

Tilmelding af Foredrag

Foredragets titel

Thyroid volume measurement with freehand three-dimensional ultrasound compared to two-dimensional ultrasound

Forfatter(e)

K. Bay Rask, F. Makouei, M. H. Jakowlew Wessman, T. Toft Kristensen, T. Todsén

Afdeling/praksis

Afdeling for Øre-Næse-Halskirurgi og Audiologi, Rigshospitalet

Uddannelsesniveau

Stud. Med. Kandidat

Introduktion

Conventional two-dimensional ultrasound (2D) is one of the imaging modalities used to visualize the thyroid gland; however, the dynamic nature of the image makes it operator-dependent, which decreases the repeatability of the measurements. Freehand three-dimensional (3D) ultrasound techniques have been proposed as a promising tool for obtaining volumetric data on the thyroid.

Materiale/metode

We used 2D and 3D ultrasound to prospectively measure the volumes of 17 thyroids from patients referred for a total thyroidectomy. Using 2D ultrasound, an operator estimated the volume of each lobe by the ellipsoid formula. Two physicians evaluated 3D ultrasound images of the thyroids and performed semiautomated segmentation to estimate the volume. The data were then compared to the water displacement of the exerted thyroids with a paired T-test. The interclass correlation coefficient was used to determine the intra- and inter-operator reliability of the two clinicians using the 3D technique. To investigate agreements of all comparisons we made Bland-Altman plots.

Resultater

Results showed that the mean difference between the reference and 3D and 2D was 1.5% (95%CI -15.7-18.6%, $p=0.85$) and 23.7% (95%CI 14.2-33%, $p<0.001$) respectively. The inter-operator reliability was 0.995 $p<0.001$ and intra-operator reliability was 0.996 and 0.993 $p<0.001$ for operators 1 and 2 respectively.

Diskussion

The mean 3D ultrasound measurements were closer to the water displacement compared to 2D ultrasound. However, the confidence interval was wide. 2D ultrasound was systematically underestimating the thyroid volume. Operators demonstrated a high degree of correlation and agreement.

Forfatters fulde navn

Klara Bay Rask

Forfatters email

Klara.bay.rask@regionh.dk