

Fetal echocardiography before and after prenatal aspiration of a fetal ovarian cyst

Badanie echokardiograficzne płodu przed i po zabiegu aspiracji torbieli jajnika

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Abstract

The main criteria for establishing fetal ovarian cysts prognosis are their diameter and echogenicity. The choice of management in case of fetal ovarian cyst remains controversial. In the following article we have reported a case of a fetal ovarian cyst with detailed fetal echocardiography before and after prenatal aspiration. The fetus at 35 weeks of gestation presented with an ovarian cyst of 70mm in diameter and normal heart anatomy and size.

However, detailed fetal echocardiography revealed functional abnormalities such as: monophasic inflow pattern of tricuspid valve, holosystolic tricuspid regurgitation and pericardial effusion. Two days after prenatal aspiration of the cyst, the functional abnormalities in fetal echocardiography receded. After prenatal aspiration we observed a residual cyst of 15mm in maximal diameter. The delivery was spontaneous at 36th week of pregnancy and the infant was discharged from Neonatology Dept on the sixth day of postnatal life. The cyst regressed spontaneously in the course of the next two months.

This is the first report when detailed fetal echocardiography revealed hemodynamic improvement after prenatal aspiration of a fetal ovarian cyst which may mean that huge fetal ovarian cysts might complicate fetal heart function.

Key words: **fetus / echocardiography / ovarian cyst / prenatal aspiration /**

Streszczenie

W rokowaniu u płodów z torbielą jajnika brany jest pod uwagę rozmiar zmiany i jej echogeniczność. Jednak wybór postępowania w przypadku torbieli jajnika jest wciąż kontrowersyjny. Przedstawiliśmy przypadek płodu z torbielą jajnika poddaną prenatalnej aspiracji, u którego przed i po zabiegu wykonano badanie echokardiograficzne. W 35 tygodniu ciąży stwierdzono u płodu torbiel jajnika o średnicy 70mm, natomiast budowa i wielkość serca były prawidłowe.

W badaniu echokardiograficznym stwierdzono zaburzenia czynnościowe pod postacią: monofazowego napływu przez zastawkę trójdzielną, niedomykalności zastawki trójdzielnej i wysięku w osierdziu. Dwa dni po prenatalnej aspiracji torbieli zmiany czynnościowe ustąpiły. W wykonanym dwa dni po zabiegu badaniu ultrasonograficznym opisano torbiel o średnicy 15mm. Pacjentka urodziła w 36 tygodniu ciąży, noworodka wypisano do domu w 6 dobie po porodzie. W ciągu następnych dwóch miesięcy torbiel uległa całkowitej regresji.

Opisaliśmy po raz pierwszy przypadek, w którym w badaniach echokardiograficznych zarejestrowano poprawę stanu hemodynamicznego po prenatalnej aspiracji torbieli jajnika u płodu co może świadczyć o wpływie obecności dużej torbieli jajnika u płodu na funkcję jego serca.

Słowa kluczowe: **płód / echokardiografia / torbiel jajnika / aspiracja prenatalna /**

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Otrzymano: 15.01.2009
Zaakceptowano do druku: 30.06.2009

Introduction

The main criteria for establishing prognosis in fetuses with ovarian cysts are their diameter and echogenicity. The choice of management in case of fetal ovarian cyst remains controversial, regardless of the fact that their detection has become more frequent due to vast improvement in prenatal ultrasonography [1-3]. This is the first report about detailed fetal echocardiography which revealed hemodynamic improvement after prenatal aspiration of an ovarian cyst.

Case Report

Patient RM was a 32-year-old G2P2. Her first pregnancy resulted in a healthy boy. In the second pregnancy, routine ultrasound scans at 12th and 24th week were normal. At 32nd week of pregnancy, routine ultrasound study detected a fetal ovarian cyst. The patient was then referred to our department. We confirmed the diagnosis of a left ovarian cyst with a maximal diameter of 71mm. (Figure 1A).

Doppler ultrasonography of the umbilical artery, the middle cerebral artery and the ductus venosus were normal. Fetal echocardiography revealed normal heart anatomy and size. However, the following functional abnormalities were found: monophasic tricuspid valve flow, holosystolic tricuspid regurgitation and a small pericardial effusion. (Figure 2A).

The patient underwent the procedure of a prenatal aspiration of the cyst, which was performed without any complications. (Figure 1B).

A follow-up fetal echocardiography (next 2 days after the procedure) detected no functional abnormalities. (Figure 2B).

Six days after the aspiration the patient had spontaneous vaginal delivery resulting in female infant with birth weight of 3000g and Apgar score of 9. We did not detect any signs of infections. Nevertheless, the delivery might have occurred before due date because of the earlier intrauterine aspiration.

The remaining ovarian cyst had a maximal diameter of 29mm. Two months later the cyst spontaneously regressed.

Discussion

In determining the characteristics of fetal ovarian cysts, the key criteria so far have been the diameter and echogenicity [2, 3]. An ovarian cyst of less than 50mm should be followed prenatally with serial ultrasound monitoring and the delivery ought to take place in a prenatal center [4, 5]. The question remains when prenatal aspiration should be performed and whether it is indeed useful in the management of fetus with an ovarian cyst. The issue remains controversial with several researchers recommending aspiration when the maximum diameter of fetal ovarian cysts exceeds 50mm [1, 6, 7]. Others argue that prenatal aspiration is of no general advantage and that it should be carried out only in special cases [3].

In our case, before prenatal aspiration we had detected some functional abnormalities in fetal echocardiography, despite normal heart anatomy and normal blood flow waveforms in the umbilical artery, middle cerebral artery and ductus venosus. After prenatal aspiration all functional abnormalities ceased to exist. These observations are consistent with our previous report, confirming that fetal echocardiography might be useful in the management of fetus with ovarian cyst [8].

In previous publication we had shown that abnormal results of fetal echocardiography revealing functional abnormalities in case of ovarian cyst were often related to surgical procedures after birth [8]. Otherwise, normal heart study and anatomy more often coexisted with spontaneous regression of the ovarian cyst [8]. It seems that there might be a relationship between a giant or complicated ovarian cyst and the function of the fetal heart. Since acute pain is characteristic of complicated ovarian cysts in most non-pregnant women, and usually leads to a surgical procedure, then perhaps functional abnormalities in fetal heart are a pain

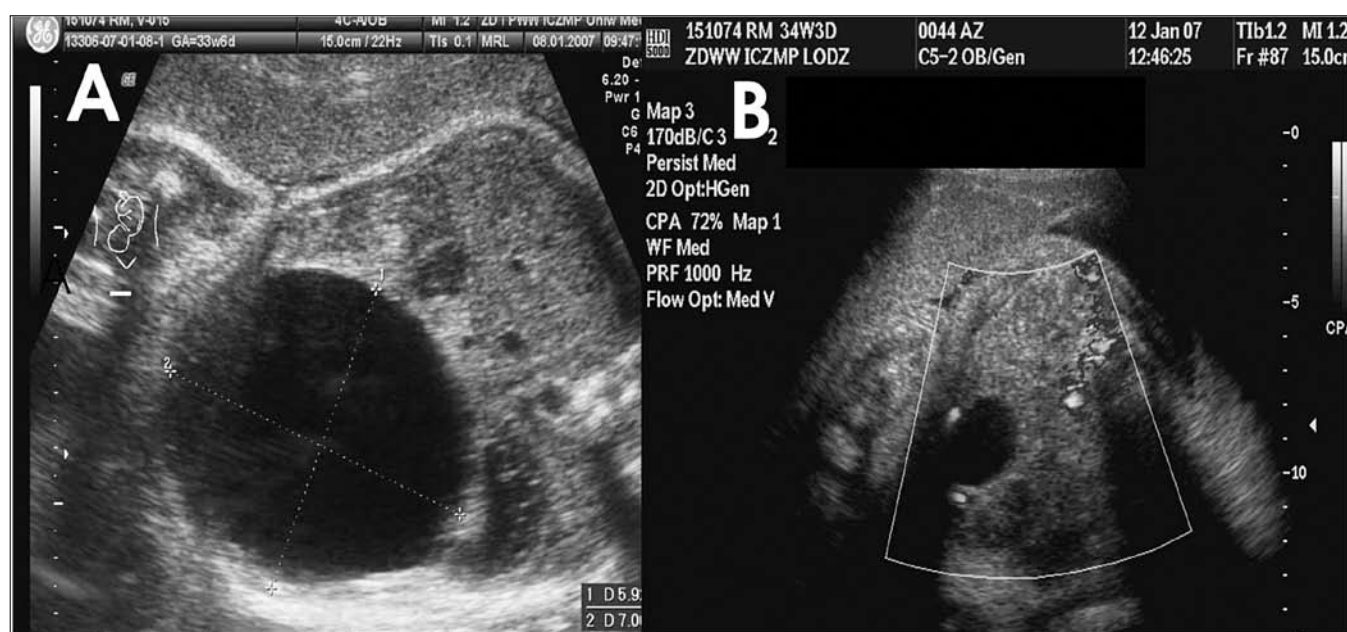


Figure 1. (A) Fetal ovarian cyst in 34th week of pregnancy. (B) Two days after prenatal aspiration of the fetal ovarian cyst.

Fetal echocardiography before and after prenatal aspiration of a fetal ovarian cyst.

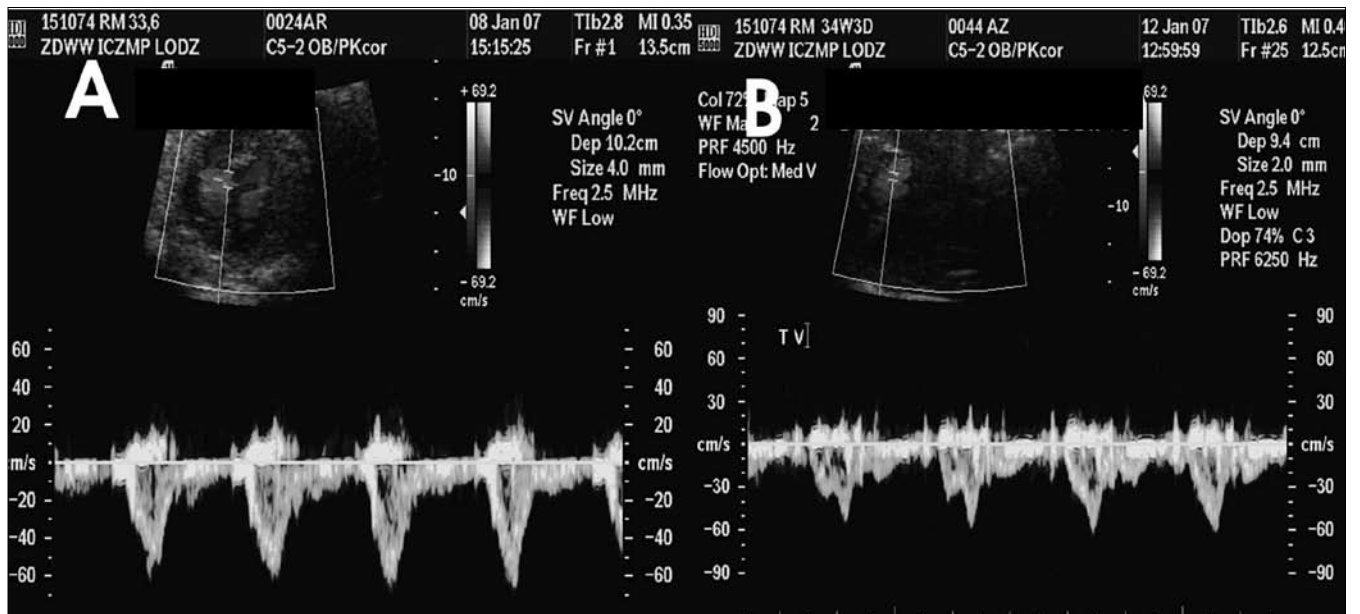


Figure 2. (A) Monophasic tricuspid valve inflow. (B) Normal tricuspid inflow pattern two days after prenatal aspiration of the fetal ovarian cyst.

reaction of the fetus, detectable by ultrasound. Thus, indications to prenatal aspiration of the ovarian cysts might possibly include fetuses with ovarian cyst >50mm in maximum diameter and presenting with functional abnormalities in fetal echocardiography.

In the case reported here, there were functional abnormalities which disappeared immediately after the cyst aspiration. Therefore, we advise to perform a detailed fetal echocardiography in fetus with ovarian cysts before making the decision about prenatal aspiration of the cyst. Whether or not this suggestion helps in the prognosis and management of fetal ovarian cyst remains to be further investigated in future studies.

Acknowledgements:

We wish to thank Prof. Michael Katz, Vice-President for March of Dimes Foundation for proofreading the article.

This research was supported by a grant from Medical University of Lodz (502-18-676)

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