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Original Research Article

Comparison between fates of pregnancies with chorionic bumps with normal controls

Ahmed Elhabashy*, Mohamed Farag, Rehab El-Said

Department of Obstetrics and Gynecology, Faculty of Medicine, Alexandria University, Egypt

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***Correspondence:**
Dr. Ahmed Elhabashy,
E-mail: ahmadelhabashy@yahoo.com

ABSTRACT

Background: Chorionic bump (CB) represents an arterial hematoma in the chorionic plate early in pregnancy. It appears as focal rounded protrusion of the chorion (the early placenta) into the gestational sac (GS). The aim of our study is to explore the fate of such pregnancies in term of risks of miscarriage, preterm labour, fetal growth restriction (FGR) and intrauterine fetal demise (IUFD).
Methods: This study is a retrospective case control study that entailed 1700 cases referred to a tertiary center at a gestational age window 6-10 weeks, between April 2018 and April 2024. CB was diagnosed if there was focal rounded protrusion of the chorion into the gestational sac that was separable from the yolk sac and the fetal pole.
Results: 12 cases where diagnoses at the initial visit as having chorionic bump (i.e. 0.7% of cases). 8 cases of them continued their pregnancy normally without any complications till full term (i.e. 67% of CB cases give live birth). 4 cases of CB had been documented as failed pregnancy (miscarriage) on the follow up scan that was scheduled 3 weeks after the initial scan (i.e. 33% of CB cases had experienced spontaneous abortion). The incidence of failed pregnancy in the controls (that did not have CB) at the initial scan was 17%.
Conclusions: Although the risk of spontaneous abortion in cases who had CB detected early in pregnancy is higher than normal controls (33% versus 17% respectively); most of such cases continues their pregnancy normally with 67% live birth rate.

Keywords: Chorionic bump, Failed pregnancy, CB/MSD ratio, Pregnancy of uncertain viability

INTRODUCTION

Chorionic bump (CB) represents an arterial hematoma in the chorionic plate early in pregnancy. It appears as focal rounded protrusion of the chorion (the early placenta) into the gestational sac (GS).[1,2] Chorionic bumps usually have a central hypoechoic core with echogenic peripheral edge.[3] CB was firstly described by Harris et al in 2006 as a sonographic finding in the first trimester that is associated with increased risk of miscarriage.[4]

It is an uncommon finding during early first trimester sonography that is commonly misdiagnosed as: failed pregnancy, subchorionic haemorrhage, partial mole or conjoint twin.[5] It is present in 1.5 to 7 per 1000 pregnancies.[6] Most cases with CB were complaining of spotting at the time of their diagnosis which is the commonest cause of their referral to early pregnancy assessment unit (EPAU). No definite pathogenesis for CB yet elucidated. Two theories had been suggested for that. Either arterial hematoma within the chorion or extensive necrosis in the decidulaized endometrium.[1]

Several studies had linked the presence of CB with adverse pregnancy outcomes mainly the miscarriage with variable likelihood risk that range from 30% to 50%.[7-11] In those who passes the first trimester without miscarriage; CB is usually disappear and no longer detected in the second trimester.[6,12,13]

Although CB is considered as a risk factor for failed pregnancy; its rarity make many obstetricians and sonographers may not aware about it. This could lead to misdiagnosis that in turn may lead to interruption of healthy normal pregnancies.[14]

Objectives

The aim of our study is to explore the fate of Pregnancies with chorionic bump in term of risks of miscarriage, preterm labour, fetal growth restriction (FGR) and intrauterine fetal demise (IUFD).

METHODS

Our study is a retrospective case control study that had compared the adverse prenatal outcomes in pregnancies who had chorionic bump(s) detected early in pregnancy with that in normal controls. 2333 cases were enrolled in our study. 633 cases were lost during follow up. Total number of cases after exclusion of the cases who lost during follow up is 1700. Cases were referred to early pregnancy assessment unit (EPAU) at Habashy 4D scan center (Alexandria; Egypt) at a gestational age window 6-10 weeks, between April 2018 and April 2024. We had excluded cases with maternal medical disorders, twin gestation and ICISI pregnancies.

Cases who receive aspirin and/or heparin were also excluded. All cases had scanned by two dimensional transvaginal ultrasounds (2D-TVUS) using Samsung H60 machine. Causes of referral were: pregnancy of uncertain viability (PUV), suspected partial mole or suspected conjoint twin.

CB was diagnosed if there was focal rounded protrusion of the chorion into the gestational sac (GS) that was separable from the yolk sac and the fetal pole. Figures 1 and 2 showed the sonographic features of CB by transvaginal ultrasound.

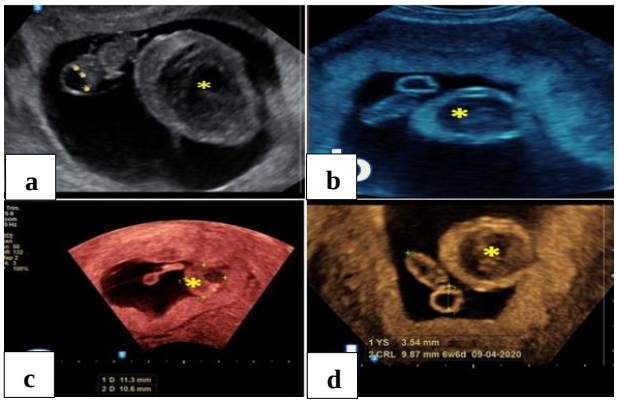

Figure 1 (a-d): CB by gray scale transvaginal ultrasound (2D-TVUS): rounded heterogeneous lesion protruded from the chorion into the gestational sac (astrix). CB is separable from the yolk sac and the fetal pole.

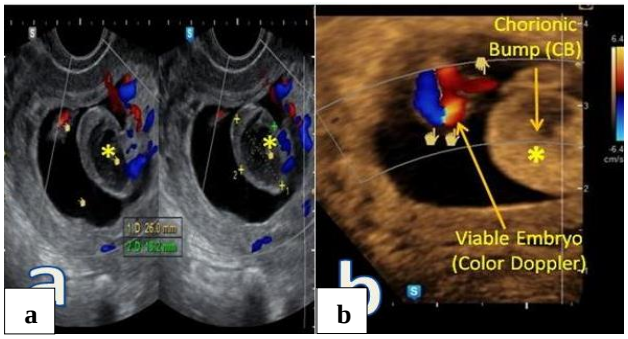

Figure 2 (a and b): CB by color Doppler transvaginal ultrasound. Note that the CB is avascular.

Cases who were initially diagnosed as molar or ectopic pregnancy at the initial assessment were excluded as well as cases who had uterine malformations. All cases had been followed till delivery. Cases who failed to be followed were excluded as well. Our study protocol was approved by the ethical committee for medical research at the Faculty of Medicine, Alexandria University, Egypt (serial number: 0305986 on 19-1-2023).

Cases were followed for detection of the following adverse perinatal outcomes: failed pregnancy (miscarriage), preterm birth (PTB), fetal growth restriction (FGR) or intrauterine fetal death (IUFD). Data were fed to the computer and analyzed using IBM statistical package for the social sciences (SPSS) software package version 20.0. (Armonk, NY: IBM Corp). Categorical data were represented as numbers and percentages. Student t-test was used to compare two groups for normally distributed quantitative variables.

RESULTS

2333 cases were enrolled in our study. 633 cases were lost during follow up. Total number of cases after exclusion of the cases who lost during follow up is 1700. Twelve cases of them where diagnoses at the initial visit as having CB (i.e. 0.7% of cases).

Table 1 shows the demographic data of our cases and controls. There were no statistically significant differences between both groups as regard age, gestational age, parity and mode of previous deliveries. Cases who had CB at the initial scan were more likely to have vaginal spotting or bleeding at the initial scan.

8 cases of those who had CB continued their pregnancy normally without any complications till full term (i.e. 67% of CB cases give live birth). 4 cases of CB had been documented as failed pregnancy (miscarriage) on the follow up scan that was scheduled 3 weeks after the initial scan (i.e. 33% of CB cases had experienced spontaneous abortion). The incidence of failed pregnancy in the controls (that did not have CB) at the initial scan was 17%. Figure 3 shoes the flow chart of fate of cases and control. Embryonic cardiac activity was noted at the initial visit in

the 8 cases with CB who continued their pregnancy successfully. As regards the 4 cases with CB who proved too had failed pregnancy on follow up visits; all of them did not showed embryonic cardiac activity at the initial visit.

Widest diameter of the CB was: 7-16.6 mm in those who continues their pregnancy successfully versus: 12.4-33.3 mm in those who got failed pregnancy. We had measured the widest CB diameter/mean sac diameter (MSD); [CB/MSD] ratio in the twelve cases. The eight cases of CB who continued their pregnancy successfully were had CB/MSD <0.5. The four cases of CB who got failed pregnancy had CB/MSD ≥0.5.

As regards the eight cases with CB who continues their pregnancy beyond the first trimester; none of them had developed fetal growth restriction (FGR); preterm birth (PTB) nor intrauterine fetal death (IUFD). Figure 3 showed the flow chart of our cases.

Table 1: Demographic data of the studied groups.

Variables	Group A (n=12)	Group B (n=1688)	P value*
Age (years) (mean±SD)	29.2±4.3	28.9±5.2	0.804
Parity (mean±SD)	3±2	3±1	0.923
Primigravida (%)	1 case (8.3)	168 cases (9.95)	0.763
Vaginal birth (%)	3 cases (25)	506 cases (29.97)	0.245
CS (%)	8 cases (66.67)	1012 cases (59.95)	0.334
Bleeding (%)	7 cases (58.33)	388 case (22.99)	<0.001

*P: p value for comparing between group A and B (significant if <0.05)

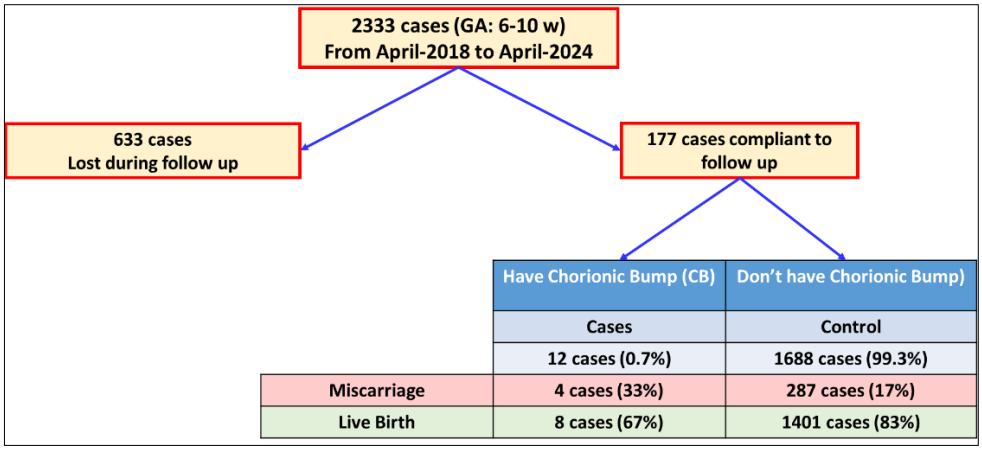

Figure 3: Flow chart of fate of cases and control.

DISCUSSION

CB represents an arterial hematoma in the chorionic plate early in pregnancy. It appears as focal rounded protrusion of the chorion (the early placenta) into the gestational sac (GS). The aim of our study is to explore the fate of such pregnancies in term of risks of miscarriage, preterm labour, FGR and IUFD. Our study is a retrospective case control study that entailed 1700 cases referred to a tertiary center at a gestational age window 6-10 weeks, between April 2018 and April 2024. CB was diagnosed if there was focal rounded protrusion of the chorion into the gestational sac that was separable from the yolk sac and the fetal pole.

12 cases where diagnoses at the initial visit as having chorionic bump (i.e. 0.7% of cases). 8 cases of them continued their pregnancy normally without any complications till full term (i.e. 67% of CB cases give live birth). 4 cases of CB had been documented as failed pregnancy (miscarriage) on the follow up scan that was scheduled 3 weeks after the initial scan (i.e. 33% of CB cases had experienced spontaneous abortion). The incidence of failed pregnancy in the controls (that did not have CB) at the initial scan was 17%.

Younesi et al had studied 1900 cases referred to a tertiary center for early first trimester sonography.[14] They found that 8 cases of them where had had chorionic bump (0.4%). 37.8% of CB cases had developed miscarriage and 62.5% showed live birth. Their findings were close to our results; as CB prevalence in our study was 0.7% and their risk for miscarriage was 33%.

Sana et al studied retrospectively 37798 cases referred in early first trimester and found that chorionic bump presented in 57 cases (i.e. 0.15%).[7] The prevalence of miscarriage in their study was 38.5% in those with chorionic bump and 20.5% in the control group. They had concluded that the presence of chorionic bump in early pregnancy raise the risk for miscarriage or failed pregnancy; and this was matched with our findings. The miscarriage risk is a little bit lower in our study [33% in

CB cases versus 17% in controls]; and this can be explained by the larger sample size of their study.

Yousaf et al had studied the pregnancy outcome in cases who had chorionic bump in their early pregnancy ultrasound records.[3] They found that 50% of them had missed or incomplete abortion. Their miscarriage risk (50%) is higher than the risk we found in our cases (33%). We can explain that by fewer number of cases in their study (6 cases).

Wax et al studied 690 cases, 16 (2.3%) having a bump. They found that odds of aneuploidy were four times higher in the bump group than in the no bump group.[15] Their findings were contradicting our findings as we did not notice any anomalies in the 8 cases with chorionic bump who continued their pregnancy. This contradiction could be explained by 2 causes. Firstly; their study population was high risk group for aneuploidy. In addition; different sample size (16 in their study versus 8 in our study).

We have three limitations in our study. Firstly; too small number of cases; only twelve cases had been studied. The cause of that was the rarity of chorionic bump.[5] In addition; we did not mention the relation between coexistence of chorionic bump and perigestational hemorrhage or retroamniotic hematoma as such coexistence might affect the prognosis. Lastly; all our cases were had only one chorionic bump; so we did not encountered cases with more than one chorionic bumps that might change the prognosis.

CONCLUSION

Although the risk of spontaneous abortion in cases who had CB detected early in pregnancy is higher than normal controls (33% versus 17% respectively); most of such cases continues their pregnancy normally with 67% live birth rate. CB/MSD ratio <0.5 is a good prognostic factor for successful pregnancy in such cases.

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