

# Histological reclassification of 101 intraoral salivary gland tumours (new WHO classification)

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## Abstract

The epithelial salivary gland tumours have for many years been categorised according to the 1972 World Health Organisation (WHO) classification. In 1990 a proposed revision of this classification was elaborated. In this study 101 intraoral salivary gland tumours were reclassified accordingly. In 29 of the cases the original histological diagnosis was changed, which in most cases, occurred in the benign or malignant tumour groups. In seven cases the diagnosis was changed from benign to malignant or vice versa.

The results of this study show that the histological classification of intraoral salivary gland tumours remains difficult, even when applying the new WHO classification.

Salivary gland tumours account for about 3% of all head and neck neoplasms, most being of epithelial origin.<sup>1</sup> About 90% of these neoplasms are located in the major salivary glands, the other 10% in the minor salivary glands.<sup>2,3</sup> Epithelial salivary gland tumours consist of a great variety of histological types and have until recently been classified according to the 1972 World Health Organisation (WHO) classification.<sup>4</sup> Since 1972 several new tumour entities have been reported. Therefore, a proposed revision of the *WHO Histological Classification of Salivary Gland Tumors* was elaborated.<sup>5</sup> In this study 101 intraoral salivary gland tumours were reclassified according to this new classification.

## Methods

Between January 1970 and January 1988 101 patients with a tumour of the intraoral salivary glands were registered at the Free University Hospital in Amsterdam. There were 50 male and 51 female patients with a mean age of 53.6

(range 17-86) years and 50.0 (range 16-82) years, respectively. The distribution of the 101 tumours according to the localisation and original histological diagnosis (WHO, 1972) are shown in table 1. Most patients had a malignant tumour (57%) on first diagnosis, which included mucoepidermoid tumour and acinic cell tumour. Pleomorphic adenoma was the most common histological type.

Most of the 101 patients were initially treated by surgery. Eight patients were not treated surgically due to their age, general condition, or size and extension of the tumour. In cases of questionable or positive surgical margins postoperative radiotherapy was given.

All patients with a salivary gland tumour are routinely seen for follow up for at least 10 years. The mean follow up period was 6.5 (range 2-18) years.

Slides stained with hematoxylin and eosin were available for reclassification in every case. No special stains were used. The tumours were reclassified according to the *Tentative Histological Classification of Salivary Gland Tumors*.<sup>5</sup>

## Results

The outcome of the reclassification is shown in table 2. In 29 cases (29%) the original histological diagnosis was changed.

In 15 of these cases it concerned a subclassification within a histological tumour type either benign or malignant:

- 1 the subdivision of adenocarcinomas in polymorphous low grade adenocarcinoma, papillary cystadenocarcinoma and adenocarcinoma, not otherwise specified;
- 2 the subdivision of monomorphic adenomas in canalicular adenoma and basal cell adenoma;
- 3 the reclassification of two monomorphic adenomas and two pleomorphic adenomas as myoepitheliomas.

In seven cases there was a change of diag-

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Table 1 Distribution of 101 intraoral salivary gland tumours according to site and histological type (original diagnosis, 1972 WHO classification)\*

	Palate	Upper lip	Lower lip	Cheek	Floor of the mouth	Retromolar area	Upper alveolar ridge	Mandible	Tongue	Total
Pleomorphic adenoma	27	4	1	4	—	—	—	—	—	36
Monomorphic adenoma	3	4	—	1	—	—	—	—	—	8
Mucoepidermoid tumour	8	—	1	2	1	1	1	—	1	15
Acinic cell tumour	2	—	—	—	—	1	—	—	—	3
Adenoid cystic carcinoma	15	2	—	1	4	1	3	1	—	27
Adenocarcinoma	5	1	—	—	1	—	2	—	—	9
Carcinoma in pleomorphic adenoma	1	—	—	—	1	—	1	—	—	3
Total	61	11	2	8	7	3	7	1	1	101

Table 2 Distribution of 101 histological types according to 1972 WHO classification and tentative WHO classification (1990) for salivary gland tumours

WHO, 1972 <sup>a</sup>	n =	WHO, 1990 <sup>b</sup>	n =
Pleomorphic adenoma	36	Pleomorphic adenoma	33
Monomorphic adenoma	8	Myoepithelioma	4
		Basal cell adenoma	1
		Canalicular adenoma	3
		Intraductal papilloma	1
Mucoepidermoid tumour	15	Mucoepidermoid carcinoma,	
		low grade	11
		high grade	2
Acinic cell tumour	3	Acinic cell carcinoma	4
Adenoid cystic carcinoma	27	Adenoid cystic carcinoma	
		glandular/tubular	22
		solid	5
Adenocarcinoma	9	Polymorphous low grade	8
		adenocarcinoma	
		Papillary cystadenocarcinoma	1
		Adenocarcinoma, NOS	3
Carcinoma in pleomorphic adenoma	3	Carcinoma in pleomorphic adenoma	
		invasive	1
		non-invasive	1
		Salivary duct cyst	1

Table 3 Seven cases that changed diagnosis from benign to malignant, or vice versa, in reclassification

Original diagnosis	Reclassification
Pleomorphic adenoma	Polymorphous low grade adenocarcinoma
Pleomorphic adenoma	Polymorphous low grade adenocarcinoma
Monomorphic adenoma	Mucoepidermoid carcinoma
Monomorphic adenoma	Adenoid cystic carcinoma, glandular type
Mucoepidermoid tumour	Pleomorphic adenoma
Mucoepidermoid tumour	Salivary duct cyst
Adenoid cystic carcinoma	Intraductal papilloma

nosis within the malignant tumour group—for example, from adenocarcinoma to adenoid cystic carcinoma, or carcinoma in pleomorphic adenoma. Of the remaining seven cases, four benign diagnoses were changed into a malignant diagnosis and three malignant diagnoses were changed into a benign diagnosis (table 3).

**Discussion**

The distribution of the histological types and tumour sites in this study are somewhat similar to those of other studies on intraoral salivary gland tumours, the palate being the most common location and the pleomorphic adenoma being the most common histological type.<sup>6</sup>

As shown by the results of this study the histological classification of intraoral salivary gland tumours remains difficult, even when applying the new WHO classification.<sup>7</sup> In 29% of cases the original histological diagnosis was changed. In most of these cases the change of diagnosis occurred either within the benign or within the malignant tumour group. In adenocarcinomas more detailed histological typing may lead to a better prediction of the prognosis. This seems especially true with regard to the polymorphous low grade adenocarcinoma. However, the clinical relevance of the new subtyping of adenomas seems somewhat questionable, although it has been claimed that the myoepithelioma is a potentially more aggressive neoplasm.<sup>5</sup>

In seven cases there was a change in diagnosis from benign to malignant, or vice versa. Benign tumours of the minor salivary glands tend to be non-encapsulated which can make the differentiation between adenomas and carcinomas difficult—for example, the differential diagnosis between pleomorphic adenoma and polymorphous low grade adenocarcinoma.

The follow up data of this study did not corroborate the accuracy of the reclassified diagnoses.

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