REAL-TIME TISSUE ELASTOGRAPHY: A FUTURE POTENTIAL HELPFUL DIAGNOSTIC TOOL FOR CUTANEOUS MELANOMA?

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We here report on the additional use of real-time tissue elastography (RTTE) for the diagnosis of cutaneous melanoma in two patients. Patient 1 was a 72-year-old female with a black-brown tumor on her back. High resolution ultrasound (HRUS) with a 13 MHz probe of the tumor revealed an echopoor spindle-shaped structure (Fig.1 A). We additionally used RTTE as a new ultrasound method in the diagnosis of skin lesions. After applying light pressure with the transducer, the corresponding elastogram showed a predominance of dark blue areas within the lesion (Fig. 1 B). Histopathologic examination of the excised tumor revealed a superficial spreading melanoma, Breslow thickness 1.5 mm.

The second patient, a 48-year-old woman, with an indolent, partly ulcerated, red-brown tumor on her back showed similar results in the corresponding elastogram (Fig. 2 A+B). Excision and histopathologic examination confirmed our presumptive diagnosis of a cutaneous melanoma (Breslow tumor thickness 0.95 mm).

RTTE is based on the principle that softer tissue deform more easily than harder tissue when compression is performed by manual freehand operation. Differences in tissue strain are visualized on the elastogram as red, yellow, green and blue colored areas in ascending order of tissue hardness. In general, the possibility of malignancy increases when the lesion of interest shows a predominance of blue areas. The tumors of the presented patients were correctly categorized as malignant on the basis of the elastogram color distribution. In addition to HRUS, RTTE may have potential as diagnostic tool for the assessment of melanocytic skin tumors and, therefore, should be evaluated in greater patient collectives.
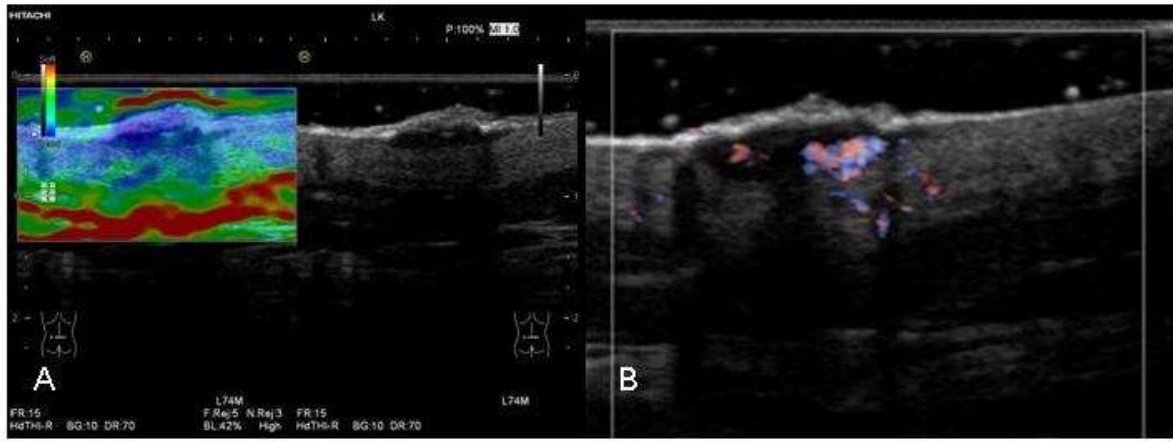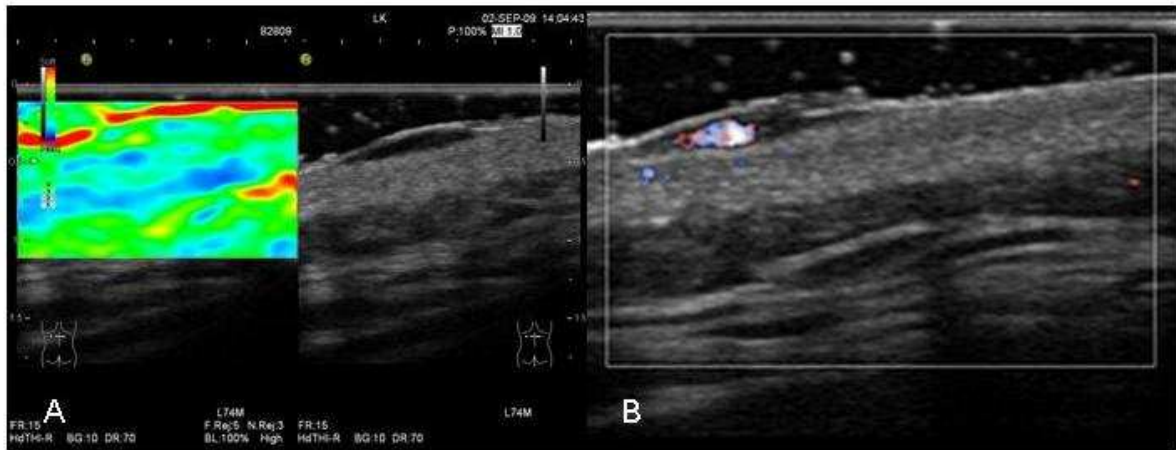
Fig 1.

Fig 2.