

Diagnosis of borderline ovarian cancers in pregnancy

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Summary

Purpose of investigation: Borderline ovarian tumors make up about 10 to 15% of all epithelial ovarian tumors. The aim of this study was to determine the sensitivity and specificity of Doppler ultrasound for adnexal masses in pregnancy by verifying histological lesions after surgery.

Methods: We analysed Doppler flows of ovarian cystic tumors in pregnancy. In cases of cystectomy in pregnancy, cesarean section and puerperium the obtained histopathological findings were analysed.

Results: For one year nine women were observed, primiparas, who had adnexal cystic tumefactions with pathological Doppler indexes, i.e. resistant index of the ovaries under 0.50 and ovarian capsules from 0.30 to 0.40. Delivery ended surgically and histopathological results (ex tempore of analysis) revealed borderline adenocarcinoma.

Conclusion: Even though our series was very small, considering that cysts in pregnancy are not common it is necessary to consider the significance of Doppler flow following the diagnosis so therapeutic measures can be timely determined and morbidity and mortality decreased.

Key words: Borderline ovarian carcinoma; Doppler; Pregnancy.

Introduction

According to the literature the incidence of ovarian tumors during pregnancy is the same as outside pregnancy and varies from 1:81 to 1:2,200, depending on whether every cystic ovarian enlargement was considered as a tumor or if such diagnosis was made only after surgery and pathologic confirmation [1, 2].

Among different forms of tumors of the ovary, benign tumors are most commonly diagnosed in pregnancy. Only about 2.3 to 4% of tumor cases turn out to be malignant, and among those non-epithelial malignant ovarian tumors are most commonly found in young patients.

Borderline ovarian tumors comprise 10 to 15% of all epithelial tumors of the ovary. Regardless of tumor type (serous, mucinous, clear cell, Brenner, mixed), they can be benign, borderline or malignant.

For borderline tumors diagnostic criteria and an optimal therapeutic approach are yet to be determined. Borderline tumors are defined as changes which have some but not all morphological signs of malignancy. Macroscopically they are similar to benign but with finer, more fragile and emphasized papillary formations. In about 26 to 34% of cases they are bilateral.

Stratification of epithelial cells is histologically present and shows different degrees of atypia, polarity loss and a greater number of mitoses which characterize malignant tumors. However there is no stromal invasion, and basal membrane integrity can be determined by antibodies to laminin and collagen IV. This is also the most important criteria for differentiation of borderline and malignant lesions.

Peritoneal and omental implants are found in about 16% of cases at the time of diagnosis. This does not

exclude tumors from the borderline category. Prognosis of borderline tumors during and outside pregnancy is very good regardless of the stage, and five-year survival is about 95%.

Bimanual examination in early gestation can often help the diagnosis. Afterwards the first trimester examination is not reliable because the ovaries are pulled up by the enlarged uterus and they come out of the small pelvis, thus making palpation difficult. Only about 16% of ovarian tumors are discovered in the first trimester, while 20% are found during cesarean section or after delivery. Diagnosis is best performed by ultrasound examination [3].

The aim of the study was to determine the sensitivity and specificity of Doppler ultrasonography of adnexal masses in pregnancy by verifying the histology of the lesion after surgery.

Material and Methods

During a one-year period from June 2001 to June 2002 at the Institute for Gynecology and Obstetrics, nine primipara women who had adnexal cystic enlargement (range 40-120 mm) were included. Patients were intensively observed and treated. All parameters related to the pregnancy, fetus and placenta were normal. Doppler flow analysis of ovarian cystic tumors was performed by determining the resistance index (RI). During pregnancy patients had serum CA125 determination, sedimentation rate, leucocyte number and form, and biopsy performed. In those cases where the cyst was removed during pregnancy, cesarean section or puerperium, accurate histopathologic findings were obtained.

Results

By Doppler flow velocimetry analysis of cystic masses, in seven cases (77.8%) flow analysis indicated a decreasing RI of the ovarian capsule. Analysis of the cystic fluid

and serum markers was performed. In all cases no pathologic findings were present.

In two cases (22.3%) because of the growth of the cystic masses (30 to 40 mm monthly), aspiration of the cystic fluid was performed during the second trimester. Analysis of the fluid was negative as to microbiologic isolates; cytologic analysis indicated a serous gelatinous content without specific cell proliferation. Serum CA125 levels were normal. Patients were maintained with bedrest; no torsion of tumor masses was observed.

Pregnancies were closely observed, and in four cases out of nine (44.5%), abnormal Doppler indexes, i.e. RI of the ovaries < 0.50 and ovarian capsules from 0.30 to 0.40 were found, thus following consultation and after obtaining informed consent the pregnancy was terminated. Removal of ovarian tumors was performed along with cesarean section. The finding left us with a small chance of maintaining ovarian tissue. By the frozen section technique a borderline adenocarcinoma of the ovary was diagnosed. Salpingo-oophorectomy was performed.

In five cases where vaginal delivery occurred, ovarian artery flows were followed in puerperium as well as the RI of the ovarian tumor capsule. Repeated aspiration of the cystic fluid and serum marker analysis did not give positive results.

Considering that cystic tumors were still showing extremely low RI and that there was no tendency to a decrease in size even three months after delivery, after informed consent the cystic ovarian mass was surgically removed. In three cases, histopathologic findings indicated a borderline adenocarcinoma, while in only two cases an ovarian inflammatory process was found. After frozen section analysis, salpingo-oophorectomy was performed.

It is interesting that in seven out of nine cases of adnexal tumors (77.8%), the diagnosis was borderline ovarian adenocarcinoma [4].

In all nine cases Doppler flows were suspicious of possible malignancy even though no other ultrasonographic parameters were present in terms of proliferation, borderline irregularities or other degenerative changes.

Conclusion

Even though the series is small, considering that cysts in pregnancy are not common, it is necessary to consider the significance of Doppler flow analysis following the initial diagnosis.

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