

## MR CASE STUDY: Meconium Peritonitis

### History -

26 week gestation whose outside ultrasound studies demonstrated a large volume of featureless ascites of unknown etiology. Infectious workup, karyotype and fetal cardiac ultrasound studies were normal.

Other than the ascites, the fetus continued to develop well, and patient delivered at term.

Postnatal diagnosis was that of meconium peritonitis due to healed small bowel perforations. The neonate was born with abdominal distention due to ascites that has persisted and is slowly resolving at home. There was no postnatal bowel obstruction or need for surgery.

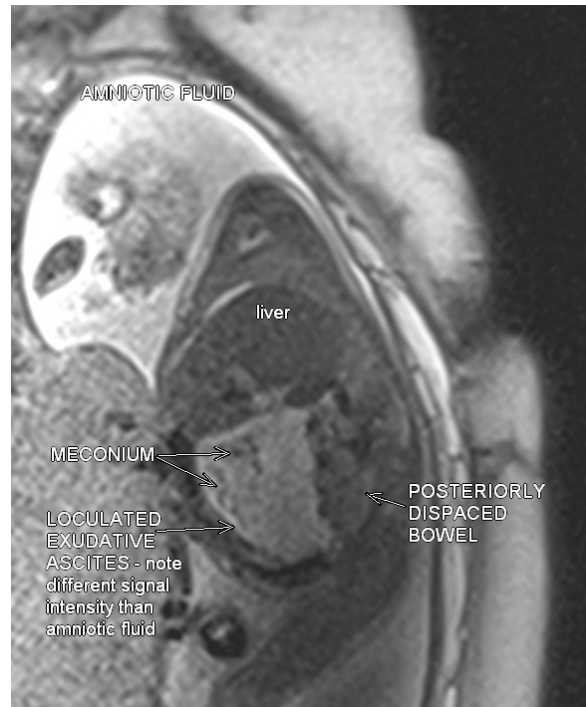
**Final Diagnosis:** Meconium peritonitis due to healed fetal bowel perforation.

### Imaging Observations -

Figure 1 is a coronal T1 sequence demonstrating multiple foci of meconium free within the ascitic fluid. The meconium appears as multiple white (hypersignal intense) globules. Note that the ascites is of intermediate signal intensity, greater than that of surrounding amniotic fluid, which as a transudate is darker. On the T1 sequence, meconium, liver, spleen, fat, and blood byproducts appear comparatively hypersignal intense (white).



Figure 2 is a sagittal T2 sequence demonstrating the loculated morphology of the ascitic fluid acting as a "mass," displacing bowel posteriorly. The globules of meconium free within the ascites become hypointense (dark) on T2. Once again, note how exudative ascites has a different signal intensity than amniotic fluid.



The differential diagnosis for tissue demonstrating this pattern of signal intensity - bright on T1 and dark T2 - includes meconium, fat, and blood byproducts. Blood clots would layer and not be distributed in a globular fashion and, therefore, most unlikely. The loculation of peritoneal fluid demonstrating mass effect upon the bowel supports a pathology creating peritonitis, such as meconium. In the absence of a dermoid mass, fat globules are considered unlikely.

#### Key Points -

MR was able to identify the exudative nature of ascites and to more specifically implicate perforated meconium as the etiologic agent.

Daniel J. Cohen, M.D.  
HUDSON VALLEY RADIOLOGY ASSOCIATES  
[danjcohen@optonline.net](mailto:danjcohen@optonline.net)  
Mobile: (914) 391-0109