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Malignant Postpartal GTN: A Rare appearance of Equal Ultrasonography and Operative Finding in Uterine PSTT and Choriocarcinoma

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Sažetak

Frequency of malignant Gestational Trophoblastic Neoplasms (GTN) is estimated at 1,03 cases in 1000 deliveries with 5 fold greater risk in patients younger than 20 and older than 40 years. Serum value of human chorionic gonadotropin is the most relevant parameter in diagnosis of GTNs. In placental site trophoblastic tumor (PSTT) - serum levels of chorionic gonadotropin do not have the same significance as they do in other malignant GTNs. Definite diagnosis of PSTT is almost always confirmed by immunohistochemistry.

In the course of just a few months (August 2016 to January 2017) in Obs/Gyn Clinic “Narodni front” in Belgrade, two GTN patients were admitted and treated, with almost equal ultrasonography (pictures), operative findings and postoperative outcome. Due to histopathological and immunohistochemical examination two different types of malignant GTN were confirmed. The first patient (admitted in August 2016) 26 years old was admitted for uterine bleeding 11 months after vaginal delivery surgery histopathological examination confirmed PSTT. The second patient (admitted in January 2017) 27 years old, admitted 4 months after vaginal delivery because of uterine bleeding. Histology confirmed Choriocarcinoma.

Considering the fact that malignant GTN can appear in different types, with different ultrasonography pictures, this report is significant because two distinctly different malignant GTN entities could appear with equal clinical manifestations and equal ultrasound pictures even when they may have very different course of disease treatment and outcome. Such cases need correct diagnosis which may be reached only after immunohistochemistry analysis. The ultrasound patterns, both in gray scale, color flow, and Doppler values, were almost equal in both cases and guided the diagnostic procedures to the final treatment, even regardless of their very different histopathology.
INTRODUCTION:

Frequency of malignant Gestational Trophoblastic Neoplasms (GTN) is estimated at 1,03 cases in 1000 deliveries with 5 fold greater risk in patients younger than 20 and older than 40 years\(^1\). One of possible explanations for this increased risk could be in abnormal gametogenesis and atresia of follicles\(^2\). According to Royal College of Obstetrics and Gynecologist (RCOG) - Grade C recommendation- ultrasound is of relative value in diagnostics of malignant trophoblastic disease\(^3\). In order to increase the precision of the diagnosis we followed the guidelines for GTN, repeating ultrasound scans, monitoring of hot spots and the drop in blood flow resistance (RI) in the field of trophoblastic invasion where neoangiogenesis is detectable by color Doppler flow mapping.

Serum value of human chorionic gonadotropin is the most relevant parameter in diagnosis of GTNs. It depends on secretion of syncytiotrophoblast which is a hormone active component of trophoblast, and most important marker in monitoring the effect of treatment and the outcome of the disease\(^4\). In placental site trophoblastic tumor (PSTT) - serum levels of chorionic gonadotropin do not have the same significance as they do in other malignant GTNs, and they may be negative - making this analysis not useful. Because of this, it may be necessary to perform serum Humane Placental Lactogene (HPL), and ultrasound gains importance. Definite diagnosis of PSTT is almost always confirmed by immunohistochemistry.

Transvaginal ultrasound remains potent for basic evaluation of uterine disease in patients affected by malignant GTNs, especially in GTN patients with pathological ultrasound finding, or GTN patients on chemotherapy without initial ultrasound pathological findings during the follow-up, when serum chorionic gonadotropin has increasing rate\(^5\).

CASE REPORT:

In the course of just a few months (August 2016 to January 2017) in Obs/Gyn Clinic “Narodni front” in Belgrade, two GTN patients were admitted and treated, with almost equal ultrasonography (pictures), operative findings and postoperative outcome. Due to histopathological and immunohistochemical examination two different types of malignant GTN were confirmed.
The first patient (admitted in August 2016) 26 years old was admitted for uterine bleeding 11 months after vaginal delivery. Chorionic gonadotropin level at the time of admittance was less than 1mIU/mL. Ultrasound scans showed a circular hyperechogenic field in the myometrium of the fundal region of the uterus (15 x 16 mm) in close connected with endometrium (FIG 1). This field was hypervascularized, with resistance index Ri 0,40. D&C performed and histopathology inconclusive - suspicious of Choriocarcinoma. X-ray examination of lungs and cranium was done to out rule metastatic developments. Chemotherapy administrated (Methotrexate + Folinic acid (FA)). Further immunohistochemistry done because of unclear histopathological finding and negative serum chorionic gonadotropin and IHH analysis confirmed PSTT. Since chemotherapy is not the treatment of choice for PSTTs a Total Laparoscopic Hysterectomy (TLH) with preservation of both ovaries was performed (FIG 1). During surgery the observed uterus looked completely normal, but when the specimen was dissected for histology, the GTN focus in myometrium connected to endometrium was readily seen (FIG 1). After surgery histopathological examination confirmed PSTT. In the follow up chorionic gonadotropin level stayed negative.

The second patient (admitted in January 2017) 27 years old, admitted 4 months after vaginal delivery because of uterine bleeding. Transvaginal ultrasound showed a circular hyper echogenic field in the myometrium (20 x 18 mm), on the left side of the fundal region, close connected to the endometrium edge. This field was with evident hypervascularization and had low vascular resistance index Ri 0,3 (FIG 2). The initial chorionic gonadotropin value was 44.718mIU/mL. D&C was performed and histopathology showed residual tissue. After two days the chorionic gonadotropin levels decreased (3.058mIU/mL). Still after 7 days the chorionic gonadotropin level started increasing (4.110mIU/mL) and an ultrasound finding - indicative for trophoblastic invasion was present. Another D&C was performed. Preliminary histopathology examination result was PSTT. Because of two different histopathological diagnosis and increasing serum chorion gonadotropin level, immunohistochemistry examination was performed on the histology specimen and Choriocarcinoma was found as the definite diagnosis. She immediately received chemotherapy (Methotrexate and FA). In the follow up, two weeks before the next course of chemotherapy serum chorionic gonadotropin level increased and reached 60.800mIU/mL. Repeated chemotherapy led to a drop of chorionic gonadotropin
to 9.813mIU/mL. Still the ultrasound picture persisted and 4 weeks after the second chemotherapy course the chorionic gonadotropin level again increased to 48178mIU/mL. The patient was advised to take a third course of chemotherapy – which she refused. Based upon the course of the disease and her response, the decision was made to perform a TLH with conservation of both ovaries (FIG 2). Similar to the previous case the uterus, during surgery looked normal, but when dissected, a macroscopic finding of specific GTN focus was seen in myometrium close connected to endometrial tissue (FIG 2). Histology confirmed Choriocarcinoma. After surgery she received one final course of chemotherapy (Methotrexate and FA). After 5 weeks serum chorionic gonadotropin level was negative.

DISCUSSION:

There is not a specific ultrasonographic model for each GTN. Considering the fact that malignant GTN can appear in different types, with different ultrasonography pictures, this report is significant because two distinctly different malignant GTN entities could appear with equal clinical manifestations and equal ultrasound pictures even when they may have very different course of disease treatment and outcome. Such cases need correct diagnosis which may be reached only after immunohistochemistry analysis. Immunohistochemistry is not standard for GTN, except for the diagnosis of PSTT. The ultrasound patterns, both in gray scale, color flow, and Doppler values, were almost equal in both cases and guided the diagnostic procedures to the final treatment, even regardless of their very different histopathology.

In specific GTN cases ultrasonography, as well as histopathology could be of great value in reaching final decision for operative treatment and therapy regimes specially in patients of reproductive age. Hysterectomy, unfortunately, remains an important adjunct in the treatment of the selected subset of patients, even as these patients have an imperative in preserving fertility.

DISCLOSURE STATEMENT
The authors declare no conflicts of interest.
KEY WORDS
Ultrasound, Color Doppler, GTN, PSTT, Choriocarcinoma, Immunohistochemistry

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FIGURE LEGEND

FIG 1
FIG 2

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