



## SONOELASTOGRAPHY IN EARLY DIAGNOSIS OF JAW-FACIAL NEOPLASMS

H.K. Sadikova, N.N. Kayumova, J.A. Nosirova

Tashkent State Dental Institute, "Andromed-Horev" Diagnostic Center

**Annotation:** Methodic of sonoelastography in the time of examination in patients with soft tissular new formations of jaw-facial area is used in this work. Also, we can see high information of the method in time of differentiated detecting of benign, pre-cancer and malignant tumors, because of different staining of tissue depending on degree of its malignancy and deformation coefficient.

**Keywords:** Sonoelastography, soft tissue neoplasms, benign, precancerous, malignant tumors, tissue staining, degree of malignancy, strain factor.

### Purpose of the study

Determination of the possibility of using SEG in early diagnosis of soft tissue neoplasms of CHF and the expediency of using the method along with traditional cytomorphological studies.

### Material and methods

During the period from May 2018 to February 2019, 12 patients aged 40 to 65 years (average age 52 years) were examined with soft tissue neoplasms of UFO, who were on outpatient treatment. In addition to the standard ultrasound examination and SEG, patients were provided with a set of standard laboratory diagnostic procedures with subsequent morphological verification. Initially, all patients were performed standard ultrasound in B-mode, color Doppler mapping (CDC), pulse-wave Dopplerography (IVD).

Sonoelastography was performed on the HI Vision Preirus device (Hitachi Medical Corporation) with built-in elastography program by means of a 5-13 mHz sensor (L74M, Hitachi). A region of interest was selected, which was the region of interest window. For a reliable interpretation of the differences in the density of formation and surrounding tissues, the survey window also included invariant surrounding tissues. In order to obtain a stable sonoelastogram, the zone of interest was established in the place where tissue displacement and ultrasonic ray stroke coincided in the direction. Elastographic image was obtained by compression and



decompression with constant velocity in the direction perpendicular to the examined area. The parameters of the sonoelastography mode were optimized: power, intensity, mechanical index. Optimal parameters of pressure on the investigated part were chosen within the limits of the standardized scale included in the scanner program. Elastographic image of the investigated area was displayed in the form of superimposing a color map on the image in B-mode. For convenience, we used two sections of the screen divided into standard B-mode and SEG-picture simultaneously. The elasticity of the tissues was displayed in certain colors. The denser structure of the tissues was displayed in shades of blue, while easily compressible elastic areas were marked in shades of green-red color scale. Elastography results were evaluated by the degree of tissue compressibility and the presence of stable high or low density areas when scanning in real time. All the results were recorded in the form of clips or static images on the hard disk of the device for further evaluation.

The statistical processing of the results of the study studied the sensitivity, specificity of the obtained result, accuracy of the method.

### Research results

The researches carried out by us on patients with benign and malignant neoplasms of CHF-SEG showed that the increase of deformation coefficient (CD) in neoplasms and regional lymph nodes should be considered as one of the reliable indicators of malignant growth. Based on clinical observations and comparing the results of SEG with the cytomorphological conclusions, it turned out that for normal tissues the CD index did not exceed 2.0, and the tissues were stained with red-green pattern. For transitional tissues, the stage of malignization of precancerous lesions is characterized by a blue-green pattern at CD from 2 to 8. At the CD index more than 8 tissues had predominantly blue coloring, which corresponded to malignant growth, the reliability of which increased as the CD index increased. Thanks to Doppler effect used in the work of CDC and EDC it was possible to determine the character of vascular blood flow direction by its changing color from red to blue. Comparative studies have shown that ultrasound can be used in the B-mode to detect metastatic LU, but also with the help of CDC and IAP, which allow to observe the picture of the location of blood vessels, to assess their quantitative relationship with the studied tumor in order to successfully carry out differential diagnosis of neoplasms.

As our studies show, the use of SEG, as well as the CDC and IRS modes in the diagnosis of tumors, significantly increases the diagnostic effectiveness of the method. The echography cannot be compared with the cytomorphological conclusion yet, but already today there are attempts to bring the echo anatomy of



primary neoplasms and regional lymphoma closer to their morphological structure. Widespread introduction and continuous improvement of radiation diagnostics will allow to reasonably narrow the risk group of patients with suspected malignant pathology to limit the conduct of unjustified invasive studies.

**Literary review:**

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