Diagnostic Value of 2D and 3D Ultrasonography in the Detection of Intrauterine Lesions

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Abstract

Aim: To evaluate the diagnostic accuracy of grayscale (GS) and three-dimensional (3D) ultrasonography in the detection of focal intrauterine lesions in comparison with the gold standard hysteroscopy.

Materials and Methods: Patients referred for office hysteroscopy (OHSC) were examined in a prospective study (N=35, mean age: 35 years, range 23-60). Both examinations were performed on the same day and the ultrasonography was always executed before the OHSC. The on-site ultrasound opinions and the post-processing ultrasound diagnoses of saved 3D volumes were matched with the definite OHSC diagnoses. Ultrasound equipment used was a Medison Accuvix (város, ország!!!) with a 3D transvaginal probe, the post-processing we made by the 3DXI Viewer programme carried by Medison. The referral diagnoses for OHSC were infertility (N=18, 50,43%), bleeding disorder (N=8, 22,86%), fibroid/polyp (N=7, 20%), repeated pregnancy loss (RPL)/uterine anomaly (N=2, 5,71%).

Results: The on-site GS ultrasound opinions were negative in 19 (?%) patiens in contrast to the 16 (?%) negative OHSC results. Post-processing and further analysis of the digitally saved 3D volumes allowed us to detect lesions in four additonal cases (3 polyps and one uterine malformation). Overall, ultrasound failed to detect lesions of two patients (5,71%). However, the ultrasonography detected 3 additional uterine pathologies, like intramural fibroids which were not visualized by hysteroscopy. In one case of uterine malformation the OHSC was failed to be introduced into the uterine cavity, but ultrasonography described the anomaly. In this study the GS ultrasound had a specificity of 81,25% and sensitivity of 68,42%, while the addition of the off-patient analysis of the 3D volume increased the specificity to 81,25% and a sensitivity to 89,47% in he detection focal intrauterine lesions.

Discussion: Focal intrauterine lesions such as submucosal fibroids, polyps are often found in the background of common gynaecologic disorders such infertility, bleeding disorders and RPL. Although hysteroscopy is regarded as gold standard in the diagnosis, analysis of the 3D ultrasound volume can reach the diagnostic level of hysteroscopy and offers an effective non-invasive diagnostic approach.