

were reviewed. The main issue was the prevalence of FNAIT and its association with fetal VM.

Results: A total of 191 consecutive pregnancies with fetal VM were evaluated. 38 were excluded for cerebral and non cerebral associated malformations. Of the remaining 153 pregnancies with unexplained fetal VM, 44 were screened for platelet antibodies. The prevalence of platelet antibodies (7 cases) in screened pregnancies was much higher than the expected prevalence in a general population (15.9% vs. 0.1%, $p < 0.001$). Antibodies detected included 2 anti-HPA1a, 1 anti-HPA5a, 1 anti-HPA5b, 1 anti-HPA15a and 2 non-specific antibodies against platelet glycoproteins. Among cases with platelet antibodies, 5 had unilateral VM and 2 bilateral VM; 6 had moderate VM and 1 had severe VM. Intra-cerebral hemorrhage (ICH) was associated with platelet antibodies in 3 cases.

Conclusions: We found an association between fetal VM and the presence of platelet antibodies. Subclinical hemorrhage could explain some cases of fetal VM. The impact of screening for FNAIT in the presence of fetal VM needs further evaluation.

OP05.02

Corroboration of normal and abnormal fetal cerebral lamination on postmortem sonography with neuropathological examination

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Objectives: The presence of normal fetal cerebral lamination of the germinal matrix, intermediate zone, subplate zone, and cortical plate can be used as a marker for normal cerebral development. The purpose of this study is to compare postmortem sonographic imaging assessment of normal and abnormal fetal cerebral lamination with findings on neuropathological examination.

Methods: Following institutional ethical approval, 22 fetuses underwent postmortem sonography. Cerebral lamination was graded as normal or abnormal on sonography and compared with postmortem findings.

Results: Neuropathological correlation was available in 18/22 fetuses. In 8 fetuses, cerebral lamination patterns were considered to be normal. Neuropathological examination confirmed normal histological patterns of cerebral lamination in all 7 cases in which full autopsy was performed. Among 14 fetuses with abnormal intracranial findings, postmortem sonography was inconclusive in one fetus which had undergone cephalocentesis. In 12/13 remaining fetuses, lamination patterns were considered abnormal. Three patients declined autopsy; intracranial malformations were confirmed in all 3 on postmortem sonography. One fetus had structural brain abnormalities but lamination was thought to be normal, which was confirmed at autopsy. Neuropathological examination confirmed abnormal lamination in 7/9 fetuses; in 2 fetuses, autopsy findings were inconclusive. In 4 fetuses, abnormalities of lamination were isolated (cytomegalovirus infection in 2 and periventricular leukomalacia in 2); in 3 fetuses, there were structural intracranial abnormalities in combination with abnormal laminar patterns.

Conclusions: Postmortem sonographic assessment of normal fetal cerebral lamination patterns can be consistently correlated with neuropathological findings in this series. In the abnormal fetal brain, postmortem sonography can provide confirmation of antenatally suspected intracranial abnormalities, including abnormal lamination, particularly when autopsy is declined or inconclusive.

OP05.03

Normal development of fetal cortical fissures: a longitudinal three-dimensional ultrasound study

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Objectives: To determine the feasibility of evaluation of fetal cortical fissures in the second and third trimester of pregnancy by three-dimensional (3D) neurosonography in the multiplanar mode.

Methods: A cohort of patients with uncomplicated singleton pregnancies underwent three consecutive transabdominal scans at 19–21 wks, 26–28 wks and 30–34 wks. Three clusters of volumes of the fetal head were acquired and stored for analysis. Volume datasets were searched in the multiplanar mode by one experienced operator (A) and one trainee (B) for the following cortical fissures: sylvian, parieto-occipital, calcarine, cingulate, hippocampus.

A qualitative analysis (visualised yes/no) of these sulci was performed by the two operators in each volume. By placing the dot on the sulcus in one plane it was evaluated whether it was visible also in the other planes. Normal outcome was confirmed at postnatal follow-up for each patient.

Results: From May to November 2012, 16 patients were included in the study. At 19–21 weeks, the sylvian and parieto-occipital sulci were visualized on at least one plane by both operators in all cases. Operator A was able to identify more frequently the other cortical fissures. At 26–28 weeks, all fissures were visualized by both operators on at least one plane, with no significant difference between the performances of the two operators. At 30–34 weeks, a mild overall decline in the accuracy of identification of all the cerebral fissures was observed, with a better visualization of the cingulated sulcus and hippocampus by operator A compared with operator B.

Conclusions: 3D multiplanar mode helps less experienced operators in the evaluation of fetal cortical fissures. The best period to evaluate the presence of main cortical sulci by transabdominal ultrasound appears to be between 26 and 28 weeks of pregnancy.

OP05.04

Nomograms for the fetal optic nerve sheath diameter

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Objectives: Optic nerve sheath diameter (ONSD) enlargement has been described as an early marker of increased intracranial pressure in fetuses with intracranial lesions. A decrease in the diameter can suggest optic nerve hypoplasia.

The aim of this study was to establish ONSD nomograms based on gestational age.

Methods: A prospective, multicenter, cross-sectional study was performed including 382 normal singleton fetuses with gestational age ranging from 16 to 38 weeks. The technique for measurement of the ONSD using 2D sonography followed the previous description published by our group, using high-resolution real-time ultrasound with 5–9 or 7–12MHz transducers. Nomograms were produced