even one as rare as PSTT. In the event a patient has concurrent PSTT, performing diagnostic uterine curettage before fibroid surgical ablation helps avoid incidental medical malpractice that might occur if a supracervical hysterectomy is performed in isolation. In the presented case, the thoracic-abdominal-pelvic image of PSTT matches histopathology characteristics observed in women with symptomatic uterine fibroids. Considering the low incidence rate of PSTT, both etiopathology and clinical image interpretation of this neoplasm are not well-known. When translating this to clinical practice, even experienced gynecological oncologists have little experience in diagnosing and treating PSTT. As a consequence, most described PSTT cases are diagnosed postoperatively. The present authors desire to share their own experience, that performing a routine uterine curettage prior to supracervical hysterectomy allowed for preoperative diagnosis of PSTT. This helped cemnet the clinical decision to intervene with radical surgical treatment. To date, PSTT risk factors have not been defined. Malignant PSTT can arise during or after a normal pregnancy, after an abortion or miscarriage, or during a molar pregnancy. It can also occur in postmenopausal women, years after their last pregnancy [4, 5]. Initial treatment with non-radical surgical procedure correlates with poorer prognosis and a substantial shortening of survival time. In the presented case, routine curettage performed before planned uterine fibroid surgery helped diagnose concurrent PSTT. Curettage also assisted in defining the scope of the surgical procedure, and in making a decison on whether a non-radical or radical surgery should be taken as a primary intervention. Overt clinical symptoms of PSTT are variable. To date, it is challenging to clinically diagnose PSTT based entirely on symptoms – the best predictor is a histopathologic image that shows proliferation of intermediate trophoblastic cells without chorionic villi infiltrating muscle fibers [5]. These cells undergo vascular invasion, necrosis, and hemorrhage to a lesser extent than choriocarcinoma, and have a greater tendency to disseminate through the lymphatic track [3, 4]. Usually the immunohistochemical analysis shows strong positive staining to human placental lactogen (HPL), generally weak and focal positive staining for human chorionic gonadotropin (HCG) [5, 6], diffuse staining for cytokeratin [5], strong positive staining for both epidermal growth factor receptor (EGFR) and vascular endothelial growth factor (VEGF), and negative staining for human epidermal receptor2/neu (HER2/neu) and cluster of differentiation 117 (CD117) [3]. Pregnancy-associated major basic protein (pMBP), a intermediate trophoblast marker, is useful in differentiating PSTT from other forms of trophoblastic diseases [7]. One of the major immune checkpoints responsible for immune evasion in cancer cells is the interaction between programmed cell death-1 (PD-1) and its ligand (PD-L1). Human trophoblastic cells display many of the features of malignant cells, such as the ability to invade normal tissue, including blood vessels, and these cells have the ability to evade the host immune system. There are observed PD-1 positive lymphocytes located within trophoblastic tumors. PSTT may also upregulate PD-L1 expression to evade host immunity by turning off cytotoxic T cell signaling events and promoting anergy [8]. This mechanism promotes survival in similar fashion to malignant cells. PSTT tumors are unique and difficult to diagnose. Only 300 PSTT cases have been described with confirmed histopatholgy since 1976 [9]. This

may be due to the fact that concurrent PSTT isn't taken into account prior to planning for uterine fibroid surgery. Clinical evaluation only on the basis of a USG exam and a Pap smear aren't sufficient to diagnose concurrent PSTT. Thus, increasing the health risk to the patient when the clincial decison is to undergo non-radical surgical intervention. This simple curettage procedure helps improve PSTT diagnosis and reduces malpractice law suits as a result of the surgical decsion to treat with a more radical procedure. Cytological verification of reactive hyperplastic alterations and possible invasiveness in biopsies taken from the surface of the cervix can be difficult. This was the case with our PSTT patient. Schild *et al.* [10], reported that cytology results were negative in 56% of all endometrial carcinomas. In contrast, uterine curettage has a false-negative rate of 6% [10]. According to these findings, the performance of uterine curettage before every surgical procedure should be considered when there exists even a small probability of concurrent endometrial pathology. Bang *et al.* [11] published that most cases of endometrial carcinoma were found in women older than 50 years. Therefore, special considerations should be raised when using uterine curettage in women under 45 years of age. In this age group, endometrial cancer is less frequent, but other rare neoplasms of the uterus are more common, such as PSTT disease found in our case study. Diagnostic procedures employed to detect uterine lesions use a combination of cytology, colposcopy, USG, punch biopsy, and curettage [12]. An optimal therapeutic approach is to determine the distribution, size, and grade of the lesions, and as a result, use this data to generate a diagnostic strategy. This case study was carried out to assess the usefulness of uterine curettage in the diagnostics of unexpected uterine lesions prior to surgical treatment of uterine fibroids. The present report highlights a case where PSTT could have been easily misdiagnosed in the absence uerine curettage. The present authors conclude that there is a positive correlation between performing uterine curettage prior to uterine fibroid surgical intevention and in the diagnosis of unexpected pathological findings, even one as rare as PSTT.

Conflict of Interest

The authors declare no competing interests.

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