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Ankh-Habashy sign, a novel sonographic marker for isthmocele using 3D-TVUSsurface mode: an observational study and review of literature

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Biography

Ahmed Mahmoud El-Habashy, University Lecturer of Obstetrics and Gynecology, Alexandria University, Egypt where he is involved in teaching, examination, clinical practice and research. He is a consultant of obstetrics and gynecology in Alexandria University Hospitals, Egypt. He has attained MD degree of Obstetrics and Gynaecology from the Faculty of Medicine, Alexandria University in 2016. Also, he has attained MS degree in Obstetrics and Gynaecology, from the Faculty of Medicine, Alexandria University in 2010. He completed his obstetrics and gynaecology residency program at the El-Shatby Maternity University Hospital (one of the largest university maternity hospitals in Egypt) and Dar Ismail Governmental Maternity Hospital (one of the largest governmental maternity hospitals in Egypt) in Alexandria. He has attained MBBCh (excellent, first class honour) in 2004 from the Faculty of Medicine, Alexandria University, Egypt. He is a member of ISUOG. He is the Director of Habashy's 4D-Scan Center for Ob-Gyn Sonography. He is also the author of Habashy's Sonotricks, a series of Ob-Gyn sonography books.

Abstract

Objectives: The isthmocele or cesarean scar defect (CSD) is an evolving iatrogenic long-term complication of cesarean section (CS). It represents an incomplete healing of the CS scar that lead to the presence of a wedge-shaped anechoic area of myometrial discontinuity at the CS site with at least 2 mm depth. The aim of our study is to evaluate the shape of the uterus in the coronal plane in cases who has isthmocele using the surface mode of the three-dimensional transvaginal ultrasound (3D-TVUS). To our best knowledge this is the first study to describe the coronal sonomorphology of the CSD using 3D-TVUS.

Methods: This retrospective observational study that enrolled 84 cases over a period of 2 years (from august 2017- august 2019) from a single tertiary center. All are in the reproductive age window: 18-42 years old. All had complained AUB in the form of postmenstrual spotting with or without chronic pelvic pain (CPP) and/or secondary infertility. All cases are scanned postmenstrually by the same sonographer using TVUS. Isthmocele is defined as a wedge-shaped hypoechoic area of myometrial discontinuity at the CS site in the sagittal plane of the uterus with a depth of ≥ 2mm. We measured the residual myometrial thickness (RMT) and the adjacent myometrial thickness (AMT) in all cases. After obtaining an optimal 2D sagittal uterine view, the 3D box was set to include the whole uterus from the fundal serosa till the external os. Our target was to produce a panoramic volumetric image of the uterus that include the cavity above, the cervical canal below and the isthmus in between.

Results: We noticed a lateral bulge or shadow at the level of the isthmus in 82.1% of cases of isthmocele. The lateral bulge produced by the isthmocele simulates the "ankh"; an ancient Egyptian hieroglyphic symbol of life. We call this sonomorphology the "Ankh-Habashy sign". The mean age of patients was 29.5 years. The mean number of previous CS was 2. The mean interval from the last CS was 3 years. All cases were complained of AUB in the form of postmenstrual spotting. 42.9% of cases had an associated secondary infertility. 66.7% of cases had an associated chronic pelvic pain (CPP). 56% of the cases were RVF uterus, 26% were erect uterus and 19% were AVF uterus.

Conclusion: Lateral bulge at the level of the isthmus in the coronal panoramic view of the uterus using 3D-TVUS-surface mode; "the Ankh-Habashy sign" is a reproducible sonographic sign that is present in most cases of isthmocele.

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