

Laerdal SonoSim Ultrasound Solution (LSUS) 2.0

SimMom Late-Stage Pregnancy

Peer-to-Peer Checklist

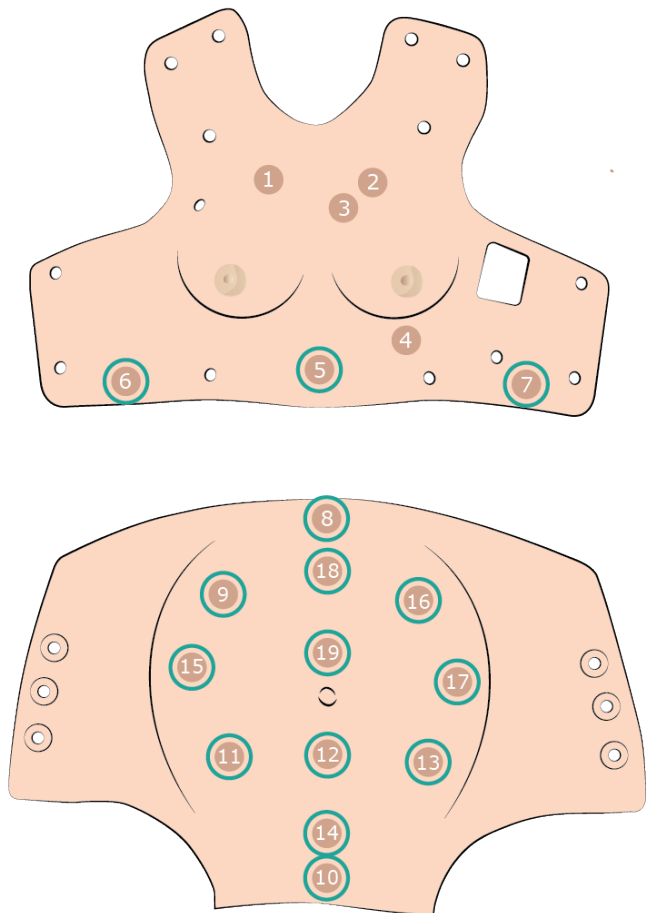
Late-stage pregnancy bundle contains 10 different actual patient cases as part of the patient assessment and diagnosis.

Target group(s): Healthcare providers that participate in the care of pregnant patients and senior medical students.

Use: Each case checklist outlines the findings for each ultrasound window available for that case. Have the participant scan each location and verbalize their findings and confirm these with the checklist. For a comprehensive, expert-narrated summary of each ultrasound window finding, select the *Findings* tab located in the right menu. The locations highlighted in blue are the sites where ultrasound images can be seen.

SimMom Late-Stage Pregnancy Bundle Active Tags:

1. Right Chest
2. Left Chest
3. Parasternal
4. Apical
5. Subcostal
6. Right Upper Quadrant
7. Left Upper Quadrant
8. Proximal IVC
9. Parauterine Right Upper Quadrant
10. Suprapubic
11. Parauterine Left Upper Quadrant
12. Infraumbilical
13. Parauterine Left Lower Quadrant
14. Lower Uterus
15. Parauterine Right Mid Quadrant
16. Parauterine Left Upper Quadrant
17. Parauterine Left Mid Quadrant
18. Upper Uterus
19. Supraumbilical



Case I

Provide the following case summary - 34-year-old female who was found unconscious in a retail store and presents to the emergency department with altered mental status and clinical signs suggestive of a recent generalized seizure.

Initial Observations: HR: 90 / RR: 20 / BP: 185/95 / Temp: 37.5C / SPO2-96% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	No free fluid in splenorenal space; Limited view due to bowel gas artifact	
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.43 cm with a 34w0d gestational age; HC measures 29.35 cm with a 32w3d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 32.34 cm with a 36w2d gestational age; Normal four-chamber view of fetal heart	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.59 cm with a 34w0d gestational age	
Upper Uterus	Placental attachment at anterior uterine fundus; MVP measures 6.7 cm	
Para Ut RLQ	Limited view due to bowel gas artifact	
Para Ut RMQ	Limited view due to bowel gas artifact	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Limited view due to bowel gas artifact	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Eclampsia; viable 35-week pregnancy

Case 2

Provide the following case summary - 18-year-old female who presents after a motor vehicle accident complaining of shortness of breath and abdominal pain.

Initial Observations: HR: 90 / RR: 20 / BP: 86/50 / Temp: 36.8C / SPO2-95% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	Hemoperitoneum; Free intraperitoneal fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	No free fluid in splenorenal space; Limited view due to bowel gas artifact	
Subcostal	Normal cardiac function; Mild left ventricular hypertrophy; No pericardial effusion; No right-heart strain	
Proximal IVC	VC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 7.88 cm with a 31w4d gestational age; HC measures 27.49 cm with a 30w0d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus (severely limited view); AC measures 28.20 cm with a 32w2d gestational age; Normal four-chamber view of fetal heart	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 5.50 cm with a 29w0d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Placental attachment at anterior uterine body; MVP measures 5.7 cm	
Para Ut RMQ	Limited view due to bowel gas artifact	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Limited view due to bowel gas artifact	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Hemorrhagic shock; placental abruption; viable 31-week pregnancy

Case 3

Provide the following case summary - 37-year-old female presenting to the emergency department with concerns that her water broke after noting clear, non-bloody fluid in her undergarments.

Initial Observations: HR: 95 / RR: 20 / BP: 100/62 / Temp: 37.4C / SPO2-96% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney	
Suprapubic	Fetal limbs visualized; Breech presentation	
LUQ	No free fluid in splenorenal space; Normal left kidney (limited image view)	
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.61 cm with a 21w3d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus (severely limited view); AC measures 17.07 cm with a 22w0d gestational age; Normal four-chamber view of fetal heart; Note: Fetal movement resulting in various fetal positioning between image windows	
Supraumbilical	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 5.07 cm with a 21w3d gestational age; HC measures 18.60 cm with a 21w0d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Amniotic fluid pocket measures 2.0 cm	
Para Ut RMQ	Placental attachment at anterior uterine body	
Para Ut RUQ	Amniotic fluid pocket measures 5.0 cm	
Para Ut LUQ	Amniotic fluid pocket measures 5.4 cm	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Amniotic fluid pocket measures 2.25 cm	

Clinical Diagnosis – Vaginal fluid leak; viable 21-week pregnancy; breech presentation

Case 4

Provide the following case summary - 38-year-old female who presents with abdominal pain, vomiting, and fever:

Initial Observations: HR: 114 / RR: 20 / BP: 90/52 / Temp: 38.2C / SPO2-97% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free intraperitoneal fluid in hepatorenal space (Morison's pouch); Cholelithiasis; Large stone in gallbladder neck and one in fundus; Thickened anterior gallbladder wall; No pericholecystic fluid; Renal cyst	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	No free fluid in splenorenal space; Normal left kidney	
Subcostal	Hyperdynamic heart (elevated ejection fraction); No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.04 cm with a 32w2d gestational age; HC measures 28.68 cm with a 31w4d gestational age; Note: Fetal movement resulting in various fetal positioning between image windows	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 27.60 cm with a 31w5d gestational age; Normal four-chamber view of fetal heart; MVP measures 3.8 cm	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 5.86 cm with a 30w4d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Limited view due to bowel gas artifact	
Para Ut RMQ	Limited view due to bowel gas artifact	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Placental attachment at anterior uterine fundus	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Acute calculous cholecystitis; viable 31-week pregnancy

Case 5

Provide the following case summary - 32-year-old female who presents after a syncopal episode where she fell from standing height and struck her abdomen.

Initial Observations: HR: 110 / RR: 21 / BP: 83/45 / Temp: 36.9C / SPO2-96% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Polycystic right kidney	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	No free fluid in splenorenal space; Polycystic left kidney	
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 7.81 cm with a 31w2d gestational age; HC measures 29.43 cm with a 32w3d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with limited views; AC measures 26.63 cm with a 30w5d gestational age; Normal four-chamber view of fetal heart; MVP measures 5.1 cm	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.16 cm with a 32w0d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Limited view due to bowel gas artifact	
Para Ut RMQ	Placental attachment at posterior uterine body	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Limited view due to bowel gas artifact	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Syncope; abdominal trauma; viable 32-week pregnancy

Case 6

Provide the following case summary - 34-year-old female who presents with progressive fatigue, shortness of breath, and abdominal discomfort over one week.

Initial Observations: HR: 120 / RR: 28 / BP: 102/62 / Temp: 37.1C / SPO2-90% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	No free fluid in splenorenal space; Normal left kidney	
Subcostal	Severely decreased ejection fraction of 15-20% with global hypokinesis; Dilated right ventricle with moderately decreased function; No pericardial effusion	
Proximal IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 15 to 20 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 9.34 cm with a 38w0d gestational age; HC measures 33.33 cm with a 38w1d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with severely limited views; AC measures 34.45 cm with a 38w3d gestational age; Normal four-chamber view of fetal heart	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 7.54 cm with a 38w4d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Amniotic fluid pocket measures 3.3 cm	
Para Ut RMQ	Placental attachment at anterior uterine fundus	
Para Ut RUQ	Amniotic fluid pocket measures 6.2 cm	
Para Ut LUQ	Amniotic fluid pocket measures 4.4 cm	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Amniotic fluid pocket measures 1.7 cm	

Clinical Diagnosis – Peripartum cardiomyopathy; viable 38-week pregnancy

Case 7

Provide the following case summary - 28-year-old female who presents with vaginal bleeding.

Initial Observations: HR: 100 / RR: 20 / BP: 96/55 / Temp: 37.3C / SPO2-99% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney	
Suprapubic	Fetal cranium visualized; Funic presentation	
LUQ	No free fluid in splenorenal space; Normal left kidney	
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter greater than or equal to 2.1 cm; Respirophasic collapse less or equal to 50%; Right atrial pressure 15 to 20 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 5.21 cm with a 21w6d gestational age; HC measures 19.64 cm with a 21w6d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 17.09 cm with a 22w0d gestational age; Normal four-chamber view of fetal heart; Note: Fetal movement resulting in various fetal positioning between image windows	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.90 cm with a 22w4d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Limited view due to bowel gas artifact	
Para Ut RMQ	Limited view due to bowel gas artifact	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Limited view due to bowel gas artifact	
Para Ut LMQ	Placental attachment at posterior uterine fundus; MVP measures 3.1 cm	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Vaginal bleeding; viable 22-week pregnancy

Case 8

Provide the following case summary - 23-year-old female who presents with diffuse myalgia, back pain, vomiting, and headache for two days.

Initial Observations: HR: 110 / RR: 23 / BP: 84/43 / Temp: 38C / SPO2-96% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	No free fluid in splenorenal space; Normal left kidney	
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.25 cm with a 33w1d gestational age; HC measures 27.81 cm with a 31w4d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 28.88 cm with a 32w6d gestational age; Normal four-chamber view of fetal heart	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.36 cm with a 33w0d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Limited view due to bowel gas artifact	
Para Ut RMQ	Placental attachment at right-lateral uterine body; Placental calcifications; MVP measures 5.9 cm	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Limited view due to bowel gas artifact	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Pyelonephritis; severe sepsis; viable 32-week pregnancy

Case 9

Provide the following case summary - 28-year-old female in critical condition, who presents after a motor vehicle accident.

Initial Observations: HR: 120 / RR: 18 / BP: 63/38 / Temp: 37C / SPO2-93% with high-flow BVM

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	Hemoperitoneum; Free intraperitoneal fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Anechoic fluid superior to diaphragm (pleural fluid); Normal right kidney	
Suprapubic	Fetal cranium visualized; Cephalic presentation	
LUQ	Hemoperitoneum; Free intraperitoneal fluid in splenorenal space; Anechoic fluid superior to diaphragm (pleural fluid); Normal left kidney	
Subcostal	Normal cardiac function; Trace pericardial effusion; Right-sided anechoic pleura fluid collection; Right-lung consolidation	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	BPD and HC measurements at level of fetal brain showing limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.83 cm with a 35w5d gestational age; HC measures 31.59 cm with a 35w3d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with limited view; AC measures 29.42 cm with a 33w3d gestational age; Normal four-chamber view of fetal heart	
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.57 cm with a 33w6d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Limited view due to bowel gas artifact	
Para Ut RMQ	Placental attachment at posterior uterine body; MVP measures 3.4 cm	
Para Ut RUQ	Limited view due to bowel gas artifact	
Para Ut LUQ	Limited view due to bowel gas artifact	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Limited view due to bowel gas artifact	

Clinical Diagnosis – Traumatic cardiac arrest; viable 34-week pregnancy

Case 10

Provide the following case summary - 28-year-old female who presents with vomiting, and abdominal and thoracolumbar back pain for three days.

Initial Observations: HR: 100 / RR: 22 / BP: 90/58 / Temp: 37.9C / SPO2-37.9% on room air

Ultrasound Findings:

Ultrasound Window	Findings	Correct Interpretation Yes/No
RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Renal cyst; Nephrolith; Punctate calcifications; No hydronephrosis	
Suprapubic	Fetal limbs visualized; Breech presentation	
LUQ	No free fluid in splenorenal space (limited view); Moderate hydronephrosis	
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain	
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients	
Lower Uterus	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.34 cm with a 20w3d gestational age	
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with limited view; AC measures 15.32 cm with a 20w4d gestational age; Normal four-chamber view of fetal heart	
Supraumbilical	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.66 cm with a 20w1d gestational age; HC measures 17.39 cm with a 20w0d gestational age	
Upper Uterus	Limited view due to bowel gas artifact	
Para Ut RLQ	Amniotic fluid pocket measures 4.3 cm	
Para Ut RMQ	Placental attachment at posterior uterine body	
Para Ut RUQ	Amniotic fluid pocket measures 3.2 cm	
Para Ut LUQ	Amniotic fluid pocket measures 2.7 cm	
Para Ut LMQ	Limited view due to bowel gas artifact	
Para Ut LLQ	Amniotic fluid pocket measures 4.0 cm	

Clinical Diagnosis – Pylonephritis with obstructive uropathy; viable 21-week pregnancy; breech presentation