Extra-Fetal Structures to Evaluate on Fetal MRI

- Cervix
- Umbilical Cord
- Placenta
- Uterus
- Incidental maternal findings
Cervix

Normal Findings

- Best evaluated on the midline sagittal image (C)
- Hyperintense T1 signal in the cervical canal may represent proteinaceous mucus (white arrow)
- Cervix should be long and closed

T2 Balanced GRE  
T1
Short cervix with funnelling is a high predictor of pre-term labor.

Usually detected on US -> can be incidentally seen on MRI.
Umbilical Cord

Normal Findings

Normal umbilical cord inserts centrally on the placenta

- 3 vessel cord (2 umbilical arteries and 1 umbilical vein)
Umbilical Cord

Abnormal variants

**Velamentous insertion**

Insertion into the chorion and amnion -> not reaching the placenta

**Vasa previa**

Cross the membranes in the lower uterine segment near the fetal presenting part
Umbilical Cord

Masses

Umbilical Cord Hemangioma

- Rare benign vascular mass of the umbilical cord
- Most common mass of the umbilical cord.
- High perinatal mortality and morbidity
Placenta

Imaging Technique

Image placenta (yellow arrows) in the plane of the cervix (white arrows)
**Placenta**

**Variant Anatomy**

**Succenturiate Lobe (S)**
Additional lobule separate from the main bulk of the placenta

**Circumvallate**
Chorionic plate (C) smaller than basal plate (B)
Rolled placental edges
Placenta

**Masses**

Chorioangioma

- Hemangioma of the fetal portion of the placenta
- Commonly incidentally noted
Placenta Previa

Abnormal placentation in lower uterine segment, overlying or near internal cervical os (ICO)

**Low Lying**: less than 2 cm from ICO

**Marginal**: placenta at ICO but not covering

**Complete/Partial**: placenta covering the ICO
Placenta Previa

- Best diagnosed after 15 weeks
- Low lying and marginal placenta should be re-evaluated at later gestation prior to delivery
- Can be associated with placental abruption

*T1 weighted images help evaluate blood products*
Placenta Adhesive Disorder

Spectrum of disorders allowing invasion of chorionic villi into the myometrium

Normal
Decidua basalis separates chorionic villi from myometrium

Placenta Accreta
Penetration decidua with chorionic villi

Placenta Increta
Penetration of myometrium by chorionic villi

Placenta Percreta
Invasion of myometrium and uterine serosa

Risk factors for Placental Adhesive Disorder
- Prior cesarean section
- Placenta previa
Uterus Abnormalities

**Uterine Anomalies**
- Uterine didelphys

**Uterine Myomas**
- Can degenerate with cystic changes
Maternal Findings

Ovarian Pathology

Dermoid Cyst
Maternal Findings

Renal Anomalies

Duplicated maternal kidney with upper pole hydronephrosis and ureterocele (U)
Incidental ovarian dermoid cyst (D)
# Extra-Fetal Structures to Evaluate on Fetal MRI

**Cervix**
- Short Cervix
- Funneling

**Umbilical Cord**
- Velamentous cord insertion
- Vasa previa
- Mass (hemangioma)

**Placenta**
- Mass (chorioangioma)
- Placenta previa
- Placenta adhesive disorder

**Uterus**
- Uterine anomalies
- Myomas

**Incidental maternal findings**
- Ovarian
- Renal