

Is 3D Omniview ultrasound helpful for diagnosis of fetal cleft palate?

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Objective

To analyse the diagnostic value of 3D Omniview Ultrasound in analysis of fetal face and diagnosis of cleft palate in second trimester of pregnancy.

Methods

In this study 400 patients with normal pregnancy were included. Patients were scanned on GE E10 ultrasound with RM6C transabdominal probe. The analysis of fetal face in Omniview technique was performed from the volume obtained from fetal profile position. After obtaining fetal face image in surface rendering, the analysis was continued in Omniview mode. First plane represented frontal face section with retronasal triangle. In the second plane fetal lips, maxilla and palate were analysed. In the third plane fetal mandible was reconstructed. In 5 patients referred with suspected fetal cleft palate we performed the same procedure.

Results

In 400 patients we did not detect any abnormality of fetal face and we followed them up until delivery. No abnormality of fetal face was confirmed on delivery. In 5 patients who were referred with suspicious fetal cleft we performed detailed analysis of fetal face in 3D surface rendering mode and also in 3D Omniview mode. Utilizing Omniview procedure, we confirmed unilateral cleft of lip and palate in 3 patients and bilateral cleft lip and palate in two patients. The defects were visible in retronasal triangle plane. The cleft lines were visible in the second Omniview plane. We compared Omniview technique with other relevant 3D diagnostic procedures like Reverse view and Flipping image. The advantage of Omniview procedure is that in this mode the anomaly can be evaluated in minimum two directions in order to increase the diagnostic accuracy. No other anomalies of fetal organs were detected on detailed ultrasound scan in second trimester. We performed genetic analysis in all patients with clefts and excluded chromosomal abnormalities in all of them. Detected anomalies were confirmed on delivery.

Conclusion

In 3D Omniview Ultrasound mode it is possible to analyse the morphology of fetal face and facial bones. Fetal nose, lips, maxilla and hard palate, and mandible can be visualized in separate planes. Abnormalities of fetal face development and unilateral and bilateral cleft lines can be confirmed in Omniview 3D technique.