

# Title: Hyperechoic Amniotic Fluid in the Setting of Fetal Bowel Dilation and Echogenicity - A Diagnostic Dilemma

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**Background/Synopsis:** Echogenic or hyperechoic amniotic fluid in a term gestation is a vexing and uncommon sonographic finding, most frequently associated with vernix caseosa or meconium contamination.<sup>1</sup> A retrospective study published in 2018 found the incidence of echogenic amniotic fluid on ultrasound in term pregnancies to be 3.2% with 44.4% of patients found to have meconium-stained fluid at the time of delivery, compared to 9.3% of patients without these findings.<sup>2</sup> While vernix caseosa is a naturally occurring biofilm that has protective benefits, meconium contamination of amniotic fluid is associated with adverse outcomes such as neonatal respiratory distress, chorioamnionitis, and neonatal sepsis.<sup>3</sup> Despite this concern, previous case reports have argued against changing prenatal management of pregnancies in which hyperechoic amniotic fluid is the only abnormality found on ultrasound in the setting of a favorable biophysical profile (BPP) and fetal non-stress test (NST).<sup>4</sup> However, additional sonographic abnormalities, such as fetal bowel dilation or bowel echogenicity, suggest such complications as a meconium ileus and warrant further discussion around delivery planning.<sup>5</sup>

**Objective/Purpose:** Visualization of echogenic amniotic fluid during fetal ultrasound evaluation at term is an uncommon finding suggestive of vernix caseosa or meconium contamination. Due to the potential unfavorable outcomes associated with meconium, especially in the setting of additional abnormal sonographic findings, this case provides an opportunity to discuss appropriate delivery planning and coordination with appropriate healthcare personnel.

**Case Report:** An 18-year-old G2P1001 at 36 weeks 2 days estimated gestational age by last menstrual period and confirmed by 19-week ultrasound, was referred to the MUMC High Risk OB Clinic for late antepartum care and delivery management, as the patient desired a trial of labor after cesarean (TOLAC). The pregnancy was complicated by maternal obesity and positive Group B Streptococcus (GBS) culture. Given the patient's preference for TOLAC, the plan was to allow for spontaneous labor to occur, with scheduled weekly prenatal appointments and fetal antenatal monitoring in the interim.

An ultrasound at 40 weeks 2 days EGA demonstrated hyperechoic amniotic fluid with normal fluid volume, a maximum vertical pocket (MVP) of 5.5 cm, and an amniotic fluid index (AFI) of 13.2 cm. Estimated fetal weight (EFW) was 4198 g. BPP was 8/8 with a reactive NST. A repeat ultrasound at 40

weeks 6 days revealed persistent hyperechoic amniotic fluid with a normal fluid volume, MVP of 3.7 cm, and AFI of 9.0 cm. In addition, new sonographic findings included fetal bowel dilation and bowel echogenicity. BPP was 8/8 with a reactive NST. Due to the additional abnormal fetal structural ultrasound findings, cesarean section was recommended for delivery.

The patient was delivered at 40 weeks 6 days via repeat cesarean section performed under spinal anesthesia. Upon entry into the uterine cavity, the amniotic fluid was noted to be opaque with concentrated vernix and no evidence of meconium. The neonate was evaluated immediately upon delivery by neonatology personnel. The initial physical exam was benign, with Apgar scores of 8/9 and a birth weight of 3550 g. Serial physical exams and abdominal x-rays demonstrated no significant findings, and the neonate passed multiple meconium stools during the first few days of life. The patient's postpartum course was uncomplicated, and she was ultimately discharged on postoperative day 3.

Conclusion: Hyperechoic amniotic fluid has an influence on labor and delivery management and is concerning due to the association with meconium and complications thereof, mainly stemming from meconium aspiration syndrome. When coupled with echogenic, dilated fetal bowel the decision to proceed with cesarean section is medically prudent in the absence of pre-delivery amniotic fluid sampling via amniocentesis. The correlation between hyperechoic amniotic fluid and meconium is imprecise.

#### References:

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