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STUDY OF BENIGN PAROTID SALIVARY
GLAND TUMORS CONDUCTED IN THE
UNIVERSITY HOSPITAL OF LAS PALMAS
DURING THE PERIOD 2010-2015

STUDIJA O DOBROĆUDNIM TUMORIMA
PAROTIDNE ŽLEZDE SPROVEDENA U
UNIVERZITETSKOJ BOLNICI U LAS
PALMASU TOKOM PERIODA 2010 - 2015

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Key words

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tumors, Warthin tumor, frequency

Ključne reči

pleomorfní adenomi, tumori parotidne
žlezde, Warthin tumori, učestalost

Abstract

Introduction: Benign tumors of the parotid gland are an infrequent and heterogeneous group due to their histological differences. Their etiology has been unknown until now, although they are more frequent in some racial groups and in people exposed to tobacco and radiation. They are common from the fourth decade of life, characterized by being a mass with slow, asymptomatic growth and they rarely recur. Most of them are diagnosed after physical examination, and an FNAB (fine needle aspiration biopsy). Treatment is surgical. **Material and methods:** A retrospective and descriptive study of benign tumors was conducted in the population of the south area of the island Gran Canaria and Fuerteventura Island. The study was done on parotid gland tumors detected in 123 patients who visited the Clinic for Maxillofacial Surgery of the University Hospital in Las Palmas during the years 2010 - 2015. The patients were classified according to the histological type of tumor, age, gender, mean hospital stay and clinical characteristics of the tumor. **Results:** Focused on the pleomorphic adenoma, the results obtained in our study did not show significant differences regarding clinical characteristics in different studies. This tumor was diagnosed in 54% of the cases of total tumors diagnosed, and it was more frequent in women. However, in the comparison, the Warthin tumor showed a high incidence in our population, with 42% of total cases, 9.6% from which developed bilaterally. **Conclusions:** The tumors have male predominance, with the exception of the pleomorphic adenoma. Our population agrees with that of other authors regarding the incidence of pleomorphic adenoma, however, the number of Warthin tumors is much higher.

INTRODUCTION

At present, tumors of the salivary glands are rare and therefore inadequately studied. They constitute a group of approximately 0.5% of all tumors and, approximately, 3 to 5% of all head and neck tumors. Within this group the most frequent is the parotid gland tumor that represents 75% of benign salivary tumors. (1,2,4,8)

Etiology: Benign tumors of the parotid gland have an unknown etiology. Some studies report that they have a higher incidence in southern countries. In other reports, it is compared the incidence of certain histological types that are associated with radiotherapy, mammary tumors or tobacco, but no studies on that are conclusive. (3,4,8, 9,10,19)

There are diseases that are associated with these benign tumors, such as Mikulicz disease, systemic lupus erythematosus and Sjögren's syndrome (16).

Clinical diagnosis: Benign tumors of the parotid gland are asymptomatic. The patients mostly attend hospital, due to the compression of the neighboring areas and their growth, so in most cases they are detected during routine physical examinations by palpation of existing painless mass.

The most used diagnostic test in our environment is the physical examination, which is complemented with ultrasound. Once the presence of a mass has been confirmed, a FNAB (guided or not by ultrasound) should be performed, confirming the histological type of the tumor. (4,8,17,18, 24)

Histological classification: The pleomorphic adenoma with approximately 85% constitutes the highest percentage of benign salivary gland tumors, being most frequent in about 75% of the parotid gland. Warthin tumor occurs from 5 to 17% and the rest of benign tumors only represent between 1 to 8% of the total. There are different classifications of parotid gland tumors. WHO now uses the Seifert and Sobin classification of 1991.4,12 (Table 1).

Table 1: WHO classification of salivary gland tumors (1991)

1.- ADENOMAS
Pleomorphic adenoma
Myoepithelioma (myoepithelialadenoma)
Basal cell adenoma
Warthin tumor
Oncocytoma
Canalicular adenoma
Sebaceous adenoma
Ductal papiloma
Intraductal inverted papiloma
Papiloma intraductal
Sialadenoma papiliferum
Cistadenoma
Papillarycystadenoma
Mucinouscystadenoma
2.- CARCINOMAS
Acinic cell carcinoma
Mucoepidermoidcarcinoma
Adenoid cystic quístico carcinoma
Low grade polimorphic adenocarcinoma
Epithelial-myoepithelialcarcinoma
Basal cell adenocarcinoma
Sebaceouscarcinoma
Papillary cystadenocarcinoma
Mucinous adenocarcinoma
Oncocytic carcinoma
Salivary duct carcinoma
Adenocarcinoma
Malignant myoepithelioma
Carcinoma in pleomorphic adenoma
Squamous cell carcinoma
Small cell carcinoma
Undifferentiated carcinoma
Other carcinomas
3.- NO EPITHELIAL TUMORS
4.- MALIGNANT LYMPHOMAS
5.- SECONDARY TUMORS
6.- NO CLASSIFIED TUMORS
7.- PSEUDOTUMORAL LESIONS
Sialadenosis
Oncocytosis
Necrotizing sialometaplasia (salivary gland infarct)
Benign lymphopithelial lesion
Salivary gland cyst
Chronic sclerosing sialadenitis of submandibular gland

OBJECTIVES

The main objective is to evaluate the incidence of benign parotid gland tumors in the population of the southern area of the island of Gran Canaria and Fuerteventura in the years 2010 to 2015.

As a secondary objective, based on the data obtained, was to study their characteristics, such as age, gender, average length of hospitalization after surgery and histological type.

MATERIAL AND METHODS

This study is a descriptive, longitudinal, analytical, observational, retrospective one. The work was carried out in the Clinic for Maxillofacial Surgery Service of the University Hospital of Gran Canaria. Patients diagnosed with parotid gland tumor in the period of 01/01/2010 and 12/31/2015 were included.

Inclusion criteria: men and women without age exclusion were included, who were diagnosed, through complementary tests performed, to have a tumor in the parotid gland and confirmed in turn by a histological study of the Pathological Anatomy Service.

Exclusion criteria: Patients from other areas of the island of Gran Canaria were excluded, as well as people who were diagnosed in that period of time received treatment in later years.

Variables used: The study variables that were included were: age, gender, average stay of hospitalization after surgery and histological type of tumor as well as its physical characteristics.

RESULTS

The study consisted of 123 patients, diagnosed with parotid gland tumor between the years 2010-2015. The incidence of tumors was 26 cases per 100,000 inhabitants, with a total of 63 men (51%) and 60 women (49%), (Figure 1) and 52 years of average age.

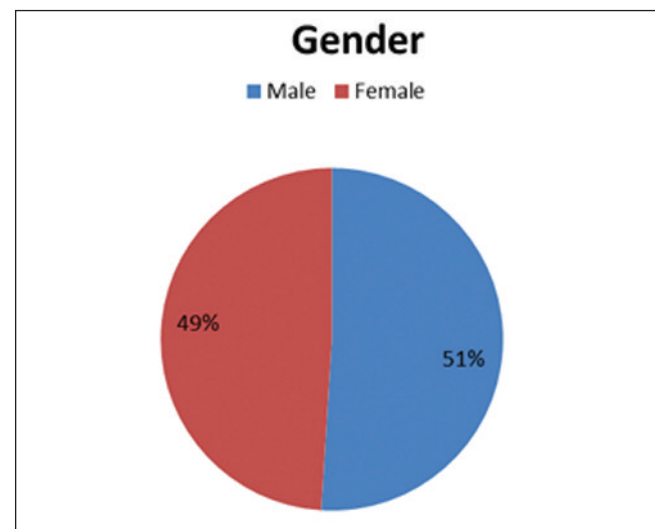


Figure 1: Distribution by gender

Diagnosis: These patients were diagnosed by a thorough physical examination and an ultrasound imaging test, completed with a FNAB to confirm the benignity of the tumor. The average hospital stay after the surgical procedure (parotidectomy) lasted 72 hours.

Histological types of tumor: The histological data obtained in the biopsies allowed us to classify the different types of tumors. We observed that the most common tumor was the pleomorphic adenoma with 66 cases, or 54% of the total tumors, followed by the Warthin tumor with 42% of cases, being statistically the second tumor with greater frequency, represented in 52 patients (42%). We found a single case of monomorphic adenoma and another of lymphoepithelial tumor that corresponded to 1%. The remaining 2% of

			Female		Male	
	Nº=123	%	Nº	%	Nº	%
Pleomorphic adenoma	66	54	40	61	26	39
Warthin Tumor	52	42	19	36	33	63
Lipoma	3	2	1	0,8	2	1,2
Monomorphic adenoma	1	1	0	0	1	1
Lymphoepithelial tumor	1	1	1	1	0	0

Table 2. Histological classification distributed by gender (123 patients)

tumors observed were 3 cases of lipoma, although it is not considered a parotid gland tumor, but it was classified within this group by the surgical intervention carried out in said patients. (Table 2) (Figure 2).

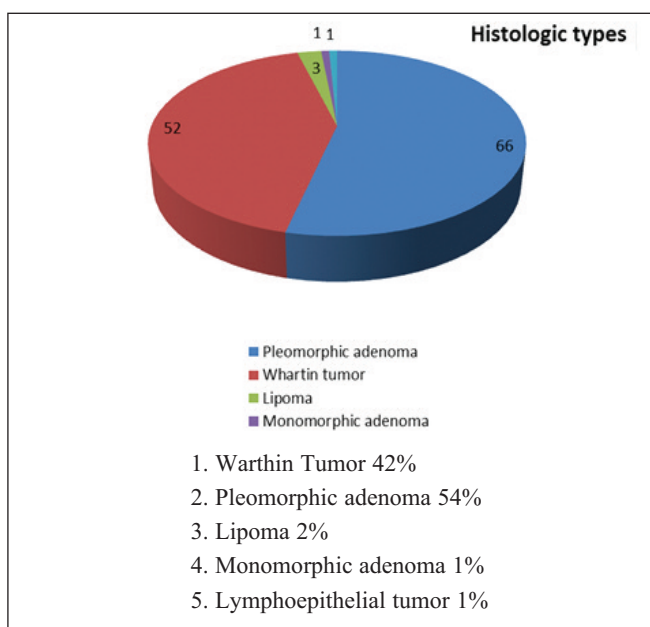


Figure 2. Distribution of histological types by frequency (percentages)

Comparison of pleomorphic adenoma and Warthin tumor: Of the 123 cases of benign tumors, 54% (66 cases) corresponded to pleomorphic adenoma and 42% (52 cases) corresponded to Warthin tumors. If within these two large groups we make a comparison of genders, we can observe that, of 66 cases of pleomorphic adenoma, a total of 26 cases (39.30%) correspond to men, with an average age of 47 years, and a total of 40 cases (60.6%) correspond to women, with an average age of 46 years. The Warthin tumor, however, was present in 52 cases, of which 33 (63.46%) correspond to male of 57 years of average age and a total of 19 (36.54%) correspond to female of average age of 56 years. (Figure 3)

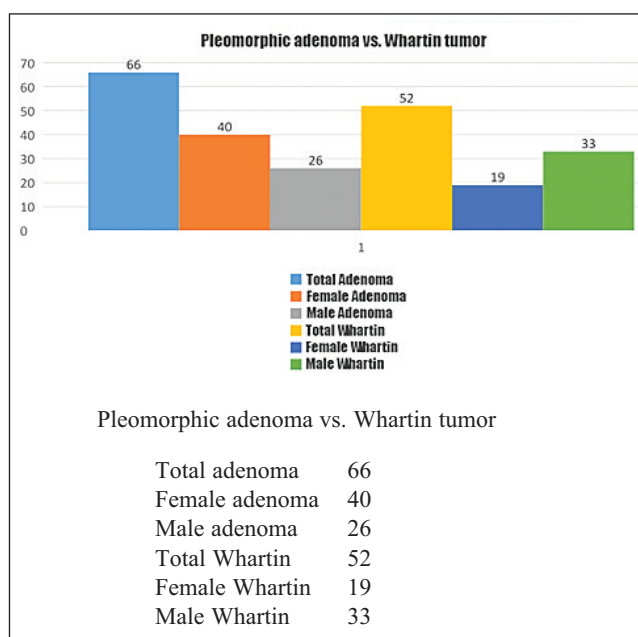


Figure 3. Comparison of pleomorphic adenoma and Warthin tumor

Size of tumor: Following the separate study of the most frequent tumors, we were able to obtain the average size of each tumor. The pleomorphic adenoma had an average size of 2.8 cm and the Warthin tumor of 3.2 cm. Both with predominance in the left gland. (Table 2)

Tumors	cm
Warthin tumor	3,17
Pleomorphicadenoma	2,88
Lipoma	3,62
Monomorphic adenoma	1,3
Lymphoepithelial adenoma	5

Table 2. Mean size of benign tumors

Recurrences: Within the period of this study, 15% of tumor recurrence was observed, corresponding to a total of 10 patients. The 6 of them recurred in pleomorphic adenomas that could have been due to an incomplete excision of the tumor or a rupture of tumor's capsule during the excision, and 4 of them recurred were Warthin tumors, which could be new (socondary) tumors.

DISCUSSION

The University Hospital of Las Palmas serves a total population of 480,763 patients, data obtained on the official website of the Government of the Canary Islands.

The first difference that we find in our work regarding the current literature of benign tumors of the parotid gland, is the type of diagnostic study used. The main source of diagnosis in our environment is based on physical examination and ultrasound followed by a FNAB. This diagnostic measure is used in hospital centers in Europe and the United States; however, certain Spanish and European hospitals recommend performing a Computed Axial Tomography

(CAT) or magnetic resonance imaging (MRI), first, because of use a contrast medium in these, to see size and tumor infiltration as well as to enable FNAB to take a sample.⁴ (11,12,17,18,24,26)

The most common benign tumor is the pleomorphic adenoma, with a higher incidence in women of the third decade. In our study, the average age is a little higher compared to other studies, being the fourth decade the most significant.¹³

On the other hand, Warthin's tumor is the second most frequent tumor. It represents 5-15%.^(4,12) of the total benign tumors of the salivary glands. This data was the largest variable found in our study, and had an incidence of 42% of the total of benign tumors, with a higher frequency in men over 50 years. Authors consulted, point out that Warthin's tumor is more frequent in Caucasians than in other races people thus associating it as a possible risk factor to tobacco. Due to this factor, an increase in incidence is observed in women from developed countries^{6,14}. One of the comparative studies was conducted in hospitals in Nigeria, where exposure to tobacco is lower and most of the population is black, where no case of Warthin tumor was found. Unlike countries with a white or mulatto population and with a higher exposure to tobacco, such as Brazil with 5.8%, Mexico 7.3% and Turkey 6.3%, in which there was a slight increase of tumors. In the case of our hospital, the Warthin tumor is much more common than the rest of the authors consulted, while the number of the pleomorphic adenoma was similar.^(13,20,21,22,23,25,26)

Comparing our results with results of other authors, we have observed how the Warthin tumor can be unilateral or bilateral, where 5 patients of the 52 cases of our study have developed it in both parotid glands. This means that 9.8% of people can present bilateral Warthin tumor. Due to this it should be recommended study both parotids if this histological type of tumor.^(12,15)

Analyzing pleomorphic adenomas we have observed that 15% have relapsed. The characteristic of this finding is that 6 of them have been pleomorphic adenoma, and 4 of them have developed a tumor of different cells or „de novo tumor” of Warthin, reason why some authors consider that this could be an overexpression of a multicentric tumor, being unable to rule out the possibility that the first study

performed there was a failure in the diagnosis. The recurrence of the pleomorphic adenoma, according to the assessed studies, may be due to an incomplete excision of the tumor or a rupture of the tumor capsule during the operation, discarding the possibility of having performed incorrect surgical protocols.⁽¹⁵⁾

In some cases of Mikulicz's disease, systemic lupus erythematosus and Sjögren's syndrome changes are associated with lymphoepithelial tumor or Godwin's tumor.¹² In our study, we only have one case of this type of tumor related to Mikulicz's disease. The most characteristic of this type of disease is the symmetrical increase of the glands, almost always parotid and lacrimal. Our patient underwent surgery for the size of 5 cm of the tumor in the left parotid gland without bilateral involvement. Other studies report that patients remit with medical treatment without the need for surgical intervention.^(12,16)

CONCLUSIONS

As a result of our study, we establish the following conclusions:

1: All benign tumors were diagnosed by physical examination, ultrasound and FNAB, and all of them were treated surgically by parotidectomy.

2: The majority of tumors affected men, with the exception of the pleomorphic adenoma with female predominance.

3: They develop between fourth and fifth decade of life. More frequent in left gland, with an average tumor size of 3 cm.

4: The most frequent tumor is the pleomorphic adenoma with 54%, followed by the Warthin tumor with 42% of the total tumors. In 9.6% of people diagnosed as Warthin's tumor they developed bilaterally, with no detection bilaterality development in other histological types.

6: The data obtained in our study are similar to other studies of benign tumors of the parotid gland, however, it contradicts the incidence of Warthin tumor being higher in our population.

Sažetak

Uvod: Dobročudni tumori parotidne žlezde su retka i heterogena grupa tumora zbog svojih histoloških osobina. Njihova etiologija do sada nije bila poznata, iako su učestaliji kod pripadnika određenih rasa i ljudi izloženih duvanskom dimu i radijaciji. Učestali su od četvrte decenije života, Karakteriše ih masa sporog, asimptomatskog rasta, i retko se recidiviraju. Najveći broj se dijagnostikuje nakon kliničkog pregleda i iglene aspiracione biopsije. Leči se hirurškim putem. **Materijal i metode:** Retrospektivna i opisna studija benignih tumora je bila izvršena na južnom delu populacije ljudi sa Velikog Kanarskog ostrva i Fuerteventura ostrva. Studija je odrađena na tumorima parotidne žlezde koji su detektovani kod 123 pacijenta koji su pregledani na Klinici za maksilofacijalnu hirurgiju u Univerzitetskoj bolnici Las Palmasa u periodu od 2010 do 2015. **Rezultati:** Imajući u vidu pleomorfni adenom, rezultati nisu pokazali značajnu razliku između karakteristika u različitim kliničkim stadijumima. Ovaj tumor je dijagnostikovao kod 54% svih pacijenata sa tumorima, i češći je kod žena. Ali u proeđenju, Warthin tumor je pokazao veću učestalost u našoj populaciji, sa 42% učestalosti, od kojih se 9.6% razvilo bilateralno. **Zaključak:** Tumori su učestaliji u muškoj populaciji, sa izuzetkom pleomorfni adenoma. Naši rezultati su u saglasnosti sa studijama drugih autora o učestalosti pleomorfni adenoma, sa izuzetkom Warthin tumora koji su mnogo češći.

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