Clinical application of 3D ultrasound examination in diagnosis of Caesarean scar endometriosis

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Objectives
The aim of this study is to define 3D US appearance of CS zone in women with CS endometriosis.

Methods
36 patients with previous CS were included. The transvaginal US (2D, 3D) was performed to establish the parameters of the CS: the thickness of the tissue scar segment, presence or absence of the triangular shaped anechoic scar defect, dynamic changes in the scar area during the early proliferating and late secretory phases of the menstrual cycle.

Further, 25 patients underwent diagnostic hysteroscopy, 11–vaginal hysterectomy for concomitant adenomyosis or endometrial pathology.

Results
In 7 (19.4%) patients, there was no niche in the scar area and US interruption of endometrium over the scar was identified.

During hysteroscopy (5) and macroscopic examination of the uterus cavity after extirpation (2) in the area of the CS from the inner surface of the uterus, whitish connective tissue was determined (confirmed histologically). In 24 (66.7%) patients, niches of various depths and widths with the smooth inner surface, without any signs of endometrial protrusion into the niche area, and also without cystic inclusions in the scar area were determined on US. During hysteroscopy (18) and macroscopically (6), myometrial defect was identified without evidence of endometrial tissue with a smooth whitish inner surface: no endometrium was detected histologically in the niche. In 5 patients (13.9%) during the late secretory phase in the CS area was determined tissue, isoechogenic to endometrium, undergoing cyclic changes with the appearance of small cystic inclusions in it during menstruation, disappearing on the 5-6 day of the cycle (Fig.1). During hysterectomy (2) in the premenstrual period, the CS niche was lined with endometrium with small dark cystic cavities. In 3 patients who underwent hysterectomy, the diagnosis of endometriosis was histologically confirmed.

Conclusion
3D projection of endometrial protrusion into the CS area may be a sign of CS endometriosis, but further studies are needed.