

Three dimensional nuchal translucency ultrasound segmentation using region growing for trisomy 21 early assessment

Abstract:

Ultrasound prenatal screening has been proposed as a most effective technique for trisomy 21 early assessment. The current practice using B mode conventional ultrasonic images are restricted inter and intra observer variability. Therefore, we proposed three dimensional segmentation techniques for ultrasound marker, nuchal translucency (NT), as a replacement method to existing manual two dimensional NT thickness measurements. The developed generic computing algorithms are integrated with VTK and ITK open-sources libraries. Region growing was implemented with growth criteria and rendered by reconstructed multiplanar view. The findings have proven that the developed algorithm was able to produce consistent three dimensional NT segmentation.