EP08.08
Ventricular occupying ratio at 18–30 weeks’ gestation: normal reference range and ventriculomegaly
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Objectives: Atrial width measurement is the representative method for evaluation of ventriculomegaly. However, ventricular shape varies and it is questionable to use the same rule for small brain before 20 weeks. The first aim was to create reference range of ventricular occupying ratio (VOR). The second aim was to evaluate VOR in ventriculomegaly cases.

Methods: For the first study, 260 appropriately grown live singleton fetuses with no suspected structural and chromosomal defects between 18 and 30 weeks were enrolled. Whole brain volume dataset by transvaginal three-dimensional ultrasound was used. Volumetry of intracranial cavity, left and right lateral ventricle volume were calculated by virtual organ computer-aided analysis (VOCAL) with manual 15-degree rotation. Calculation was done as VOR(%) = (left ventricular volume + right ventricular volume / whole intracranial cavity volume) x 100. Intraexaminer/interexaminer test was done. Reference equations were constructed for VOR for gestational age.

As the second study, ventricular volume, intracranial cavity volume and VOR in 8 cases with ventriculomegaly, were longitudinally calculated. The outcome of pregnancy and postnatal neurodevelopmental prognosis were investigated.

Results: The normal references were obtained with increase of ventricular volume and intracranial cavity volume and decrease of VOR with advanced gestational weeks. Intraexaminer and intraexaminer test showed intra-class correlation (95% confidence interval) of both more than 0.9.

In the 8 ventriculomegaly cases, intracranial cavity volume was along with reference range but lateral ventricular volume were all above 90 percentile. Six cases with decreasing VOR delivered at term and favourable prognosis at 5 months to 6 years.

Two cases with increasing VOR were 3-month-old and still not evaluated.

Conclusions: It is still difficult at present to conclude whether increase and decrease of VOR is related with fetal neurological prognosis or not. However, longitudinal VOR measurement may be one of assessment methods for evaluating ventriculomegaly.

EP08.09
Annotation-assisted multiplanar volume contrast imaging (VCI) to assess the level of fetal meningoencephalocele
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Objectives: To describe a standardised technique for the evaluation of the myelomeningocele (MMC) level using multiple 3D ultrasound functionality with integration of the annotation function.

Methods: 3D volumes of the fetal spine were acquired using the Voluson E10 (GE Medical Systems, Milwaukee, WI, USA). A sagittal sweep of the spine is acquired during fetal quiescence and the view in window A is optimised for a coronal view of the spine. By default the sagittal and transverse views will be visible in windows B and C, respectively. In the multiplanar mode, the VCI function is activated using the skeletal preset (Mix 10/90 of surface/max) and an adequate thickness width is chosen to include the spine in window B and to visualise the 12th rib clearly. Once the 12th rib is seen, the reference point is placed on the 12th thoracic vertebra and the position is verified on window B.

Results: The annotation function is then activated to establish a line that crosses the reference point on window A and B. Next, the reference point is mobilised along the spine to count the lumbar and the sacral vertebrae. A similar annotation line is drawn to mark the 5th lumbar and the 5th sacral spines. Afterward the VCI thickness is reduced to ensure only a single vertebrae is visible within the slice. Conclusions: The reference point is then advanced along the midline of the spine on window A to assess for the bony defect in window C (horizontal plane). To examine for the skin defect, soft tissue preset is activated (Mix 30/70 or 50/50 of surface/max) and the skin lesion will be clearly seen on window B allowing measurement of lesion length.

Supporting information can be found in the online version of this abstract

EP08.10
Neurodevelopmental outcome of prenatally detected periventricular pseudocysts
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Objectives: Periventricular pseudocysts (PVPC) are cystic cavities lack the ependymal cell lining found in true cysts. The aim of this study was to characterise periventricular pseudocysts and evaluate their long-term neurodevelopmental outcome.

Methods: This was a retrospective study of periventricular pseudocysts detected prenatally on ultrasound. The fetuses were divided into group A, which included cases with isolated periventricular pseudocysts, and group B, which included cases of periventricular pseudocysts with additional findings. Cases were further subdivided according to anatomic features, unilateral isolated, unilateral multiple or bilateral. Data collected included demographic and obstetrical characteristics, MR imaging features, sonographic follow-up, and neurodevelopmental outcome. Long-term follow up neurodevelopmental outcome was assessed by Health Utilities Index scoring system.

Results: Twenty-seven fetuses formed the study group. Mean ± SD gestational age at diagnosis was 28.7 ± 3.8 weeks. Long-term follow-up ranged 55 months (median (interquartile range) 32 (17–38) months). Of all, 10 cases had unilateral PVPC and 17 had bilateral PVPC. All cases in group A (isolated PVPC; n=16) had a normal neurodevelopmental outcome except for 2 individuals (mild speech and social impairments, respectively). The 2 cases with an abnormal outcome involved one case of SGA and another with bilateral PVPC. In group B (Additional findings; n=11), 4 had an abnormal outcome. No significant association was found between the morphologic features on MR imaging and the neurodevelopmental outcome.

Conclusions: Neurodevelopmental outcome in cases of isolated unilateral periventricular pseudocysts detected prenatally appears to be normal. A meticulous evaluation should be performed to rule out additional brain findings, chromosomal aberration and fetal malformation.

EP08.11
Partial corpus callosum agenesis remains a challenge in prenatal diagnosis
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Objectives: To assess the location of the partial defect of the corpus callosum defect and to find out associated malformations.