Clear cell carcinoma of minor salivary gland of the tongue

Carcinoma a cellule chiare di una ghiandola salivare minore della lingua

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Key words

Salivary glands • Tumours • Carcinoma • Case report

Parole chiave

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Summary

The case of a clear cell carcinoma of a minor salivary gland, at the basis of the tongue, is described, which represents 1% of malignant tumours of salivary glands. The biological behaviour is not very aggressive and development, which is very slow, is usually asymptomatic, and, indeed, the tumour often reaches considerable dimensions before being diagnosed. There are rare cases of local recurrence and distant metastases. Cases of salivary glands which have become sites of secondary localization of a clear cell tumour, originating in the kidneys, have been described. The interest in the form described here stems from the slow evolution and the considerable dimensions reached by the tumour before being diagnosed, despite development in a breathing or digestive area such as the oral-pharyngeal tract. In the present case, computed axial tomography and nuclear magnetic resonance were used to reach the diagnosis. The patient was submitted to surgical treatment. In the differential diagnosis, it is necessary, from a pathological point of view, to take into consideration other neoplastic formations, such as acinar cell adenocarcinoma, epithelial-myoepithelial carcinoma, clear cell oncocytoma, sebaceous adenoma and sebaceous carcinoma.

Riassunto

Segnaliamo un caso di carcinoma a cellule chiare di una ghiandola salivare minore della base della lingua, che rappresenta l'1% dei tumori maligni delle ghiandole salivari. Il comportamento biologico è poco aggressivo con una evoluzione molto lenta, più spesso asintomatica, tanto da raggiungere dimensioni anche considerevoli prima di essere diagnosticato. Scarse sono le recidive locali e le metastasi a distanza. Sono descritti in letteratura casi di ghiandole salivari sedi di localizzazione secondaria di un tumore a cellule chiare di origine renale. L'interesse suscitato dalla nostra forma risiede nella sua lenta evoluzione e nella voluminosa estensione raggiunta, pur sviluppandosi in un distretto di passaggio oro-digestivo quale è il cavo orofaringeo, prima di essere diagnosticata. La diagnostica per immagini si è avvalsa nel nostro caso di TAC e RMN. Il trattamento è stato chirurgico. Ai fini della diagnosi differenziale, dal punto di vista anatomo-patologico, vanno prese in considerazione altre lesioni neoplastiche con particolare riguardo all'adenocarcinoma a cellule aciniche, al carcinoma epiteliale-mioepiteliale, all'oncocitoma a cellule chiare, all'adenoma sebaceo e al carcinoma sebaceo.

Introduction

A case of clear cell carcinoma, at the basis of the tongue, originating in a minor salivary gland, is reported. It appeared worthwhile to describe this case on account of the rare location, large dimensions, limited symptoms which became appreciable only in the last 15 days, despite the bulky development, and also due, from an anatomo-pathological point of view, to the rarity of this lesion.

The presence of clear cells is common in salivary gland tumours, particularly muco-epidermoid carcinoma, acinicar cell adenocarcinoma, epithelial-adenoma and sebaceous carcinoma.

Clear cell carcinoma is a malignant neoplastic form representing approximately 1% of all salivary gland tumours, originating also in other areas, including normal or abberant gland tissue [1].

Clear cell carcinoma consists in a mono-morphous population of cells with a clear cytoplasm, showing standard haematoxylin-eosin stain. This form does not present the typical appearance of other specific neoplastic formations [2 3].

The most recent WHO classification of salivary gland tumours [4] does not define a specific category for clear cell tumours and only indicates that the presence of clear cell aspects is a feature common to the various neoplastic formations originating in that site [5 6].

Moreover, according to the WHO classification, salivary glands can be the site of a secondary localization of a clear cell tumour originating in the kidneys [6 7]. There are rare cases of local recurrence and distant metastases [8].

Case report

A 69-year-old patient came to our attention on account of dysphagia, stomatolaly, fetor ex ore, passage of food, particularly liquids, through the nose. These symptoms had been vaguely present for the last two years, and had become more acute over the previous two weeks. The case history revealed 40 years as a smoker of approximately 20 cigarettes/day and the consumption of alcohol (two glasses of wine per meal).

The oral and pharyngeal evaluation revealed a bulky ball-shaped neoformation at the base of the tongue, which was apparently encapsulated and with a diameter of approximately 3 cm, of parenchymatose consistency, which was not painful upon pressure and was covered with a slightly irregular mucous layer.

A video-endoscopic assessment confirmed a wide implant area: the tumour occupied the entire base of the tongue and the glosso-epiglottic vallecules, particularly to the right, and was located, without infiltration, on the lingual face of the epiglottis, reducing the dimensions of the pharyngeal diameter by 2/3.

The laryngeal vestibule seemed not to be involved, showing free sinuses, which were well aired.

The lymph node chains of the neck were not clinically involved.

Histolgical examination of biopsy tissue removed from the neoformation, under local anaesthesia, confirmed the tumour to be a proliferation of epithelial elements, showing both clear cell aspects and a slightly eosinophil cytoplasm, the latter being sepimentated by fibrous stroma.

The nuclei were relatively monomorphous with evident nucleolus; evidence of keratinization was sometimes present. The neoplastic formation had a low number of mitosis but showed a tendency to infiltrate the surrounding tissues.

Analysis, based on Nuclear Magnetic Resonance (NMR), proved the tumour to be an oval-shaped mass occupying most of the throat lumen, with a main cranial-caudal axis of 3.5 cm and a transverse diameter of 3 cm (Fig. 1a,b).

Moreover, the mass presented a wide implantation area at the base of the tongue, infiltrating for approximately 1 cm; the structural appearance was that of a solid lesion of parenchymatose consistency with colliquative necrosis in the central areas.

Ultrasonography (US) did not reveal any evidence of lymphadenopathy on both sides of the neck.

Abdominal US showed widespread hyperechogenicity, which appeared to be due to chronic liver disease, and pyelonephritis localized in the left kidney.

The abdominal computed axial tomography (CAT), performed after the anatomo-pathological analysis of the surgical specimen, did not show any alteration of the hypochondriac bowels.

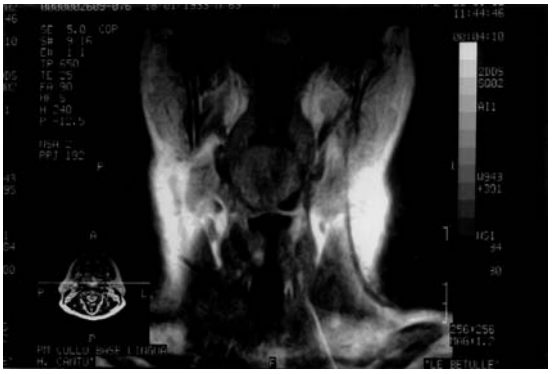

Fig. 1a. NMR of neoplasm (front and back).

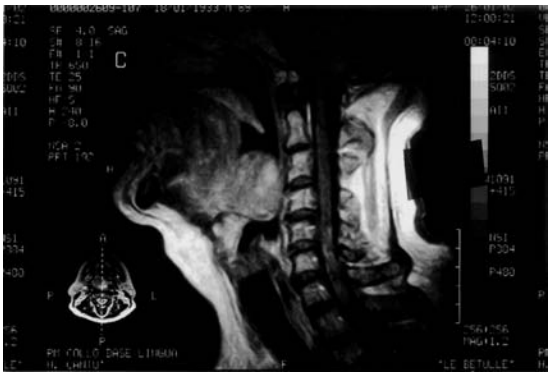

Fig. 1b. NMR of side of neoplasm.

The patient was submitted, in our Division, to underisthmical tracheotomy between the second and third tracheal ring and removal of the neoformation through middle pharyngotomy above the hyoid.

The post-operative course was uneventful.

A naso-gastric tube was maintained for six days and following closure of the tracheal stoma after twelve days, the patient started to be eat naturally.

Macroscopic examination of the lesion revealed a grey-pinkish mass of parenchymatose consistency, oval shaped, with the main diameter of approximately 3.5 cm (Fig. 2a); when cut, the mass was solid with a central grey-coloured area of necrosis (Fig. 2b).

Microscopically, the tumour appeared to be comprised of a monomorphous population of polygonal or round cells with clear E-E cytoplasm (Fig. 3a), which were organized in the shape of well-defined nests (Fig. 3b) and surrounded by fibrous tissue with infiltration of surrounding muscular tissue; the mitosis number was low.

Periodic acid Schiff (PAS) staining, with and without

Fig. 2a. Surgical specimen.

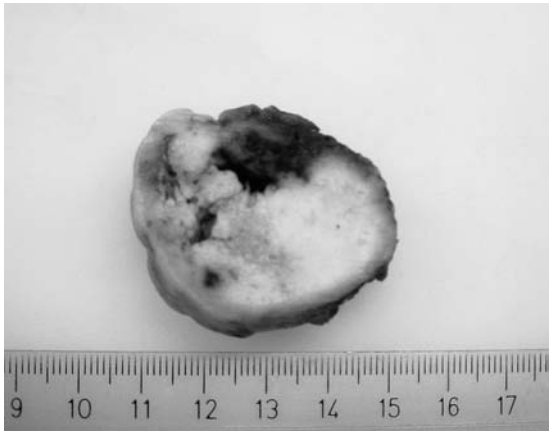

Fig. 2b. Medially-sectioned surgical specimen.

digestion, and with diastase did not show any appreciable amount of glycogen; some authors maintain that an abundance of glycogen characterises an aggressive form of this kind of tumour [9].

There was no trace of intra-cytoplasmic mucins showing alcian blue and Mucicarmine staining.

The immuno-histochemical analysis revealed that the neoplastic cells were intensely positive for cytocheratins (AE1-AE3) and negative for protein S-100 [10], for specific smooth-muscle actin and for vimentin [8].

Scrupulous "follow-up" was carried out, and, one year later, biopsy specimens were collected from the surface of the tongue base. Results of this examination, together with fine-needle aspiration of the tongue parenchyma and NMR, did not reveal any local form of recurrence of the neoplastic disease.

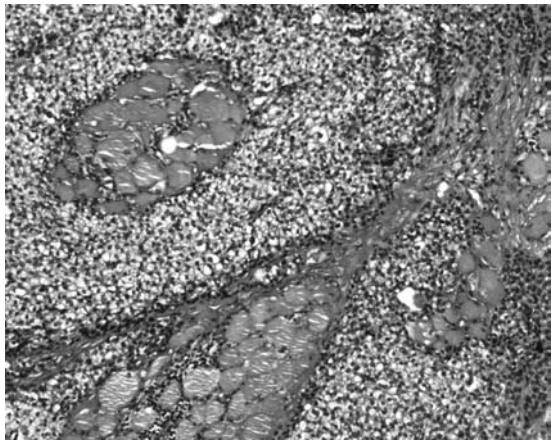

Fig. 3a. Clear cell appearance of neoplasm with fairly monomorphous characteristics and tendency to infiltrate muscular tissue of tongue.

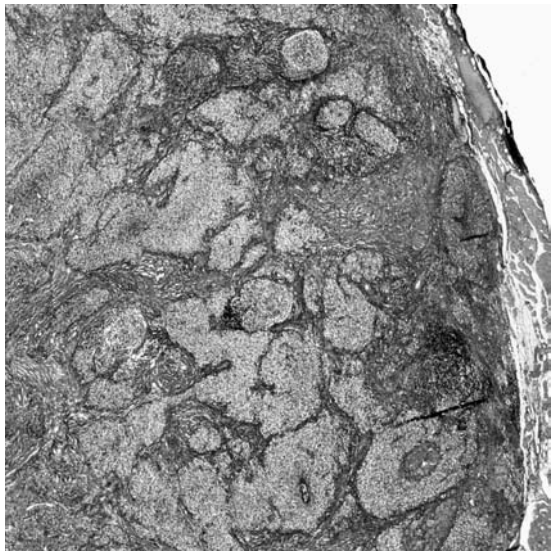

Fig. 3b. Nest-shaped proliferation of clear cells, sepimentated by branches of connective tissue.

Conclusions

The presence of clear cell aspects is a feature common to various tumours of the salivary glands and differential diagnosis is required, on account of the close similarity, from an anatomo-pathological point of view, to muco-epidermoid carcinoma, acinar cell adenocarcinoma, epithelial-myoepithelial carcinoma, clear cell oncocytoma, sebaceous adenoma and sebaceous carcinoma, which also originate in the salivary glands [11].

The possibility of a secondary localization of a kidney neoplasia should also be taken into consideration [1].
Diagnosis of a clear cell carcinoma thus requires exclusion of all other specific tumours [12].
Muco-epidermoid carcinoma is usually a form of clear cell carcinoma. Nonetheless, it always presents some cells that stain positive with alcian blue and mucicarmine dye since they contain mucins.
The acinar cell adenocarcinoma is made up of clear cells containing glycogen in the shape of PAS positive and diastase-resistant intra-cyoplasmic granules; moreover, this neoplastic form often presents some microcystic or acinous aspects.
The oncocytoma clear cells contain glycogen (PAS-positive glycogen), but usually represent a circumscribed non-infiltrating tumour, which often has intensely eosinophil and phosphotungstic haematoxylin-positive cells, which demonstrates the abundance of mitochondria.
Sebaceous adenoma and sebaceous adenocarcinoma should be mentioned not only on account of their rarity but also the optically empty cytoplasm since the latter is full of liquids which are lost in the course of routine histological procedures.
Epithelial-myoepithelial carcinoma differs from the clear cell monomorphous carcinoma on account of a biphasic cell population: eosinophil cube-shaped ductal cells, surrounded by larger polygonal clear cells and showing a myoepithelial differentiation when treated with I.C-C (S-100 protein and smooth-muscle specific actin positivity).
The possibility of metastases from a kidney tumour [1] should be excluded by means of radiological diagnostic methods (US, CT).
The morphological and immunocytochemical features of the case described here allowed us to define this as a clear cell carcinoma of the salivary gland.
Clear cell carcinoma is currently held to be a neoplastic form with a low malignancy index [1].
Indeed, in our case, the neoplasm grew very slowly over a two-year period, without causing any considerable local invasion and without giving rise to metastases in the local or distant lymph nodes.
The case described here is characteristic of the slow development of that kind of tumour and is also exceptional on account of its site, bulk and the almost complete lack of symptoms.
Considering the low malignancy index and the radical effect of surgery, we did not consider it necessary to submit the patients to post-operative radiotherapy, but, rather, to adopt a close "follow up" strategy. One year after surgery, the patient is clinically free from neoplastic disease, with NMR, endoscopy and cytological analyses of aspirated material being negative.

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