Sonography of a Pregnancy Complicated by a Congenital Uterine Abnormality

By: Rawan Alsukairi, ARDMS (OB/GYN), Abdomen
B.S in Biomedical Science and Diagnostic Medical Sonography

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Objectives

1. Describe categories of Mullerian duct anomalies in relationship to ductal differentiation and malformation.
2. Highlight the value of three-dimensional sonography for better diagnostic methodology.
3. Demonstrate tailored patient's preparation needs.
4. Understand the multidiscipline approach needed for the diagnosis.
5. Highlight the importance of respecting patient's privacy and adhering to the proper scanning position.

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Why this case matters?

- Up to ~6–7% of women in the general population have a congenital uterine anomaly—within the range of ~4–7% according to a systematic review.
- In high-risk groups (e.g., those with infertility or miscarriage), the prevalence increases—7% among infertile women and up to ~16.7% among those with recurrent pregnancy loss.
- Recent large obstetrics data show:
  - About 70% of pregnancies in women with uterine anomalies reach full term.
  - However, 27% deliver preterm, and ~2% end in abortion or stillbirth.

1. Chan YY, Jayaprakasan K, Zamora J, Thornton JG, Raine-Fenning N, Coomarasamy A. The prevalence of congenital uterine anomalies in unselected and high-risk populations: a systematic review. *Hum Reprod Update*. 2011;17(6):761–771. doi:10.1093/humupd/dmr028
2. Birth outcomes in pregnancies with uterine malformations: results from a single-center retrospective study. *J Reprod Med*. Year;Volume(Issue):Page–Page. (Only 53.8% of pregnancies with uterine malformations ended in live birth; 64.3% were cesarean deliveries.)
3. Huang Y, [others]. Obstetric outcomes of women with congenital uterine anomalies in [country/region]: 70.6% had full-term live birth, 26.8% preterm, 2.1% abortion/stillbirth. *Am J Obstet Gynecol MFM*. 2024. (Abstract).
4. Bicornuate uterus—Epidemiology. *Wikipedia*. Published 2 weeks ago. Prevalence of bicornuate uterus estimated at 0.4% in general population.

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Why share this data?

- Many congenital uterine anomalies remain undiagnosed until pregnancy—despite the significant risks they pose for miscarriage, preterm delivery, and abnormal fetal positioning.
- Ultrasound—especially early transvaginal sonography and advanced 3D imaging—has revolutionized how we identify and manage these anomalies *before complications arise*.
- Sharing this case highlights the transformative role of sonographers:
  - Moving from image acquisition to early diagnosis,
  - Guiding multidisciplinary management,
  - Enabling personalized care plans that improve outcomes for both mother and baby.
- In an era where 4–7% of women have these anomalies, and nearly 1 in 4 pregnancies with uterine anomalies ends preterm, the ability of ultrasound to change the course of pregnancy is not just valuable—it is vital.[1]

1. Chan YY, Jayaprakasan K, Zamora J, Thornton JG, Raine-Fenning N, Coomarasamy A. The prevalence of congenital uterine anomalies in unselected and high-risk populations: a systematic review. *Hum Reprod Update*. 2011;17(6):761–771. doi:10.1093/humupd/dmr028

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Hit The Floor. Episode 9. In: Grey's Anatomy, Season 21. Studio; 2025. Apple TV. Published [Jan 1, 2025]. Accessed [July 30, 2025]

6

Introduction to the case

Jones A. Transabdominal Pelvic Ultrasound Training Image. Radiopaedia.org. Accessed July 30, 2025. https://radiopaedia.org/

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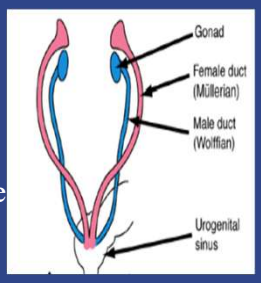
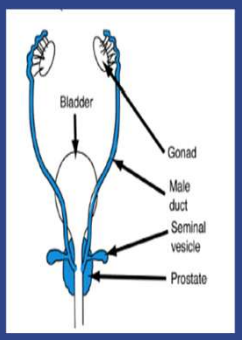
Embryology AND Ductal Sex Differentiation

- Up to 8 weeks in the human embryo, the internal reproductive tract is similar in both genders and consists of a set of two unipotent ducts; **The Wolffian and Mullerian ducts**.[1]
- **Wolffian Duct:**
  - Differentiate into rete testes, the ejaculatory duct, epididymis, ductus difference and seminal vesicle.
  - Prostate is formed separately through the urogenital sinus.[1]
  - Crucial for kidney development; therefore, any abnormality in its development may lead to abnormalities within the urinary or genital system.
  - Regress in female.[1]





1. Rey R, Josso N, Racine C. Sexual Differentiation. National Library of Medicine. *National Center for Biotechnology Information*. Last update May,27 2020. http://www.ncbi.nlm.nih.gov/books/NBK279001/. Accessed February 6, 2022.

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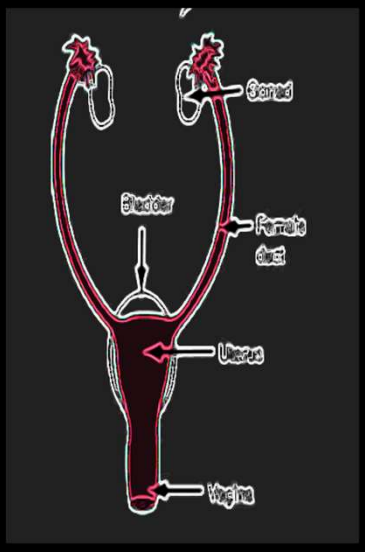
Mullerian Duct

- The paired ducts develop into the upper third of vagina, cervix, uterus and the fallopian tube.[2]
- The ducts must elongate, fuse and form lumens between 7th and 12th week of embryonic development.[1]
- In males they degenerate where you no longer see them.[1]



1 . Rey R, Josso N, Racine C. Sexual Differentiation. National Library of Medicine. *National Center for Biotechnology Information*. Last update May,27 2020. http://www.ncbi.nlm.nih.gov/books/NBK279001/. Accessed February 6, 2022.
2. Hagen Ansert, *Textbook of Diagnostic Ultrasound*. 7th ed. St. Louis, Missouri: Elsevier Mosby; copyright 2012:727.

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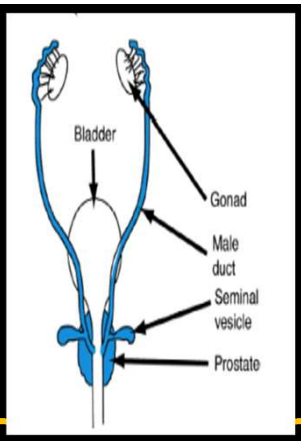
Male Differentiation of Internal Organs

Male differentiation of the internal genital tract is characterized by:

- ❑ regression of Müllerian ducts.
- ❑ Differentiation of the Wolffian duct into male accessory organs.



1. Rey R, Josso N, Racine C. Sexual Differentiation. National Library of Medicine. *National Center for Biotechnology Information*. Last update May,27 2020. http://www.ncbi.nlm.nih.gov/books/NBK279001/. Accessed February 6, 2022.

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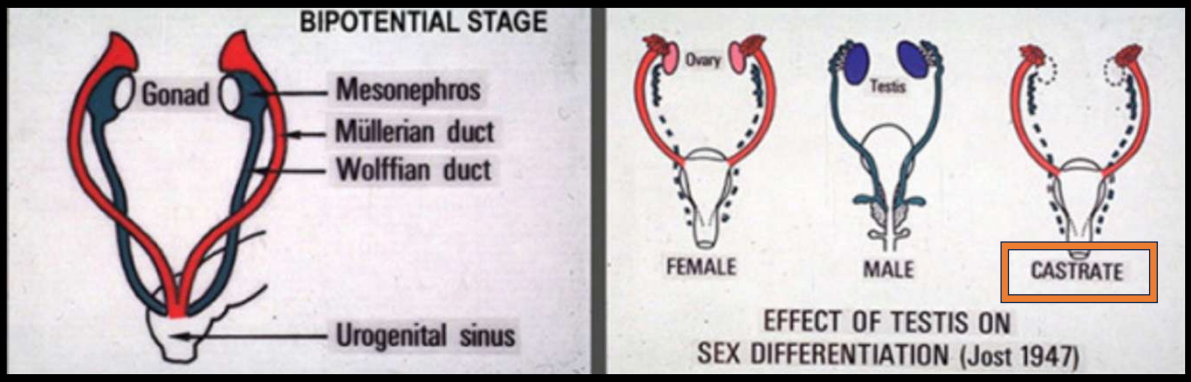
The testicles are homologous to the ovaries as they develop from undifferentiated gonads of the embryo



1 .Rey R, Josso N, Racine C. Sexual Differentiation. National Library of Medicine. *National Center for Biotechnology Information*. Last update May,27 2020. http://www.ncbi.nlm.nih.gov/books/NBK279001/. Accessed February 6, 2022.

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Cont. Development AND Organogenesis

- The development of the genital tract begins during the third week of pregnancy and carries into the second trimester.
- Crosby et al. were the first to propose that the fusion of the two Müllerian ducts, which starts at their caudal ends in the Müllerian tubercle and proceeds cranially up to the fundus.
- Various types of uterine, cervical, or vaginal anomalies result from failure of the duct to develop appropriately, while absent or incomplete fusion results in uterus didelphys [1]
- The congenital uterine abnormalities are classified into six groups based on their prognosis for future fertility and surgical correlations.

1. Crosby WM, Hill EC: Embryology of Mullerian duct system: a review day theory. *Obstet Gyn*. 1929;49:799–805.

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Groups of Congenital Uterine Abnormalities

Class I

- Segmental Müllerian agenesis or incomplete vaginal canalization is suspected when a young girl reaches puberty without menses.

Class II

- Unicornuate uterus, which is related to infertility and pregnancy loss, sonography demonstrates a uterus that is long and slender (cigar-shaped) and deviated to one side.

Hagen-Ansert S: *Textbook of Diagnostic Ultrasound*. 7th ed. St. Louis, MO, Elsevier Mosby; 2012.

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Groups of Congenital Uterine Abnormalities

Class III–V

- are more challenging to diagnose because they all have two uterine cavities, and their correlation classification and treatment depend on the appearance of the external contour of the uterine fundus.

Class V

- would involve a septate uterus in which two uterine cavities are closely spaced, with one fundus and sometimes two cervical canals or a vaginal septum.
- This condition has the highest incidence rate of infertility, and the septum may be removed by a hysteroscopic approach

Hagen-Ansert S: *Textbook of Diagnostic Ultrasound*. 7th ed. St. Louis, MO, Elsevier Mosby; 2012.

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Cont.' Groups of Congenital Uterine Abnormalities

Class VI	• Is related to exposure to the drug diethylstilbestrol (DES) in utero. The uterus is normal in size and shape externally; however, the cavity is "T" shaped with an irregular contour.
Class Vi	• This condition may be challenging to diagnose with sonography. Although congenital uterine abnormalities exist, some Müllerian duct anomalies (MDAs) can have normal reproductive outcomes.

Hagen-Ansert S: *Textbook of Diagnostic Ultrasound*. 7th ed. St. Louis, MO, Elsevier Mosby; 2012.

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Facts AND Challenges

- A congenital malformation is often challenging to demonstrate during the nongravid state and may mimic a fibroid.
- A class III is designated as a uterine didelphys, which is a complete duplication of the uterus, cervix, and vagina. This condition is not usually associated with fertility problems and does not generally require treatment.[1]
- Sonography can be used to detect two endometrial echo complexes, which are best demonstrated during the secretory phase of the menstrual cycle, when the endometrium is most prominent.

1. Hagen-Ansert S: *Textbook of Diagnostic Ultrasound*. 7th ed. St. Louis, MO, Elsevier Mosby; 2012.

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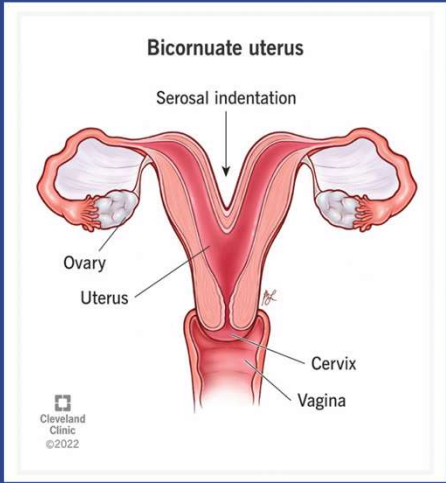
Case Study

- A class IV is highlighted in the current case study, as the bicornuate uterus appeared as a duplication of the uterus with a common cervix.
- The bilobed uterine cavity has wide-spaced cavities and a low incidence of fertility complications and is usually not treated.



Cleveland Clinic. *Heart-shaped uterus illustration.* In: *Bicornuate Uterus.* Cleveland Clinic Health Library. Accessed July 30, 2025. https://my.clevelandclinic.org/health/diseases/22798-bicornuate-uterus

Hagen-Ansert S: *Textbook of Diagnostic Ultrasound*. 7th ed. St. Louis, MO, Elsevier Mosby; 2012.

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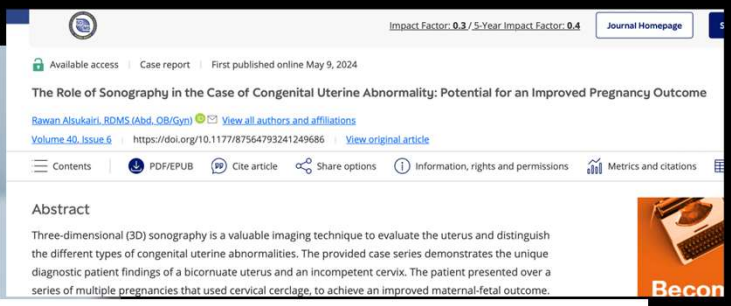
Endovaginal Sonography in Evaluating Cervix



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Available access | Case report | First published online May 9, 2024

The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome

Rawan Alsukairi, RDMS (Abd, OB/Gyn) | View all authors and affiliations

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Abstract

Three-dimensional (3D) sonography is a valuable imaging technique to evaluate the uterus and distinguish the different types of congenital uterine abnormalities. The provided case series demonstrates the unique diagnostic patient findings of a bicornuate uterus and an incompetent cervix. The patient presented over a series of multiple pregnancies that used cervical cerclage, to achieve an improved maternal-fetal outcome.

Becon

The use of transvaginal sonography, in evaluating the cervix, has been addressed in the literature by Anderson. He emphasized that the endovaginal approach gives more detailed imaging of the cervix than the standard abdominal approach.[4] According to a study by Bega et al., information regarding cervical morphology tends to be lost when relying on two-dimensional (2D) imaging, only for cervical length. Three-dimensional (3D) volume imaging has created a plausible methodology to verify and enhance these 2D measurements.[5] Early detection of the short cervix, during sonography, is the primary diagnostic tool used

1. Alsukairi R. The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome. *Journal of Diagnostic Medical Sonography*. 2024;40(6):593-599. doi:10.1177/87564793241249686

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Endovaginal Sonography in Evaluating Cervix

- Early detection of the short cervix, during sonography, is the primary diagnostic tool used by sonographers and clinicians to provide improved patient outcome.
- While the patient, in this case study, experienced difficulties in receiving prenatal care, a combination of early transabdominal and transvaginal sonograms were used to assess gestational location, and cervical length.
- These sonographic diagnostic assessments were performed in each of her four pregnancies and resulted in improved outcomes.

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Case Report

- A 43-year-old female, G4P4, was diagnosed with a bicornuate uterus before her pregnancies and presented to the emergency department (ED) with flank pain and left lower quadrant pain, which started in the morning and worsened throughout the day.
- The patient reported no nausea, vomiting, or diarrhea, no fever or hematuria.
- Upon admission to the ED, the physicians requested a transabdominal and transvaginal sonogram, as well as a renal and urinary bladder sonogram.

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Diagnosis AND Findings

- The transabdominal and transvaginal sonograms were performed with a Logiq E9 ultrasound equipment system (GE Medical, Waukesha, WI) and a C1-6 curved-array transducer to assess the uterus, ovaries, kidneys, and urinary bladder.
- The sonogram revealed normal-appearing bilateral kidneys with no evidence of hydronephrosis or nephrolithiasis.
- The urinary bladder appeared fully distended with a standard thin bladder wall.
- The uterus appeared to have two horns previously diagnosed by regular 2D sonogram.
- The ovaries were normal, the right ovary measured as 2.3 × 1.7 × 2.1 cm^3, with an estimated volume of 4.5 ccs. The left ovary was measured as 2.6 × 1.8 × 2.5 cm^3, with an estimated 6.0 ccs.
- The vasculature was normal appearing in both ovaries, with no sonographic features of ovarian torsion.

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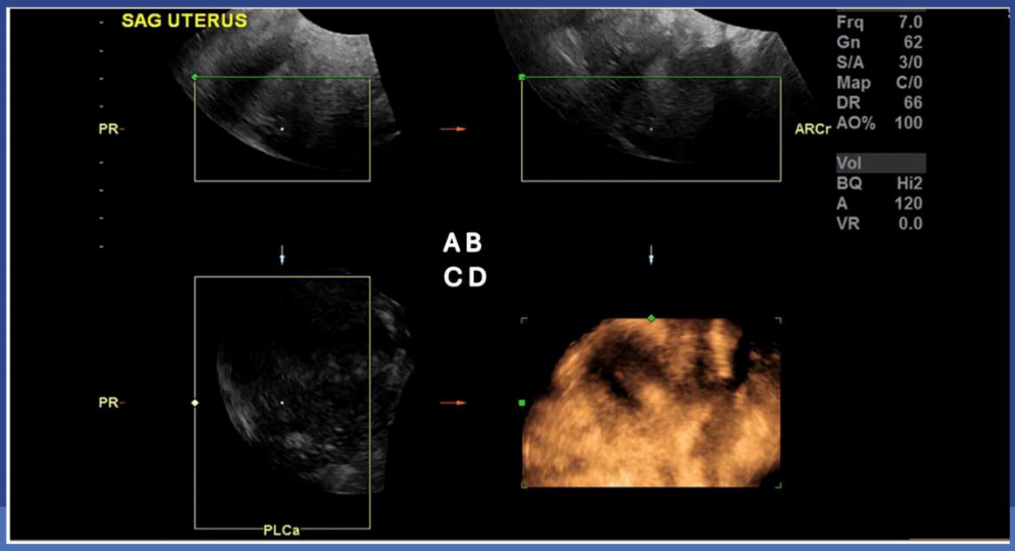
3D Ultrasound



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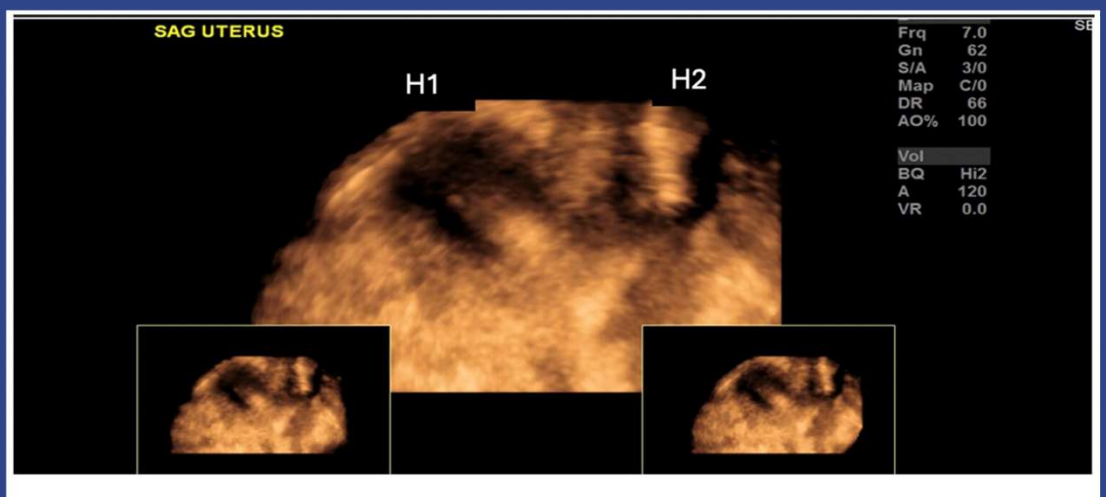

Figure 2. The three-dimensional (3D) sonogram was used to better demonstrate the two horns of a this bicornuate uterus. The horns are indicated on the image by H1 and H2.

Alsukairi R. The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome. J Diagn Med Sonogr. 2024;40(6):593-599. doi:10.1177/87564793241249686.
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Patient's 1st pregnancy

- The patient's first pregnancy was sonographically detected as viable that included a single fetus, located on the right horn.
- Owing to the patient's circumstances, there was no diagnostic first-trimester sonogram completed.
- The patient's sonographic fetal survey examination was limited and completed in the third trimester.

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Cont.' Patient's 1st pregnancy

- The fetal gestational age was measured to be 32 weeks and six days, with an additional diagnostic finding of oligohydramnios.
- By 13 weeks of gestation, the patient presented to the ED with spotting and was diagnosed as having a short cervix; however, there was no sonographic report available.
- A cerclage was placed the following week to mitigate the risk of preterm birth, and the patient was given dexamethasone.

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During 16-36 Weeks of Gestation

- During the period of 16 to 36 weeks gestation, the patient was taking hydroxyprogesterone caproate (500 mg) weekly, to lower the risk of preterm birth, as well as completing a course of betamethasone, at 28 weeks gestation.
- Owing to the estimated fetal weight being larger than expected and a reduction in the amniotic fluid index (AFI), based on the initial sonogram, a cesarean delivery (C-section) was planned and performed by 38 weeks gestation.
- The C-section was performed with spinal anesthesia, upon patient consent and explaining the procedural benefits and risks. The patient understood the risks and agreed to having her first delivery surgically.
- A healthy living infant was delivered, and both were discharged together, two days after delivery.

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Table 1. This Table Is Used to Organize This Patient's Diagnostic Information, for Successive Pregnancies, as Well as Which Horn Holds a Gestational Sac, the Number of Fetuses, and the Timing of the Cesarean Delivery.

	Uterine Horn Containing a Gestational Sac	Number of Fetuses	Timing of the Cesarean Delivery Based on the Estimated Gestational Age
First pregnancy	Right Horn	1	38 weeks
Second pregnancy	Unspecified	1	37 weeks
Third pregnancy	One in the right and one in the left horn	2	37 weeks 2 days
Fourth pregnancy	Right horn	1	37 weeks 6 days

From personal files of Alsukairi R (On files).

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Table 2. This Table Indicates the Gestational Age of Each Fetus, Based on the First Sonogram, the Fetal Anatomy Screening Sonogram, and the Final Sonogram, as Well as Maternal Complications and Patient Outcome.

	First Pregnancy	Second Pregnancy	Third Pregnancy	Fourth Pregnancy
First sonographic examination	31 weeks	18 weeks and 4 days	7 weeks and 3 days	8 weeks
Fetal anatomy screening sonogram	Not performed	18 weeks and 4 days	19 weeks and 2 days	19 weeks and 5 days
Final sonographic examination	31 weeks (one and only exam)	18 weeks and 4 days	37 weeks and 2 days	33 weeks
Maternal complications	• Thrombocytopenia • Anemia • Oligohydramnios • Increased fetal weight • Incompetent cervix	• Thrombocytopenia • Anemia	• Thrombocytopenia • Anemia • Pruritic urticarial papules and plaques (PUPP)	• Thrombocytopenia • Anemia • Paralytic ileus • Abdominal distention • Extensive abdominal adhesion
Pregnancy outcome	Living infant	Living infant	Living twin infants	Living infant

From personal files of Alsukairi R (On files).

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Patient's 2nd pregnancy
(2 years after the first pregnancy)

- The same patient had a second singleton pregnancy, but in an unspecified uterine horn.
- She prophylactically had a cervical cerclage placed, after 13 weeks of gestation.
  - The cerclage was placed due to her history of a short cervix and the previous history of a threatened preterm labor
- Her initial sonogram at 18 weeks four days gestation was unremarkable.
- She was considered a high risk for this second pregnancy due to her current history of thrombocytopenia, anemia after C-section, and a bicornuate uterus
- During this pregnancy, the patient's platelet count dropped from 148 000 to 116 000. As noted.
- Her repeat C-section was performed at 37 weeks, with spinal anesthesia. The delivery was completed with a healthy infant being delivered and mother and infant were discharged, on second day of admission.

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Patient's 3rd pregnancy

- The patient's third pregnancy was considered a dichorionic diamniotic (Di-Di) set of twins, with one fetus in each uterine horn.
- The first-trimester sonogram, for this pregnancy, was completed at 7 weeks and 3 days of gestation
  - Each gestational sac contained its own yolk sac. The crown-rump length (CRL) and heart rate were measured for each fetus and represented a viable pregnancy

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Sonogram of DI-DI pregnancy

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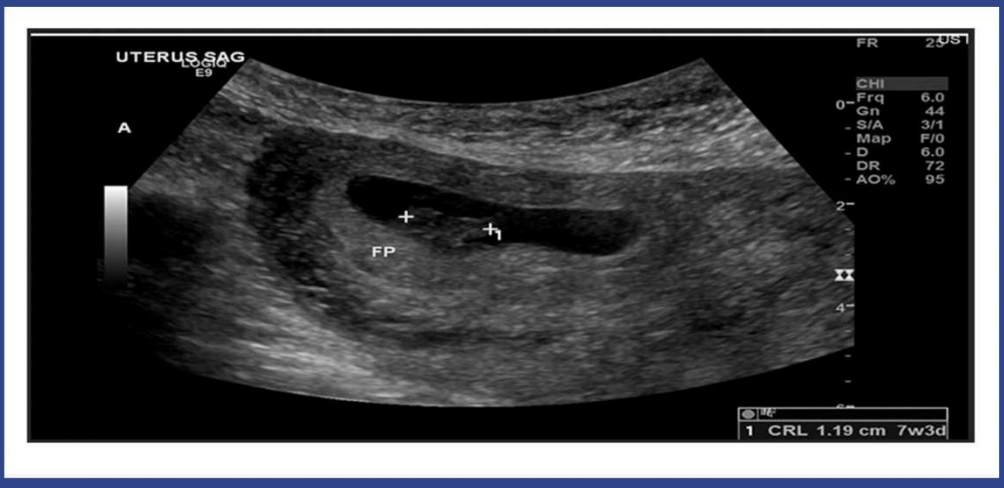
Sonogram of Third Pregnancy



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M-Mode Doppler of 3rd Pregnancy

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Cont.' Her 3rd Pregnancy

- A repeat sonogram was performed at 11 weeks and 2 days of gestation.

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Cont.' Her 3rd Pregnancy

- A repeat sonogram was performed at 11 weeks and two days of gestation.
- At this time, the fetuses were measuring 3.79 cm, and 4.53 cm, which corresponds to 11 weeks and two days of gestation (estimated date of delivery [EDD]: 10/05/2018).

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Cont.' Her 3rd Pregnancy

- The fetal anatomy sonogram was competed at 19 weeks and two days. At that time, the cervical length, by transvaginal sonogram, measured 4.39 cm, which was sufficient to avoid the placement of a cerclage.
  - Instead, routine surveillance sonography was performed to monitor the cervix at 25, 29, 33, 35, and 37 weeks of gestation. As the patient had a history of two prior C-sections, an incompetent cervix, thrombocytopenia, anemia, and pruritic urticarial papules and plaques (PUPP), a repeat cesarean, with spinal anesthesia, was completed at 37 weeks and two days.
- A positive outcome was noted as the patient and both healthy living twins were discharged on the second day of admission.

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Patient's 4th pregnancy

- The same patient returned with a fourth and final pregnancy that was in the right uterine horn

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Sonogram of Fourth Pregnancy During 1st Trimester

From personal files of Alsukairi R (On files).

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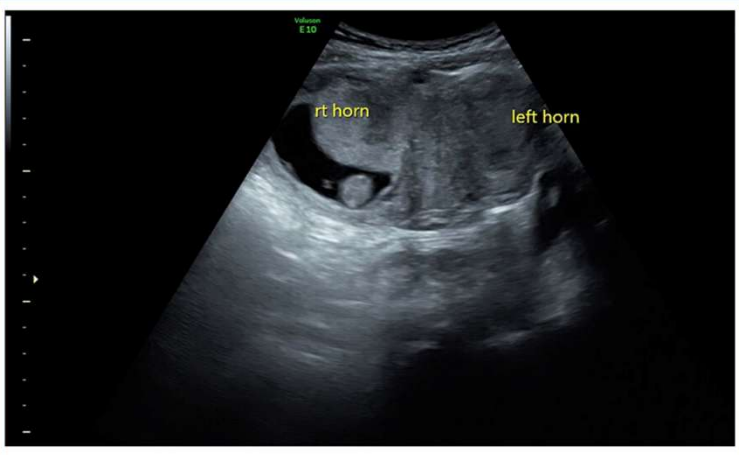
Sonogram of Fourth Pregnancy During 1st Trimester



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Patient's 4th pregnancy

- The CRL was measured at 1.65 cm, corresponding to eight weeks and 0 days (EDD: 11/30/2021).
- Her sonographic fetal survey examination was performed at 18 weeks and 6 days of gestation and demonstrated a normal appearing fetus, in utero.

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Cont.' Patient's 4th pregnancy

- The patient had a repeat appointment, in the clinic, four days after the sonographic fetal survey.
  - To monitor the viability of the fetus and the cervix length, the patient had regular clinic visits at 24 weeks, 33 weeks and 6 days, 35 weeks and 6 days, and 38 weeks and 2 days, respectively.
- Her cervical length was maintained and measured 5.14 cm, which negated the need for cerclage

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C-Section Recommendation & Outcomes

- A repeat C-section was recommended due to the patient's prior history and the fetus being in transverse position (fetal head to the maternal right); therefore, the delivery was performed at 37 weeks and 6 days.
- The result was the safe birth of a healthy living infant; however, the patient developed the following:
  1. Abdominal distention
  2. Paralytic ileus
  3. Gestational thrombocytopenia, with extensive abdominal adhesions.
- The patient's hemoglobin dropped to 7.9 and she was symptomatic.

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Cont.' C-Section Recommendation & Outcomes

- Owing to the abdominal distention, the patient was hospitalized and hydrated with intravenous (IV) saline and potassium chloride (KCL) supplementation, through the same IV line. In addition, the patient was advised and instructed to follow a soft diet plan.
- As for the anemia, two units of packet red blood cell (PRBC) were given. Platelets stayed within a normal range continuously and the abdominal distention resolved. The patient was discharged with the infant on the third admission day with a good patient outcome.

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Complications

- Müllerian duct anomalies have been noted to have a higher association with endometriosis and infertility.[1]
- If not detected early, MDA can cause pregnancy complications.
- Occurring in 4% of the general population, MDA contributes to 40% of abortions and preterm deliveries.
- However, the patient, in the current case series, did not have any history of endometriosis, nor issues with infertility.
  - This case series emphasized the use of 3D sonography and helped to recognize the type of MDA, that the patient possessed.

1. Nanni GS, Wall T, Silkowski C: Multimodality study of a twin pregnancy within a rudimentary horn. *J Diagn Med Sonogr*. 2018;34:216–221.

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The Use of 3D in Diagnosis

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Müllerian duct anomalies have been noted to have a higher association with endometriosis and infertility.[6] If not detected early, MDA can cause pregnancy complications. Occurring in 4% of the general population, MDA contributes to 40% of abortions and preterm deliveries. However, the patient, in the current case series, did not have any history of endometriosis, nor issues with infertility. This case series emphasized the use of 3D sonography and helped to recognize the type of MDA, that the patient possessed. In a comparable study done by Grigore et al.,[7] the role of hysterosalpingography and 3D sonography was important in the care of 139 patients. In that patient cohort, 3D sonography had a sensitivity of 88%, specificity of 94%, a positive-predictive value of 96%, a negative-predictive value of 84%, likely the ratio of 5.5, and the accuracy of 90% in diagnosing uterine cavity abnormalities.[7] There was also a 100% sensitivity and 99% specificity in diagnosing congenital uterine malformation.[7] Therefore, it may be highly beneficial to use 3D sonography in cases of an uterine abnormality or a diagnosed MDA. In comparison, the current case series patient had no hysterosalpingography performed, only sonography examinations. However, this case series would seem to

1. Alsukairi R. The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome. *Journal of Diagnostic Medical Sonography*. 2024;40(6):593-599. doi:10.1177/87564793241249686

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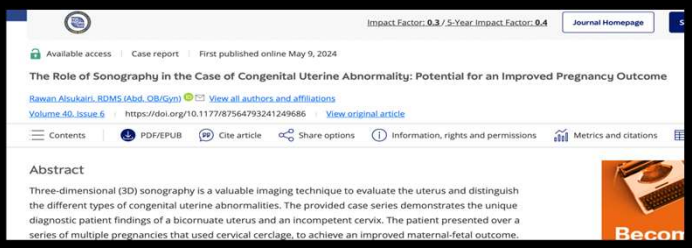
The Use of 3D in Diagnosis



hysterosalpingography performed, only sonography examinations. However, this case series would seem to support the Grigore et al., study that 3D sonography was a diagnostic key to recognizing the morphology of the current patient's uterus and identifying her bicornuate uterus, early in pregnancy. Therefore, improved patient care and associated treatment plans were available for the current case study patient and her subsequent pregnancies. All these diagnostic decisions were made to protect her four pregnancies and have positive patient and fetal outcomes. Sonography played an important diagnostic role in allowing early recognition of that patient's shortened cervix, which had a positive effect on the treatment and management plan, as it allowed the placement of the cerclage, prevented complications, and aided in preventing preterm labor.

- 1. Alsukairi R. The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome. *Journal of Diagnostic Medical Sonography*. 2024;40(6):593-599. doi:10.1177/87564793241249686

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Role of Serial Sonograms in this Patient

- Serial sonograms, early and throughout gestation, were crucial to ensure the condition of the cerclage, and cervix was closed, without complications or signs of preterm labor

Obstetrical ultrasound examination. IRM Sud Ouest. Accessed July 30, 2025. https://www.irmsudouest.com/obstetrical-ultrasound/

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Meta-Analysis

- A meta-analysis compared cerclage versus no cerclage in patients with shortened cervical length, during the second trimester.
  - The review concluded that cerclage is associated with a significant decrease in preterm birth and improved neonatal morbidity and mortality.

Conde-Agudelo A, Romero R, Da Fonseca E, et al: Vaginal progesterone is as effective as cervical cerclage to prevent preterm birth in women with a singleton gestation, previous spontaneous preterm birth, and a short cervix: updated indirect comparison meta-analysis. *Am J Obstet Gynecol*. 2018;219(1):10–25.

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Cohort Study

- A cohort study by Yassaee and Mostafaee examined 40 pregnant patients, with uterine anomalies, to compare the role of cerclage in the pregnancy outcome, regarding preterm and term deliveries. The participants were divided into two groups:
  - the case group included 26 women with uterine anomalies for whom cervical cerclage was done and the control group was composed of 14 women with uterine abnormalities for whom cervical cerclage was not performed
  - They found that in patients with bicornuate uterus, and cervical cerclage, term delivery occurred in 76.2% and preterm delivery in 23.8%. In patients with bicornuate uterus and without cervical cerclage, term delivery occurred in 27.3% and preterm delivery in 72.7%. In patients with arcuate uterus and cervical cerclage, term and preterm deliveries were equal (50% vs 50%), still in a patient with an arcuate uterus and without the cerclage, term and preterm deliveries occurred in 66.6% and 33.3% of the participants, respectively.

Yassaee F, Mostafaee L: The role of cervical cerclage in pregnancy outcome in women with uterine anomaly. *J Reprod Infertil*. 2011;12(4):277–279.

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The Use of 3D in Diagnosis

Impact Factor: 0.3 / 5-Year Impact Factor: 0.4 Journal Homepage

Available access | Case report | First published online May 9, 2024

The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome

Rawan Alsukairi, RDMS (Abd, OB/Gyn) View all authors and affiliations

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Abstract

Three-dimensional (3D) sonography is a valuable imaging technique to evaluate the uterus and distinguish the different types of congenital uterine abnormalities. The provided case series demonstrates the unique diagnostic patient findings of a bicornuate uterus and an incompetent cervix. The patient presented over a series of multiple pregnancies that used cervical cerclage, to achieve an improved maternal-fetal outcome.

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• 1. Alsukairi R. The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome. *Journal of Diagnostic Medical Sonography*. 2024;40(6):593-599. doi:10.1177/87564793241249686

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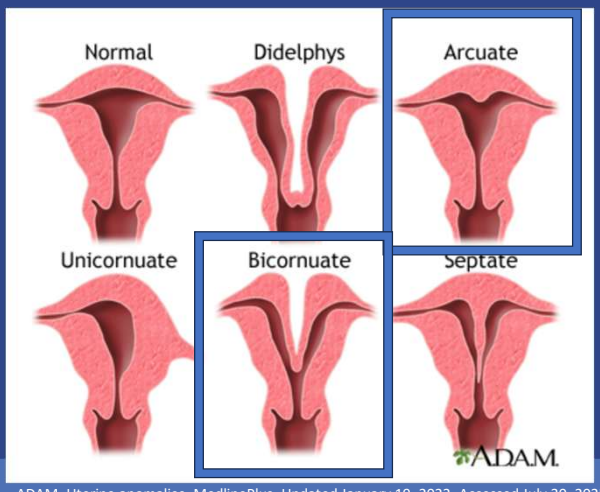
The Use of Cerclage for Bicornuate Uterus Vs Arcuate Uterus



ADAM. Uterine anomalies. MedlinePlus. Updated January 19, 2022. Accessed July 30, 2025. https://medlineplus.gov/ency/imagepages/19926.htm

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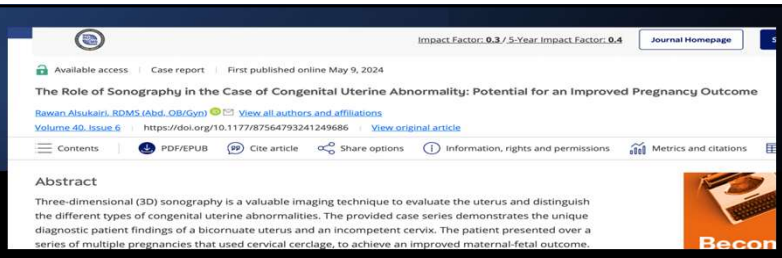
Location of Cerclage



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Li et al. conducted a study on patients with twin pregnancies to estimate whether cerclage could extend the length of a pregnancy, lower the risk of preterm labor, and improve perinatal outcomes. This cohort study compared a cerclage placement to a lack of cerclage and its effectiveness for a twin pregnancy.[10] Their meta-analysis indicated that cerclage placement was beneficial for reducing preterm birth and prolonging a twin pregnancy, with a cervical length of <15 mm, or a dilated cervix of >10 mm. However, the benefit of a patient history which indicated the use of cerclage (singleton or twin) was less certain in twin pregnancies with a normal cervical length, based on their review of the literature. Further high-quality studies were needed to confirm Li et al.'s[10] findings that published cohort result would fit with the current case series, where the cerclage was not placed for the third pregnancy of twins, as the cervix was measuring 4.39 cm. Unfortunately, 3D sonography was only relied on to diagnose the shape of the uterus, where it could add more diagnostic value, if used to measure the cervical length.

- Alsukairi R. The Role of Sonography in the Case of Congenital Uterine Abnormality: Potential for an Improved Pregnancy Outcome. *Journal of Diagnostic Medical Sonography*. 2024;40(6):593-599. doi:10.1177/87564793241249686.
- Li C, Shen J, Hua K: Cerclage for women with twin pregnancies: a systematic review and metaanalysis. *Am J Obstet Gynecol*. 2019;220(6):543–557.e1.

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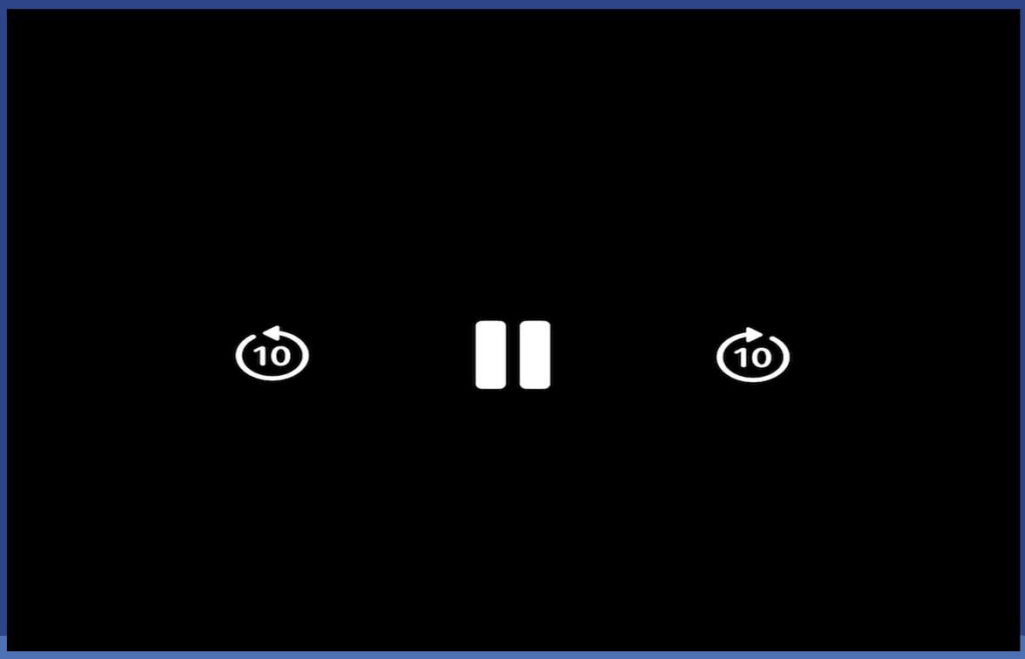

Hit The Floor. Episode 9. In: Grey's Anatomy, Season 21. Studio; 2025. Apple TV. Published [Jan 1, 2025]. Accessed [July 30, 2025]

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Respecting Patient's Privacy

- Privacy is one of the most important rights of every individual and is associated with the individual's dignity.[1]
- This concept has been confirmed as the basic principle of care standards in the field of health and treatment by various international organizations and associations.
- Respecting the privacy of patients is crucial for establishment of an effective and trusting relationship with patients and for promoting their calmness and satisfaction.

1. Matiti MR, Trorey G. Perceptual adjustment levels: patients' perception of their dignity in the hospital setting. *Int J Nurs Stud* 2004; 41: 735–744.
2. American Medical Association. Code of medical ethics of the American Medical Association (Adobe Digital Editions version), 2015, www.ama-assn.org/ama/pub/physician-resources/medical-ethics/codemedical-ethics/code-medical-ethics

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Privacy

- The Oxford English Dictionary presents two definitions for privacy: "a state in which one is not observed or disturbed by other people" and "the state of being free from public attention."

Stevenson A, Waite M. *Concise Oxford English Dictionary: Book & CD-ROM Set.* Oxford: Oxford University Press, 2011.

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Privacy

- Privacy consists of several dimensions and has different definitions in various fields. For instance, Louis Brandeis and Samuel Warren, legal theorists, defined privacy as the "right to be let alone," and emphasize the importance of individuals' ability to control their personal lives.
- In addition, according to Altman, privacy is "a selective control of access to the self or to one's group."

1. Street AF, Love A. Dimensions of privacy in palliative care: views of health professionals. *Soc Sci Med*2005; 60: 1795–1804.
2. Warren SD, Brandeis LD. The right to privacy. *Harv Law Rev* 1890: 193–220.
3. Altman I. *The environment and social behavior: privacy, personal space, territory, and crowding*. Monterey, CA: Brooks/Cole, 1975.

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In addition, respecting the physical privacy of the patient leads to the creation of calmness, decreased anxiety, and the development of a sense of control in patients. Moreover, the preservation of physical privacy is a vital contributor toward the welfare and health of patients. In this regard, those receiving care have frequently identified that respecting their physical privacy results in a sense of ownership for them over their surrounding space, increased calmness and a sense of safety, as well as decreased trepidation and anxiety.

Hasan Tehrani T, Seyed Bagher Maddah S, Fallahi-Khoshknab M, Ebadi A, Mohammadi Shahboulaghi F, Gillespie M. Respecting the privacy of hospitalized patients: An integrative review. *Nursing Ethics*. 2018;0(0). doi:10.1177/0969733018759832

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The Importance of Maintaining Patient's Privacy

1. Maintain trust
   - Patients are more likely to share honest, complete information when they trust that their confidentiality is protected. This leads to better diagnosis and care.
2. Prevents stigma and embarrassment
   - Gynecological issues can be culturally or socially sensitive. Privacy helps avoid unnecessary shame or judge.
3. Legal and ethical obligations
   - Medical professionals are bound by laws like HIPPA and ethical guidelines to protect patient information.
4. Encourage Health-seeking behavior
   - When patients know their privacy is respected, they are more likely to seek timely gynecological care, including screenings and treatments.

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Conclusion

- In this complex case of a patient with a bicornuate uterus, serial sonography was pivotal in guiding clinical decisions and achieving positive outcomes across four pregnancies.
- The sonographer's role extended far beyond technical image acquisition — it included being a trusted part of the multidisciplinary team, ensuring that each patient encounter preserved dignity and respected privacy.
- For this patient, maintaining a respectful, private environment encouraged open communication, adherence to follow-up care, and trust in the healthcare team, all of which were critical given her high-risk profile and prior pregnancy experiences.
- This case highlights how clinical skill, advanced sonographic techniques (3D imaging), and the ethical safeguarding of patient privacy work hand-in-hand to support optimal maternal-fetal outcomes.
- As sonographers, we must continually balance technical precision with empathetic care— recognizing that in sensitive OB/GYN cases, respect for privacy is not simply an ethical obligation, but a key factor in building the trust that enables successful care.

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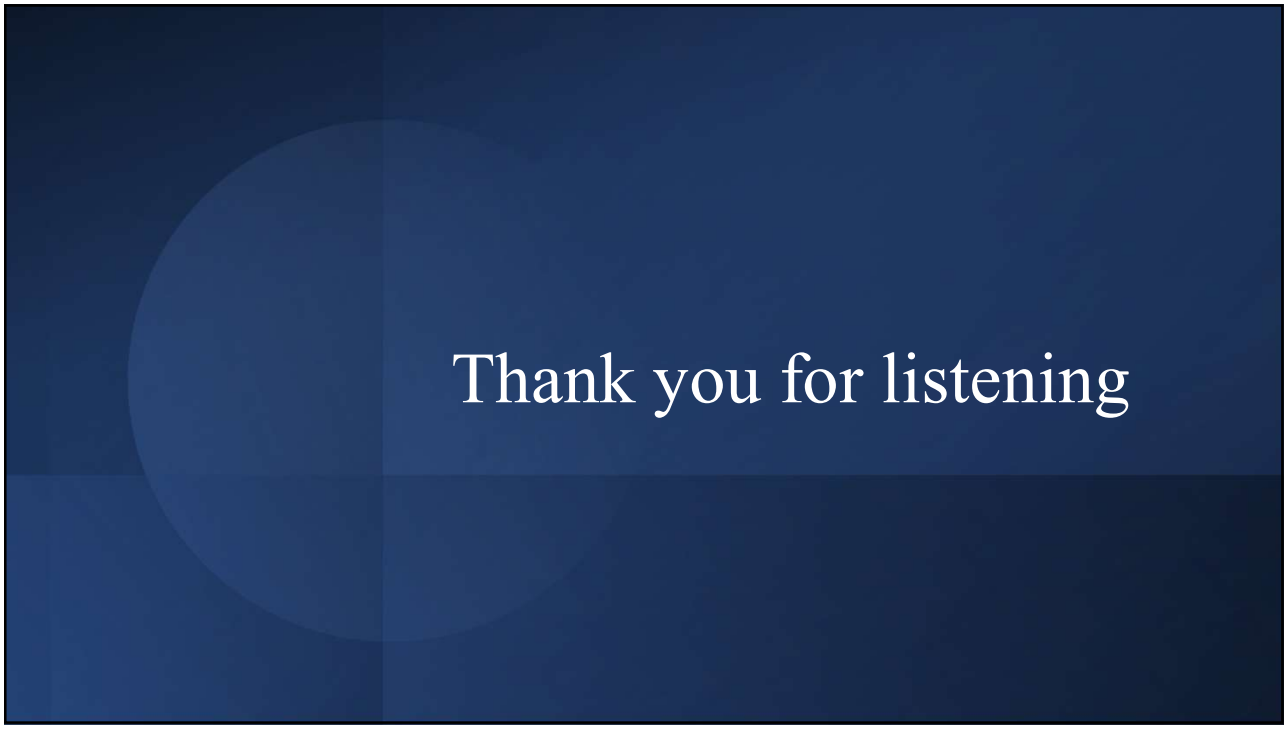

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