

Case Report

Gestational intraplacental choriocarcinoma in a term pregnancy and delivery: a case report and review of the literature

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Abstract: Introduction: Choriocarcinoma is a rare but highly malignant trophoblastic neoplasm. Cases of its coexistence with or after a “normal” pregnancy are extremely rare. Intraplacental choriocarcinoma is rare, and usually results in maternal metastasis at the time of diagnosis. Case presentation: We present the case of a 29 year-old gravida 1 para 0 Chinese woman who delivered a viable 3,140 g female infant at 38 weeks’ gestation. Because of the patient’s history of gestational diabetes mellitus and hepatitis B positive status, the placenta examined pathologically, and placental choriocarcinoma was diagnosed. The patient denied any previous pregnancies. Her serum beta human chorionic gonadotropin was 3573.7 mIU/ml 4 days after cesareansection, and dropped to less than 5 mIU/ml six weeks post-partum. There were no signs of dissemination; therefore, the patient received one course of chemotherapy. To date, both mother and baby are well. Conclusion: We postulate that the prevalence of intraplacental choriocarcinoma is notably higher than previously reported and remains undetected because it is not routine practice to send placentas for pathological evaluation after a normal spontaneous delivery. This case clearly illustrates the importance of detailed examination of the placenta and its full significance in diagnosing choriocarcinoma in the mother. To our knowledge, this is the first report of a case of intraplacental choriocarcinoma without any previous forms of pregnancy. Our case provides evidence that the choriocarcinoma may arise from an normal placenta.

Keywords: Intraplacental, choriocarcinoma, pathological diagnosis

Introduction

Choriocarcinoma is a rare, but highly malignant tumor, occurring in 1 in 40,000 pregnancies. Choriocarcinoma coexisting with, or after, a “normal” pregnancy is extremely rare, with an estimated occurrence of 1 in 160,000 pregnancies and, under these circumstances, it is associated with a poor prognosis. Furthermore, the risk of widespread dissemination is increased in both the mother and the fetus by delayed diagnosis [1-3]. It is a highly aggressive form of gestational trophoblastic disease, found in association with any form of gestation. Gestational choriocarcinoma usually arises in the uterine body. Intraplacental choriocarcinoma is the rarest form of gestational choriocarcinoma, accounting for approximately 0.04% of all gestational trophoblastic disease, and is

usually associated with maternal metastasis at the time of diagnosis [4].

Here, we report a case of intraplacental choriocarcinoma that was diagnosed in a woman who was pregnant for the first time and delivered a healthy female baby, showing no signs of metastasis.

Case report

A 29-year-old Chinese gravida 1 para 0 woman was admitted to the hospital at 38 weeks of gestation due to decreased fetal movement. After rupture of the membranes, marginal placenta previa was noted and an emergency cesarean section was performed. Her pregnancy course was irregular and complicated by gestational diabetes mellitus and Hepatitis B posi-

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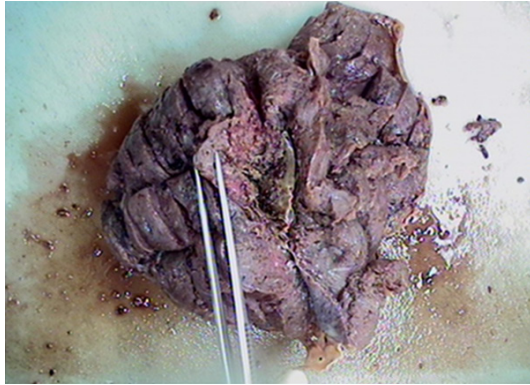


Figure 1. Cross-section of the placenta showing an indistinct, poorly demarcated soft hemorrhagic area (near the tip of the forceps).

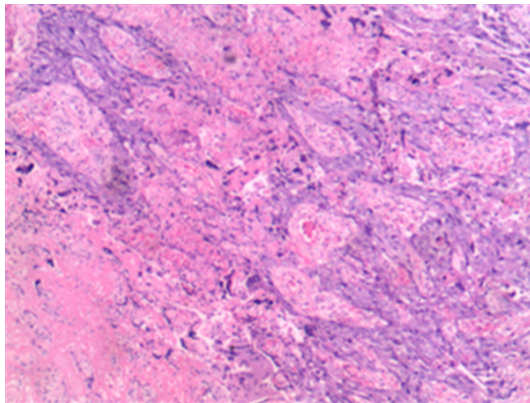


Figure 2. Tumor tissue showing an irregular, but sharply defined border, toward the surrounding non-neoplastic placental tissue.

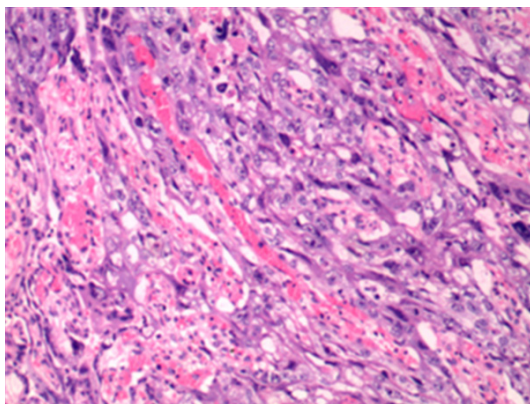


Figure 3. Tumor tissue showing a biphasic phenotype and consisting of alternating areas of highly atypical and pleomorphic syncytiotrophoblasts and cytotrophoblasts.

tive. The patient delivered a viable female infant vaginally, weighing 3140 g, with Apgar

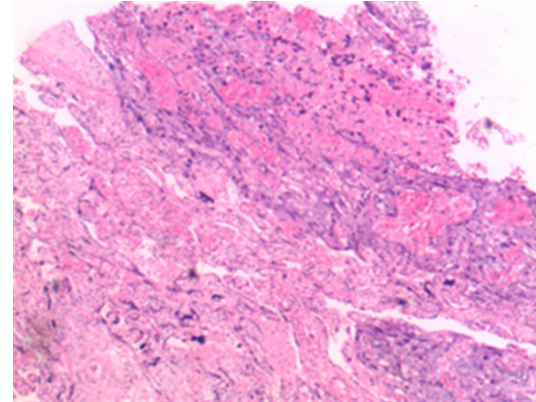


Figure 4. Villi partially involved with a transition from normal to neoplastic trophoblast (H&E, $\times 40$).

scores of 10 at 1 minute, 10 at 2 minutes and 10 at 5 minutes. Her post-partum course was unremarkable. The placenta appeared to be normal at the gross level, with a three vessel cord at the time of delivery. Because of the patient's history of gestational diabetes mellitus and hepatitis B positive status, the placenta was examined pathologically, and placental choriocarcinoma was diagnosed. The patient denied any past history of pregnancy, including complete mole, partial mole, miscarriage and normal pregnancy.

Her serum beta human chorionic gonadotropin (β -hCG) was 3573.7 mIU/ml 4 days after the cesarean section, and dropped to less than 5 mIU/ml six weeks post-partum. There were no pathologic findings in the ultrasound examinations performed before and after delivery. The newborn baby was followed by the pediatric service. Since there were no signs of dissemination, the patient received one course of chemotherapy in another hospital. Chemotherapy regimen is unknown. Until June of this year, four months post-partum, both mother and child are alive showing no signs of malignant disease. Follow-up is ongoing.

Pathologic findings

The placenta measured $20 \times 19.5 \times 3$ cm. On gross examination by a pathologist, the primary lesion (measuring $5.5 \times 3 \times 1.5$ cm) resembled an indistinct, poorly demarcated soft hemorrhagic area in cross-section and was located near to the fetal surface of the placenta (**Figure 1**). Microscopically, the tumor showed a biphasic tissue phenotype, consisting of alternate areas of highly atypical and pleomorphic syncy-

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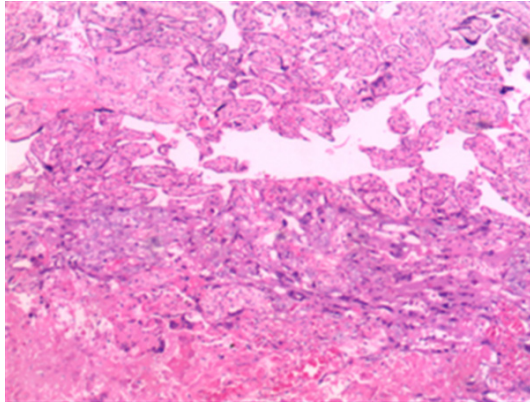


Figure 5. Interface between choriocarcinoma with central necrosis (bottom) and normal tissue.

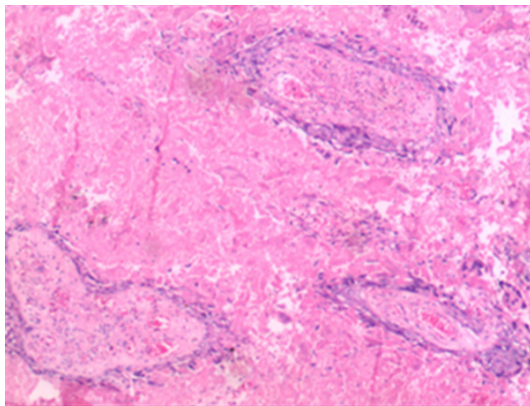


Figure 6. Villi completely encompassed by collars of neoplastic trophoblasts.

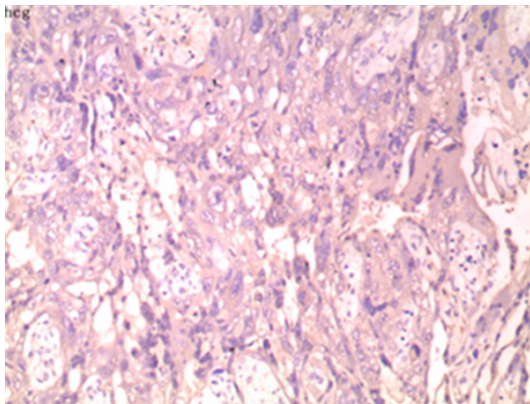


Figure 7. Positive immunohistochemical staining of β -human chorionic gonadotropin.

tiotrophoblast and cytotrophoblast. The tumor showed extensive central necrosis, in which the ghost-like outlines of necrotic villi could be discerned. The tumor tissue showed an irregular

but sharply defined border toward the surrounding non-neoplastic placental tissue. Many villi that were completely encompassed by collars of neoplastic trophoblast were observed, and some were partially involved with a transition from normal to neoplastic trophoblasts (**Figures 2-6**). The remainder of the placenta was mature.

Immunohistochemistry showed diffuse positive staining of β -hCG in the sampled tumor tissue (**Figure 7**). Histological examination and immunohistochemical staining of the surgical specimens confirmed the diagnosis of intraplacental choriocarcinoma, which would have remained undiagnosed in this case if the pathologist had not observed the lesion on initial gross examination.

Discussion

Choriocarcinoma is a highly aggressive malignant trophoblastic tumor, which is commonly associated with any form of gestation in females. Due to the rapid growth of choriocarcinoma, early recurrence and metastasis are frequently observed. Common symptoms include coughing, fever, chest pain and breathing difficulties. The histological features of choriocarcinoma are characterized by a biphasic cellular population with extensive areas of hemorrhage and necrosis [5]. There are two types of cells in this tumor; cytotrophoblastic and syncytiotrophoblastic. Cytotrophoblastic cells are characteristically round-to-polygonal in shape, with clear, polyhedral cytoplasm, round nuclei, sparse chromatin and prominent nucleoli, while the syncytiotrophoblastic type is composed of polynuclear giant cells with abundant eosinophilic cytoplasm [5]. Immunohistochemical staining of β -hCG is the most common method used to diagnose choriocarcinoma.

Of all the forms of gestational choriocarcinoma, placental choriocarcinoma is the rarest and is somewhat different from other types occurring elsewhere. Macroscopic diagnosis is often difficult because the majority of placental choriocarcinomas resemble benign lesions, such as infarction and intraplacental hematoma [6]. When recognized by gross examination, most placental choriocarcinomas have been described as yellow-white granular lesions thought to be infarcts. In the case described here, the focus of the placental choriocarcinoma was

treated as a hemorrhagic area following initial pathological examinations. Microscopically, placental choriocarcinomas usually revealed areas in which the clusters of trophoblasts arose from residual normal chorionic villi, malignant trophoblast is clustered arising from residual normal chorionic villi with partial involvement and transition from normal trophoblasts. This surface villous growth is often at the periphery of a central zone composed of hemorrhagic and necrotic tissue, confluent trophoblasts and villi, explaining its gross resemblance to hemorrhage. Invasion of the villous stroma has been described in rare cases.

Choriocarcinomas can be preceded by any form of gestation, including a complete mole, miscarriage, normal pregnancy, or a partial mole, although this is uncommon [7]. When preceded by a normal pregnancy the outcome is often intrauterine death. Intraplacental choriocarcinoma is often associated with maternal disseminated disease and more rarely, with dissemination in the fetus as well [3]. When choriocarcinoma is discovered at term pregnancy, the risk of widespread metastases is high. However, in cases of early diagnosis and appropriate chemotherapy, the prognosis is good [3].

In the case presented here, the patient denied any forms of previous pregnancy, and there was no evidence of metastasis in the mother or baby. A Medline search of publications in English using the keywords "intraplacenta", "choriocarcinoma", and "gravida 1 para 0" did not reveal any reports of intraplacental choriocarcinoma without any forms of previous pregnancy, indicating that our case is the first report of its kind. This case supports the hypothesis of Hallam [8] that the choriocarcinoma arises from an otherwise normal placenta.

Conclusion

Placental examination after a normal delivery is not routinely performed in most hospitals. However, there are a number of reports of incidental findings of placental choriocarcinoma in asymptomatic mothers and infants with no evidence of metastases that are similar to the case reported here. In the majority of these cases, the placenta was examined pathologically due to other pregnancy complications, such as intrauterine growth restriction, pre-eclampsia, maternal fetal hemorrhage, and in

our case, gestational diabetes mellitus and hepatitis B positive status. On the basis of our case and a recent report of a similar case [9, 10], we are in agreement with the opinion that the prevalence of intraplacental choriocarcinoma is notably higher than previously reported.

To our knowledge, this is the first report of a case of intraplacental choriocarcinoma without any forms of previous pregnancy. Our case provides further evidence in support of the hypothesis that the choriocarcinoma may arise from an otherwise normal placenta. This case clearly illustrates the importance of detailed examination of the placenta and its full significance in diagnosing choriocarcinoma in the mother.

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Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Disclosure of conflict of interest

None.

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