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CASE PRESENTATION

DIAGNOSTIC AND THERAPEUTIC DIFFICULTIES IN PAROTID TUMOR PATHOLOGY – COMMENTS ON A CLINICAL CASE

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Abstract

Introduction. The parotid gland, the largest salivary gland, can be the site of various pathology. Any swelling located in the parotid gland requires thorough investigations. Symptoms usually include a painless, unilateral tumor, with a slow evolution. Histology establishes the therapeutic plan.

Case presentation. We present the case of a 60 years-old patient, known with a tumoral mass in the parotid region for 3 years, who came to our clinic for a history of 3 months persistent dysphonia. Endoscopic laryngoscopy revealed a tumoral mass occupying two thirds of the right vocal cord, covered in keratin plates, with normal mobility of both vocal cords. From the patient's record, we note an ultrasound fine needle aspiration biopsy, performed at the onset of the parotid tumoral mass, which did not reveal any malignancy criteria.

Conclusions. Differential diagnosis for parotid gland pathology must include inflammatory, infectious and tumoral conditions. A complete set of investigations must be performed in order to establish

Résumé

Difficultés diagnostiques et thérapeutiques dans la pathologie des tumeurs parotides

Introduction. La glande parotide, la plus grande des glandes salivaires, peut être le site de diverses pathologies. Tout gonflement situé dans la glande parotide nécessite des investigations approfondies. Les symptômes comprennent généralement une tumeur unilatérale, indolore, à évolution lente. L'histologie établit le plan thérapeutique.

Présentation du cas. Dans cet article, nous présentons le cas d'un patient âgé de 60 ans, connu pour un gonflement dans la région parotide pendant 3 ans, qui est venu dans notre clinique pour une dysphonie persistante depuis 3 mois. La laryngoscopie endoscopique a révélé une masse tumorale occupant les deux tiers de la corde vocale droite, recouverte de plaques de kératine, avec une mobilité normale des deux cordes vocales. Dans le dossier du patient, nous notons une biopsie par ultrasons à l'aiguille fine, réalisée au début

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the therapeutic approach. Treatment, depending on the histological type of the tumor, is commonly surgical and can be followed by radiotherapy and in some cases, chemotherapy.

Keywords: parotid tumor, diagnostic difficulties, endoscopic laryngoscopy.

de la masse tumorale parotide, qui n'a révélé aucun critère de malignité.

Conclusions. Le diagnostic différentiel pour la pathologie de la glande parotide doit inclure des affections inflammatoires, infectieuses et tumorales. Un ensemble complet d'investigations doit être complété pour établir l'approche thérapeutique. Le traitement, en fonction du type histologique de la tumeur, est généralement chirurgical et peut être suivi de radiothérapie et, dans certains cas, de chimiothérapie.

Mots-clés: tumeur parotidienne, difficultés de diagnostic.

Introduction

The parotid gland is the largest salivary gland and is located in the retromandibular area, surrounded by dense connective tissue, ampler in the superficial layer, which plays the role of a capsule. Inferiorly, this tissue presents gaps which favor the extension of infections or neoplastic tumors in the pterygopalatine fossa or the parapharyngeal space. The parotid gland has a triangular structure, with the peak orientated inferiorly and approximately 6 cm long and 3,3 cm wide[1]. The plan of the facial branches divides the parotid gland into a lateral, superficial lobe and a medial, deep one. The parotid gland is a tubular acinous gland, its parenchyma is formed from serous cells and an excretory part formed from parotid ducts[2].

The tumors of the parotid gland present a great histological variety. Any swelling in the parotid region can present difficulties in diagnosis. Malign tumors are less common[3]. Many tumors located in the parotid gland can have an unpredictable progression, benign tumors often present an aggressive evolution, while malign tumors might have a slower one[4].

There have been proposed two theories to explain the multiple histological variety encountered in the tumoral pathology of the parotid glands. The multicellular theory claims that every tumor is associated to a specific differentiated cell and the bicellular theory postulates the idea of tumor growth from undifferentiated stem cells, either excretory ducts, or intercalary ducts.

Clinically, most patients with parotid gland tumors present with unilateral, painless swelling in the parotid region, with a tendency for prolonged evolution. A sudden change in dimension might suggest a secondary obstruction of Stenon duct or cystic degeneration and a fulminant growth of a tumor with previous slow evolution presents a risk of malignant transformation of a pleomorphic adenoma[4]. Malignancy is also indicated if paralysis of the facial nerve or other neurologic deficits are associated to a parotid tumoral mass. Buccopharyngoscopy is a mandatory part of the clinical examination as it can highlight a bulging in the pharyngeal wall in the event of a deep parotid lobe involvement.

Clinical examination is followed by imaging investigations in order to appreciate tumoral extension, which consist of high-resolution contrast-enhanced computed tomography and gadolinium-based MRI, which allow a better appreciation of the adjacent structures.

Fine needle aspiration is a safe and precise investigation for cytologic evaluation. Ultrasonographic evaluation, including color Doppler ultrasound or contrast enhanced sonography, may have a complementary role.

The histologic type of the tumor dictates the therapeutic approach. Malign tumors of the salivary glands have a weak response to chemotherapy, while the surgical treatment is gold standard for these tumors.

Case presentation

We present the case of a 60 years-old patient, with a history of sub angular-mandibular tumor since 2015, smoker, veterinary, who came to our clinic with 3 months-old persistent dysphonia, with no signs of improvement under the symptomatic treatment initiated.

From his record, we note the investigations performed for the sub angular-mandibular tumor, including a cervical ultrasound, which described a group of 2-3 oval shaped lymph nodes located in the superior latero-cervical region, of 1.6 and 2.6 cm, forming a 5cm inhomogeneous lymph mass with a weak hyperechoic hilum, weak and disorganized vascularization and hypo-anechoic areas. An ultrasound-guided fine needle aspiration with cytological examination was recommended in order to complete the investigation,

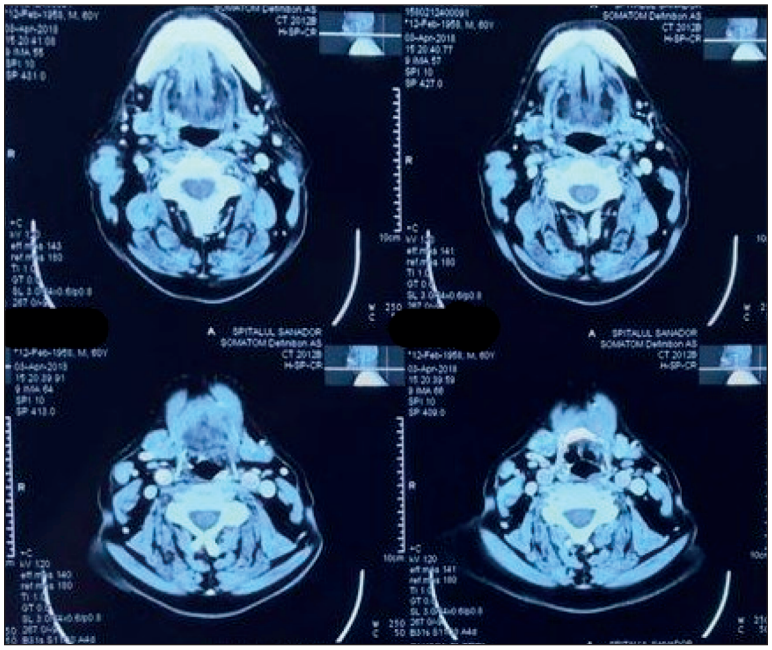

Figure 1. CT images highlighting a tumoral mass in the right parotid area.

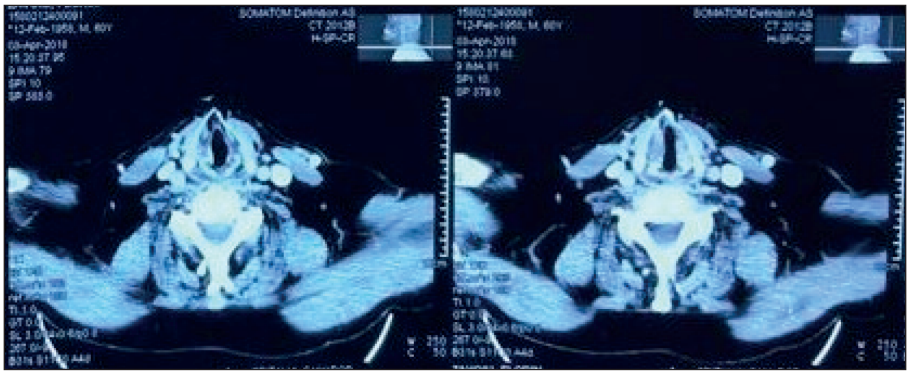

Figure 2. CT images of the right vocal cord tumor.

which revealed small fragments of lymph tissue with fibrous connective tissue capsule and with no malignancy criteria.

Clinical ENT examination revealed two round-oval, with firm consistency, painless (spontaneously or after palpation), well-defined tumors with mobility on superficial layers and adherent to profound ones. Endoscopic laryngoscopy revealed a tumoral mass occupying two thirds of the right vocal cord, posteriorly, covered in keratin plates, with normal mobility of both vocal cords and sufficient glottic space.

The cervical contrast-enhanced CT scan, prior to admission, highlighted a hyperechoic nodule located superficially in the inferior part of the right parotid gland, with an axial diameter of 2/1.5 cm, with microcystic areas of necrosis and continued with isolated superior latero-cervical adenopathy, which conjunctively formed a tumoral mass of 4.4/2 cm (Figure 1).

The right vocal cord was described as asymmetrically enlarged, with two polypoid masses in the posterior half, moderately iodophilic, with 8.6 and 7 mm in diameter (Figure 2).

We decided for a surgical management, by suspended micro laryngoscopy with CO_2 LASER bioptic excision of the tumor located on the right vocal cord and histopathological examination. At the two months follow-up, the endoscopic laryngoscopy did not show any macroscopic lesion, the patient presenting complete remission of dysphonia.

Histopathological examination revealed pavimentous mucosa with big cell proliferation, eosinophilic cytoplasm, vesicular nuclei with coarse chromatin and apparent nucleoli, moderate nuclear atypia, small tumoral islets in lamina propria.

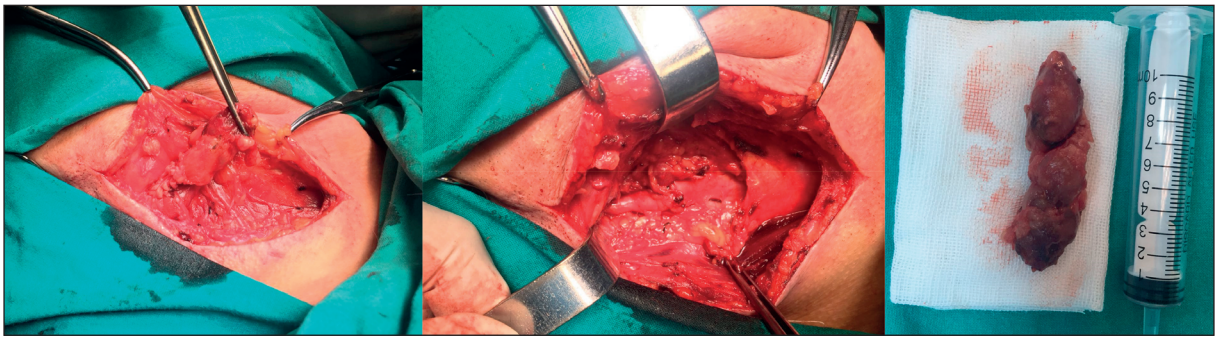

Figure 3. intraoperative aspect

Immunohistochemical examination illustrated positive p63 and CK5 in the tumoral and non-tumoral epithelium, negative collagen IV in the periphery of the invasive islets, 90% positive Ki67 in the tumoral nuclei and negative p53. The established diagnosis is of moderately differentiated squamous-cellular carcinoma, G2.

The result of the postoperative cervical ultrasound was similar with the previous one and suggested a possible unspecific inflammation or metastatic adenopathy.

Considering the working environment of the patient (veterinary), an infectious diseases consult was recommended, that did not find any relevant element for an infectious disease.

Diagnosis protocol was completed with a contrast-enhanced MRI scan, which illustrated a nodular lesion, with a tendency to adhere, located in the right parotid gland, suggestive for a pleomorphic adenoma.

After the oncologic consultation, we decided and performed right cervicotomy, with the complete excision of the latero-cervical tumoral mass located in the region of the pharyngeal extension of the parotid gland (Figure 3).

Histopathological examination determined the result of a Warthin tumor, lymph node with sinus histiocytosis and salivary gland tissue with fatty component.

Postoperatively, oncological consultation was recommended and, if necessary, oncological treatment.

Discussion

Warthin tumor, also known as papillary cystadenoma or adenolymphoma, is the most frequent tumoral mass with bilateral involvement of the parotid glands[5]. It is the second most common benign tumor and is encountered exclusively in the parotid gland, accounting for 10% of this pathology[6]. Literature cites a strong prevalence in men and an association with smoking[7]. Their most frequent location is at the mandibular angle and in the inferior part of the gland[6]. Microscopically, these tumors contain lymphocytic infiltrate and cystic epithelial proliferations. Usually, they develop from ectopic ductal epithelium of intra-parotid lymph nodes[8].

The treatment is surgical and requires superficial parotidectomy, in order to avoid recurrences. Rarely, these tumors might present malignant transformation.

In our case, the association between Warthin tumor with sub angular-mandibular adenopathy and the occurrence of a glottic neoplasm three years later, represented a challenge for the positive and differential diagnosis. Considering the poor lymphatic network in the glottic area, a neoplasm in this region can evolve a long time before it will determine lymph metastases. After taking into account the working environment, other infectious inflammatory conditions were considered, such as cat-scratch disease, a granulomatous benign condition, caused by a Gram-negative bacillus, Rochalimaea henselae[9]. This is a frequent pathology in patients below 20 y o and is characterized by the apparition of a pustule in the inoculation area and an isolated latero-cervical adenopathy, with spontaneous recovery after 2-4 months[5]. Another disease that we had to consider was toxoplasmosis, a zoonosis caused by Toxoplasma gondii, the host of which is also the cat and man can be an intermediate host, some authors estimating that up to one third of the population being exposed to it[10]. This disease is symptomatic only in immunocompromised patients and in congenital infestation, immunocompetent organisms presenting a subclinical evolution. The symptoms are represented by symmetric painless, mobile lymphadenopathy, usually in the occipital region, fever and an unspecific skin rash. Commonly, the symptoms resolve within a few weeks, while immunocompromised patients can develop chorioretinitis. Diagnosis is serological and the treatment consists in administration of pyrimethamine, clindamycin and azithromycin[5].

Ultrasound postoperative examination questioned the possibility of a fungal infection, an extremely rare condition, encountered in severe immunocompromised patients. Clinical suspicion is raised depending on the general condition of the patient and simultaneous diseases that caused immunodeficiency (malignant hemopathy, HIV infection, immunosuppressive treatments after organ transplant, etc.). Serology and fungal cultures establish the diagnosis and treatment consists in systemic antifungal therapy associated with the treatment of the primary condition.

Tumoral pathology was part of differential diagnosis. The most common benign tumor of the parotid gland is the pleomorphic adenoma. Symptoms include unilateral tumoral mass, with a painless, slow evolution and due to its growth potential, it can reach considerable sizes and can present malignant transformation. Imaging diagnosis includes ultrasound examination, CT and MRI. Fine needle aspiration biopsy can detect malignancy in up to 90% of the cases and can differentiate between the primary tumor or metastatic determination[11]. Treatment is surgical and consists in superficial or total parotidectomy, because of the high potential of recurrence or malignant transformation[12]. Other benign tumors, such as Warthin tumor, oncocytoma, papillary ductal adenoma. Most frequently, malignant tumors are mucoepidermoid carcinoma, adenoid cystic carcinoma and adenocarcinoma. Also, the parotid gland can be the site of metastatic dissemination of which: 46% melanoma metastases, 37% squamous carcinoma metastases and 17% other tumors[5].

Etiology of parotid glands tumors is unknown, although literature cites a link between Warthin tumor or mucoepidermoid carcinoma and radiation exposure. Also, Epstein-Barr virus can determine lymphoepithelial tumors in salivary glands[5]. Another risk factor is smoking. It has been reported that N-nitrosamine accumulate in salivary secretion and are associated with higher incidence of tumoral pathology of salivary glands. Warthin tumor presents the higher rate of correlation with tobacco exposure[6].

When facing a parotid tumoral mass, any sign of rapid growth, pain, signs of facial nerve suffering, paresthesia, dysphonia, overlying tegument implication, immobile tumor or cervical lymphadenopathy are malignancy criteria[6].

Imaging diagnosis must include a CT scan and an MRI to evaluate tumoral extension.

Treatment is surgical, it includes total parotidectomy with identification of the facial nerve and its branches; if the facial nerve must be excised, the surgical technique must be completed with grafting procedure, cervical lymphadenectomy and mandibulectomy, for infiltrative tumors. Radiotherapy can be used as main therapy for inoperable cases or with adjuvant role for surgery[6]. Armstrong et al demonstrated, on two groups of patients with parotid neoplasms, that the rate of survival at 5 years for stage 3 and 4 tumors was of 51% versus 10% in patients who underwent radiotherapy after surgery[13]. Literature also cites better results for neutrons radiotherapy, than conventional photon radiotherapy[14].

Chemotherapy is used only in selected cases, especially if metastases are present. Most common chemotherapeutic agents are doxorubicin and platinum. Fluoropyrimidine, a form of 5 fluorouracil, has proven more efficient for malign salivary tumors, by increasing apoptosis and enhancing radiotherapy effects[15].

Conclusions

Parotid gland tumoral pathology must be interpreted in a broad context in terms of diagnosis and treatment, considering the great number of histologic variants and the vast pathology, inflammatory or tumoral, existent in this region. A complete and correct diagnosis requires endoscopic, imaging and serologic investigations, in order to facilitate the therapeutic management and to obtain better results on medium and long-term.

Compliance with Ethics Requirements:

„The authors declare no conflict of interest regarding this article"

„The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from the patient included in the study"

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