Guest Editorial

Dear Readers,

This issue of the Ian Donald School Journal of Ultrasound in Obstetrics and Gynecology is dedicated to neurosonography, a branch of prenatal ultrasound addressed to the diagnosis of fetal central nervous system (CNS) malformations.

The ultrasonic evaluation of fetal CNS depends on gestational age. The development of the fetal brain is a complicated evolving process with ultrasound features changing with progression of gestation. Most CNS anomalies may be suspected during the second trimester anomaly scan. However, some severe malformations (such as anencephaly and holoprosencephaly) may now be diagnosed or others (such as open spina bifida) may be suspected during the 11 to 13 + 6 weeks scan when nuchal translucency is measured to screen for Down syndrome. On the contrary, there are some malformations (such as disorders of neuronal migration, proliferation, and differentiation) that due to their natural history may be recognized only in the third trimester or even after delivery.

Starting point of neurosonography is the screening examination. Fetuses showing abnormal CNS findings during the basic examination must undergo a complete neurosonographic evaluation. This requires the use of axial, coronal, and sagittal planes for a complete study of the fetal brain. Transvaginal sonography, three-dimensional ultrasound, and magnetic resonance imaging may be useful to make the correct diagnosis.

Following the diagnosis, the most complicated part of the neurosonography is the prognostic evaluation and the appropriate counseling to the parents. The outcome of fetuses with a CNS malformation is extremely variable, ranging from anomalies incompatible with postnatal life to those carrying a severe neurological handicap and others with good outcome. The main problem, however, is that some malformations, such as agenesis of corpus callosum may have an extremely variable outcome, so rendering difficult and limited the counseling.

In this issue, the main topics of fetal neurosonography will be covered and I hope the lecture will be useful for those who want to progress from the simple basic examination to the more complicated level of diagnosis and counseling.

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