What is Your Diagnosis: Fetal Brain Mass

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**History and Symptoms:** Our patient came in for a routine prenatal ultrasound exam at 34 weeks gestational age. She had normal menstrual cycles before the pregnancy and did not have a history of any major illness. This was her first pregnancy.

**Family History:** The mother (our patient) was one of 3 children.

**Present Pregnancy:** The patient gave a history of 34 weeks amenorrhea which corresponded with the age of the fetus on the ultrasound scan. She had no history of abnormal bleeding per vagina (P/V) or spotting during the pregnancy.

**Clinical Examination:** Her blood pressure was normal (BP: 124/80 mm. of Hg); as were all other vitals. On abdominal examination, she had no evidence of tenderness or pain over the abdomen. The fundal height corresponded to the age of a 34 week old fetus.

**Ultrasound Studies:** Our patient underwent routine transabdominal ultrasound imaging to study the viability of the pregnancy and to rule out any anomalies.

**Image 1:** Transverse section of fetal head *(click to full size)*

![Image 1](click to full size)

**Image 2:** Transverse section (Color Doppler) of fetal head

![Image 2](click to full size)

Post your findings to the comment box and continue to the **B-mode image discussion**.

**Discussion of the B-mode ultrasound images**
The fetal head at 34 weeks shows a large, echogenic lesion in the area of the right lateral ventricle. From the observation of these 2 images, it appears the lesion is literally filling most of the space within the right lateral ventricle and causing a mild shift of the midline structures, especially the falx cerebrum. The echogenic nature of the lesion suggests a solid mass.

The color Doppler image *(image-2)* suggests a few vessels are present in the lesion. This fetus has no other sonographically detectable anomalies.

What are the diagnostic possibilities for this lesion or mass?

The first possibility for this lesion is an intracranial hemATOMA, namely an intraventricular bleed.
Would a hematoma show vessels within the lesion? The answer is clearly no. Perhaps if we have a look at one more image of this “mass lesion”, we would be in a better position to judge the true nature of this perplexing mass.

**Image 3:** Transverse section image of the fetal brain

This image shows the mass in the right lateral ventricle of the fetus and the contralateral left lateral ventricle too. What do you see?

**Description of Findings**
The mass does not produce any obvious hydrocephalus and the left cerebral lateral ventricle is obviously normal. Further it seems the mass and the choroid plexus in the left lateral ventricle show almost the same echogenicity and echotexture. What exactly are we dealing with? What kind of neoplasm of the cerebral ventricles can produce these appearances?

**Can this be a teratoma?**
A Teratoma is definitely a possibility. However they are almost always homogenous masses and show echogenic and cystic areas, unlike the homogenous mass seen above.

**Can this mass arise from the choroid plexus of the right lateral ventricle?**
Yes, this is also a definite possibility.

**What are the possible lesions involving the choroid plexus?**
Among these are choroid plexus cysts and less commonly choroid plexus neoplasia such as choroid plexus papilloma.

**Could this mass be a porencephalic cyst?**
Porencephalic cysts are cystic and are the end result of intracranial hemorrhage. They are also not vascular on Doppler imaging.

**What about the possibility of choroids plexus papilloma?**
The only remaining possibility in this case is a choroid plexus mass. What features are there to clinch this diagnosis?

*The presence of an echogenic, mildly vascular mass which despite being large has not produced hydrocephalus are perhaps the most striking sonographic features which favor a diagnosis of choroid plexus papilloma.*

**Image 4:** MRI scan image of the fetal brain

The MRI of this fetus shows huge size of the mass occupying the right fetal lateral ventricle. High signal intensity favors a diagnosis of choroid plexus papilloma.

Add your opinions and continue to the final diagnosis.

**Final Diagnosis**
*Choroid plexus papilloma* of the right lateral ventricle

The fetus was delivered and the diagnosis was confirmed by histopathology.
Discussion
Choroid plexus papillomas account for a very small percentage (less than 1%) of all adult intracranial masses. In children and in the fetus these are slightly more common. Choroid plexus papilloma has a higher incidence than choroid carcinoma. This distinction is usually a pathological diagnosis. These tumors arise from the cuboidal epithelial cells of the choroid plexus. As in this case, this lesion is usually an isolated finding.

Prognosis
A fetus with this type of cerebral mass invariably needs surgical removal of the mass. However the success of the surgery depends more on the complete removal of the lesion. Essentially the choroid papilloma is a benign tumor but malignant transformation is known to occur.

Differential Diagnosis
1. Intraventricular hemorrhage: These hematomas are not vascular on color Doppler imaging.
2. Teratomas: They are inhomogenous masses with complex and heterogenous appearance.
3. Porencephalic cysts: These are the result of intracranial hemorrhage and are not vascular.
4. Choroid plexus cyst: These lesions are cystic, though they too occur within the ventricles and are not vascular.

Disclosures:

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