Color flow imaging in the prenatal diagnosis of twin gestation of a normal fetus coexisting with a hydatidiform mole

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Abstract A case of twin pregnancy with one normal fetus coexisting with a complete molar placenta is presented. The clinical presentation and complications are described. The role of color flow mapping in reaching a correct diagnosis is highlighted.


Keywords: Twins, hydatidiform mole, endovaginal scan, color flow scanning persistent trophoblastic disease.

The incidence of hydatidiform mole with a coexistent live fetus varies between 1/10,000 and 1/100,000 deliveries. Clinicians faced with such a diagnosis do not only have to make a decision on whether or not to terminate the pregnancy, but should also be able to counsel couples regarding the potential associated risks and complications. This will depend heavily on reaching a correct diagnosis. This report aims to highlight the role of color flow imaging in the differential diagnosis between "partial mole" and a "twin gestation" in which a normal fetus coexists with a molar twin placenta. It also addresses some of the prognostic factors that should be considered in the management of such cases.

Case report A 30-year old gravida 6, para 4+1, Saudi lady presented to the emergency room complaining of dull aching lower abdominal pain, recurrent episodes of dark vaginal spotting, nausea and vomiting of 10 days duration. According to her last normal menstrual period date, she was about 12 weeks gestation. On examination, apart from a BP of 130/90 mm Hg, all her vital signs were normal. The symphysis fundal height corresponded to 24 weeks gestation. On pelvic examination, a minimal amount of dark blood was noted, but the cervix was well formed with a closed os. A sonographic examination performed with a 3.5 MHz phased array sector scanner (Acuson 128 XP=10, Acuson Inc., Mountain View, California), revealed a normal single viable intrauterine fetus with normal amount of liquor and placenta. Its measurements were compatible with about 13 weeks gestation. Posterior to the gestation sac there was a huge echogenic mass with few scattered cystic areas (Fig. 1). An endovaginal sonography was performed using 5.5 Mhz endovaginal probe, while it further refined the normal placenta from the abnormal molar tissue, it did not add much further information. A differential diagnosis of either a partial mole or a twin pregnancy coexisting with a complete mole was made. However, applying color flow imaging with the endovaginal probe, it clearly demonstrated the avascular nature of the mass (molar placenta). It also confirmed absence of communication between the mass and the normally situated placenta, while clearly identifying the site of umbilical cord insertion in the normal placental tissue (Fig. 2). A confident diagnosis of twin pregnancy with a normal fetus and its placenta coexisting with a molar placental degeneration was made. Blood work showed a Hb of 8.1 gm/dl, a rather low platelet count of 133,000 and a maternal se hCG of 211,1000 mU/ml. Liver and thyroid function tests were normal. A chest x-ray was performed which did not show signs of metastases.

The plan was to continue conservative
Fig. 1: A longitudinal scan showing a well-formed fetus (F) at around 12 weeks gestation, amniotic cavity. Posteriorly, a molar degeneration in placental tissue (M) with scattered cystic areas.

Fig. 2: A cross-section showing section of the fetal head, amniotic cavity, normal placenta (P), with root of cord insertion. Posteriorly the molar tissue (M) with cystic degeneration is seen. The difference in the texture between the placenta and the molar tissue can be seen.
management and to perform amniocentesis for karyotyping at around 14 weeks. In order to correct her anemia, two units of packed red blood cells were transfused. Her condition remained stable until the fourth day when she started to have a moderate amount of vaginal bleeding which settled spontaneously. However, two days later, she developed features of severe toxemia in the form of increasing BP to 150/100, generalized edema, proteinuria (+) and decreased platelet count 121,000. Liver enzymes started to rise. The vomiting and epigastric pain increased and she became unable to keep down any food or drink.

It was thus decided to proceed for termination of pregnancy “TOP”. The cervix was dilated to size 12 Hegar and the fetus and placenta were then removed almost intact using an ovum forceps. Evacuation was then completed using suction and curettage. An extensive amount of vesicles and blood (2300 ml) evacuated. Post operatively the uterus was about 12 weeks in size. The histology revealed a 13 week normal fetus and a 7x4x1 cm normal placenta with attached umbilical cord and no molar changes. In addition there were multiple fragments of 8x6x2 cm spongy tissue consistent with a diagnosis of hydatidiform mole.

A se hCG assay was performed on the fifth post operative day, the level was still >200,000 mIU/ml. When repeated after one week, it had decreased to 614 mIU/ml. She was prescribed combined oral contraceptive pills and discharged home for follow up in the outpatient clinic by se hCG assay on a weekly basis. However, she had to be readmitted to hospital after about four weeks because of a rebound increase in se hCG level to 1000 mIU/ml after two weeks, then to 4880 mIU/ml on the fourth week. She was thus started on methotrexate with leucovorin (folinic acid rescue). However, after completion of three courses the serum level of hCG reached a plateau for two consecutive weeks at 156.6 mIU/L which was considered a sign of drug resistance. A second regime using actinomycin-D was commenced. After two courses the se hCG level had dropped to 5.53 mIU/L. She will continue under follow up, using contraception for at least one year.

Discussion Two distinct syndromes have been reported: (1) a “twin gestation” in which one gestation develops normally while the second undergoes complete molar degeneration and (2) a partial mole described as conception with a fetus and single placenta that undergoes diffuse hydatidiform mole changes. Genetically in partial mole, the presence of 23 maternal and 46 paternal chromosomes are compatible with fetal and placental development, except that in almost all cases the fetus is malformed. Whereas in twin gestation with complete mole and coexistent chromosomally normal fetus, the fetus is more likely to be non-malformed. However, the risk of subsequent development of persistent trophoblastic disease (PTD) is far less in partial mole compared to that in twin gestation with a complete mole and coexistent normal twin.

Ultrasound diagnosis depends on criteria related to the fetus, gestational sac and the placenta. In partial mole, since the conceptus is almost always a tripliod, the fetus, which if alive, is either malformed or exhibits features of intrauterine growth retardation. Whereas in twin gestation in which a fetus coexists with a complete mole, the diagnosis requires the presence of a fetus which is usually normal, with its gestational sac and placenta. A placenta that has undergone molar degeneration exhibits a broad spectrum of sonographic features that can be explained pathologically by the amount of trophoblastic proliferation and secondary changes such as hemorrhage. Proliferating trophoblast manifests sonographically as echogenic tissue, with multiple cystic spaces. However, such striking abnormality is not obligatory and may have to be differentiated from that of a similar appearance in a normal placenta or even a degenerating fibroid. In this respect color flow imaging can be of great value, not only in ascertaining the diagnosis, but also in excluding myoma in necrosis or a large placental chorioangioma. As in this case, the use of color flow imaging clearly identifies the vascular pattern of the normal placenta vs the avascular nature of the coexisting twin molar tissue (Fig. 3).

The decision on whether or not to terminate a pregnancy in cases of a normal fetus and placenta coexisting with a molar twin placenta, depends primarily on the fetus’ chromosomal constitution. Unlike a complete mole, the hCG level does not seem to be of great prognostic value. If the fetal karyotype makeup is normal, a subsequent clinical course and management is subject to development of the triad of complications, namely severe preeclamptic toxemia (PET), vomiting and hemorrhage. The risk PTD does not seem to diminish by pregnancy termination. On the contrary, in a recent review the risk of PTD was quoted as 9.2% and 19.2% respectively in pregnancies intended to continue and those interrupted at diagnosis. It is possible to speculate that in pregnancies that continue with major complications the chance of spontaneous regression or death of the mole is higher.
However, the chance of the fetus to survive is guarded. A fetal survival rate is quoted as >70% if a pregnancy continues beyond 28 weeks vs none for pregnancy terminated before 28 weeks. In general, extensive placenta in early pregnancy is indicative of unfavorable outcome.

In this case, the sonographic picture and color flow mapping enabled us to make a reasonably confident diagnosis of hydatidiform mole with a coexistent normal fetus, hence the decision to allow the pregnancy to continue. In the meantime, the plan was to perform karyotyping amniocentesis. However, the subsequent clinical course i.e. development of severe PET, dictated the decision for termination of pregnancy.

References

التشخيص المبكر لحالة توأم في جنين طبيعي مع حمل عنقودي باستخدام الموجات فوق الصوتية الملونة

ملخص الحالة:

تم تشخيص حالة حمل توأم في جنين طبيعي مع حمل عنقودي باستخدام الموجات فوق الصوتية الملونة.

الهدف من هذا التقرير هو توضيح الحالة الإكلينيكية ودور الموجات فوق الصوتية الملونة في تأكيد التشخيص.