

The capability of breast ultrasound as a first-line diagnostic tool using BIRADS-categories in discriminating benign from malignant lesions

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Objectives: To evaluate prospectively the application of BIRADS-categories and to determine the PPV (positive predictive value) for suspicious lesions of the breast detected by primary performed breast ultrasound.

Methods: In a 3 year period 5.931 primary breast ultrasound examinations had been carried out in two gynecological centers by three well experienced physicians. In this period 296 core needle biopsies had been indicated and performed by these physicians. 285 biopsies fulfilled the criteria for analysis. The prospective application of BIRADS-categories (American College of Radiologists) for the lesions detected by ultrasound followed by ultrasound guided core needle biopsy were compared with the final histological diagnosis.

Results: see Table below

PPV for suspicious lesions (BIRADS 4 + 5):

128 of 193 (moderate and highly) suspicious lesions proved to be malignant. PPV: 0,66

The ratio for core needle biopsies (malignant/benign) is approximately 2:1.

Conclusions: In our experience breast ultrasound as a first-line diagnostic tool has a good capacity in discriminating benign from malignant breast lesions. Applying the ACR BIRADS-atlas for breast lesions our results range well within the definitions of BIRADS-categories and compare similar or favorably to published sonographic studies and superior to most mammographic studies. Regarding suspicious findings no increase of unnecessary biopsies compared to mammographic screening could be proved.

Lesions (n=285) according to BIRADS-categories with histological findings

	BIRADS 3	BIRADS 4	BIRADS 5
Benign n (%)	91 (98,9)	63 (51,6)	2 (2,8)
Malignant n (%)	1 (1,1)	59 (48,4)	69 (97,2)
Total	92	122	71