The concordance between the prenatal imaging and neuropathological diagnosis of fetuses presenting cerebral abnormalities during the second and third trimester of pregnancy (OP 09.02)

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**Objective**
To evaluate the concordance between antenatal imaging of cerebral anomalies and post-mortem neuropathological diagnosis in cases of termination of pregnancy (TOP)

**Material & Methods**
- Retrospective cohort study at CHU Ste-Justine
- The files of 121 women with a singleton pregnancy who had a diagnosis of fetal cerebral anomalies and who underwent TOP after 18 weeks between January 2014 and December 2016 were reviewed
- Concordance between antenatal imaging and neuropathological diagnosis at autopsy was evaluated by two independent neuro-pediatricians
- The diagnosis was not concordant when major antenatal findings were not seen at the neuro autopsy and vice versa as per Isaksen classification

**Results (1)**
Median gestational age at diagnosis was 21 weeks (16.7-37.6)
Median gestational age at the time of TOP was 22.3 (18.9-38)
Main type of antenatal findings were:
- Neural tube defects (21%)
- Callosal anomalies (20%)
- Venticulomegaly (23%)
- Holoprosencephaly (6%)
- Microcephaly (2%)
- Gyral anomalies (6%)
- Cerebellar anomalies (11%)

**Results (2)**
The rate of fetal neuro autopsy was 79% (96/121)
In the neuro autops group, Kappa coefficient was 93% between prenatal and postnatal main diagnosis
Using Isaksen classification, neuro autopsy found major findings that had not been seen on antenatal radiologic exams in 28% of cases
In the subgroup of patients who had a prenatal MRI (n=27), the concordance between the antenatal ultrasound and neuro-pathological diagnosis was 60% and significantly increased to 70% with the additional findings of the MRI (p=0.002)

**Conclusion**
This large cohort confirms the high degree of concordance between prenatal and neuropathological findings in cases with cerebral congenital anomalies, but also the important addition of neuro autopsy for the accuracy of the diagnosis
It also shows the plus value of fetal MRI