**Objective**

Several syndromes show moderate or severe brain abnormalities. The aim of the present study was to demonstrate the different brain abnormalities in 10 different syndromes by use of 3D ultrasound.

**Material and Method**

Within the last 5 years the brains of 34 fetuses with later on proven syndromes were examined with 3D ultrasound. All scans were performed using E8/E10 GE equipment (Zipf, Austria) with a 5-8 MHz 3D abdominal or 5-9 MHz transvaginal transducer. Gestational age was between 13+0 and 37+0 weeks of gestation.

**Results**

All 34 fetuses showed two or more abnormalities. The brain abnormalities detected with 3D ultrasound were dilatation (n=7) or abnormal shape (n=3) of the brain ventricles, single ventricle (n=6), absent septum pellucidum (n=2), choroid plexus cysts (n=8), abnormal cerebellum (n=6), abnormal gyration (n=8), agenesis (n=4) and partial agenesis (n=1) of the corpus callosum and encephalocele (n=2). The syndromes diagnosed were Apert syndrome (n=2), Smith-Lemli-Opitz syndrome (n=2), De Grouchy syndrome (n=1), De Morsier syndrome (n=2), Miller-Dieker syndrome (n=3), Walker-Warburg syndrome (n=4), Dandy-Walker syndrome (n=5), Aicardi syndrome (n=3), Patau syndrome (n=4) and Edwards syndrome (n=8).

**Summary**

3D neurosonography enables a precise assessment of the fetal brain. Once the volume of the brain is stored in the memory, the brain can be aligned into a correct upright position, allowing an exact comparison of the left and right brain hemisphere. The different visualization modes of 3D ultrasound enable the operator to demonstrate anomalies of the fetal brain in all three dimensions and in surface images of specific sectional planes.