The value of color Doppler ultrasonographic cervical lymphadenopathy examination in the assessment of oral cavity health and pathology

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Summary

Purpose. To point out the value of color Doppler ultrasonographic cervical lymphadenopathy examination in diagnosing and staging of oral cavity pathology.
Materials and methods. The results of color Doppler ultrasonographic cervical lymphadenopathy examination of 64 patients with oral cavity pathology were evaluated through a statistically retrospective method.
Results. All the color Doppler ultrasonographic examinated lymph nodes showed the specific reactive or malignant criteria, which made possible the assessment of oral cavity pathology.
Conclusions. Color Doppler ultrasonographic examination is the method of choice in daily practice for evaluation of oral cavity pathology and in the assessment of oral cavity health status.

Key words: oral cavity pathology, cervical lymphadenopathy, color Doppler ultrasonography.

Introduction

The ultrasonographic examination of superficial lymphadenopathies can detect the morphologic and volume changes from the local lymph nodes as a common result of any related anatomic pathologies.

The sonomorphologic data: diameters, shape, contour, the presence or absence of an echogenic center allows the diagnosis of a lymphadenopathy but cannot differentiate the malignancy from reactive benignity.

The color Doppler ultrasonography identifies the intranodal angioarchitecture and by the accurate detection of malignant modifications can assess the etiology of local lymphadenopathies and as a result, the pathology of related anatomic structures.

4 criteria of intranodal angioarchitectural malignant modification were described: focal absence of perfusion, aberrant course of central vessels, displacement of intranodal vessels, subcapsular vessels.

Materials and methods

Color Doppler ultrasonography was performed in cervical lymphadenopathies of 64 patients with oral cavity pathology, clinically and biologically assessed and in cases of malignant diseases, even with histopathological attestation.

Each lymph node was completely assessed with 7.5 MHz linear-array transducer in order to detect initially the sonomorphologic data: diameters, shape, contour, the presence or absence of an echogenic center and then to identify by color Doppler the intranodal angioarchitectural criteria of malignancy: focal absence of perfusion, aberrant course of central vessels, displacement of intranodal vessels, subcapsular vessels.

Results and discussions

The sonomorphologic data identifies 46 lymph nodes with measures between 10-20 mm and only 18 lymph nodes with measures between 20-30 mm. The oval shape was found in 46 cer-

vical lymph nodes and the round shape in 18 lymph nodes.

The lymph nodes contour was sharp in every cervical lymph nodes examined, and the echogenic center was present in 42 cases and in the rest of 22 cases was absent.

The color Doppler ultrasonography points out that all the malignant lymph nodes showed at least one criterion of malignancy in the assessment of the intranodal angioarchitecture. Focal absence of perfusion and subcapsular vessels were the criteria more frequently seen - 12 cases - and which were correlated with the absence of echogenic center and with the presence of histopathologic alteration like necrosis or arteriovenous shunts induced by central malignant lymph node infiltration.

Displacement of intranodal vessels was present in 7 cases, and in only 3 cases was identified an aberrant course of central vessels. There were, in this way, identified 2 simultaneous criteria of malignancy in 12 cases, 3 simultaneous criteria of malignancy in 7 cases and only one criterion in 3 cases.

4 simultaneous criteria of malignancy were not identified in any of cases.

In none of the cervical lymph node examined, from the 42 cases of nonmalignant oral cavity pathology, were identified any of the malignancy criteria. This reactive lymphadenopathy had an unmodified angioarchitecture with sharp and straight vessels and no subcapsular vessels.

Conclusions

The color Doppler ultrasonographic examination is the method of choice in daily practice for diagnosing, evaluation and staging of oral cavity pathology, with possible differentiation of malignity from benign reactivity. All these facts reveal the ability of ultrasonographic cervical lymph node examination in the assessment of oral cavity health status.

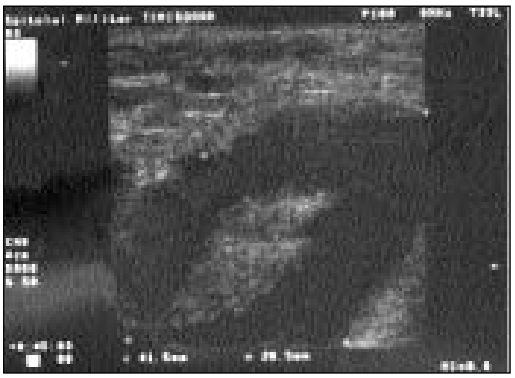

Figure 1. Sonomorphological data of a cervical reactive lymphadenopathy

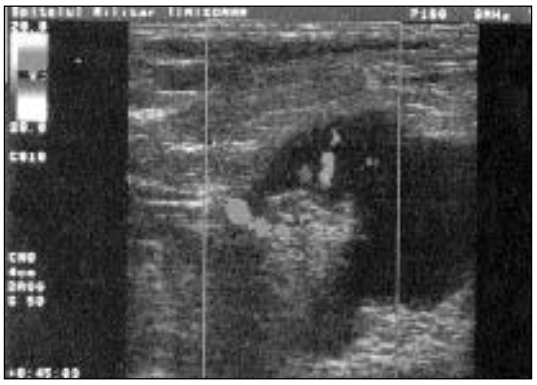

Figure 2. The color Doppler exam of the same reactive cervical lymphadenopathy assessed an reactive type of angioarchitecture with no malignancy criteria detected

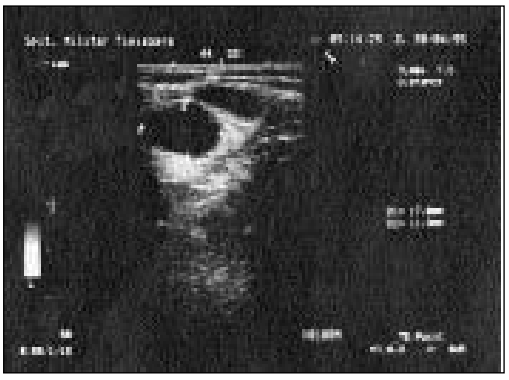

Figure 3. The sonomorphological data in a cervical malignant lymphadenopathy with the characteristic absence of the echogenic center

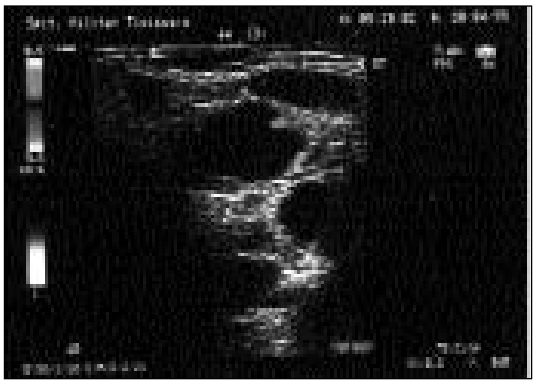

Figure 4. The color Doppler exam of the same lymph node shows the displacement of intranodal vessels, an accurate criterion of malignancy

Table 1. The oral cavity pathology associated with cervical lymphadenopathy

Oral cavity pathology	Number of cases
Malignant lymphadenopathies:	**22**
- carcinoma of the oropharynx	8
- carcinoma of the floor of the mouth	4
- carcinoma of the salivary glands	3
- carcinoma of the tongue	2
- malignant Hodgkin lymphoma	
- mixt celularity	2
- nodular sclerosis	2
-lymphocytic depletion	1
Reactive lymphadenopathies:	**42**
- viral parotidites	8
- tonsilites	14
- vestibular abscesses	8
- acute pharyngites	10
- cytomegalic inclusion disease	2

Table 2. Sonomorphologic data of cervical lymphadenopathies

Sonomorphological parameters		Number of cases
Length:	< 10 mm	**0**
	10-20 mm	46
	20-30 mm	18
Width:	< 10 mm	**2**
	10-20 mm	44
	20-30 mm	18
Thickness:	< 10 mm	**2**
	10-20 mm	44
	20-30 mm.	18
Shape:	round	**18**
	oval	46
Contour:	sharp	**64**
	blur	0
Echogenic center:	present	**42**
	absent	22

Table 3. Color Doppler intranodal angioarchitectural criteria of malignancy

Malignancy criteria	Number of cases
Focal absence of perfusion	12
Aberrant course of central vessels	3
Displacement of intranodal vessels	7
Subcapsular vessels	12

Table 4. Number of color Doppler ultrasonographic malignancy criteria

Number of present criteria	Number of cases
One criterion	3
Two criteria	12
Three criteria	7
Four criteria	0

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