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Original Research Article

Characteristics Of Pleomorphic Adenoma at Oral and Maxillofacial Surgery Department Dr. Hasan Sadikin General Hospital Bandung Period 2017-2022

Muftihat Israr[1], Farah Asnely Putri[2], Eka Marwansyah Oli'i[2,3], Abel Tasman Yuza[2]

[1] Resident, Department of Oral and Maxillofacial Surgery, RSUP Dr. Hasan Sadikin, Faculty of Dentistry, Universitas Padjadjaran, Bandung, 40161, Indonesia

[2] Department of Oral and Maxilloacial Surgery, Faculty of Dentistry, Universitas Padjadjaran, Bandung, 40132, Indonesia

[3] Department of Oral and Maxillofacial Surgery, RSUP Dr. Hasan Sadikin, Bandung, 40161, Indonesia

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Corresponding author: Muftihat Israr
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Abstract

Introduction: Pleomorphic adenoma (benign mixed tumors) is the most common neoplasm affecting both major and minor salivary glands, slow growing, asymptomatic, and unilateral. The most affected location of the tumor is major salivary glands namely parotid glands and in minor salivary glands, it manifests in the intraoral, namely the palate region. This study aims to obtain information about the characteristics of patients with pleomorphic adenoma at the Oral and Maxillofacial Surgery Department of Hasan Sadikin General Hospital Bandung.

Methods: This study is a retrospective descriptive analysis method based on the medical data record of a patient who was diagnosed with pleomorphic adenoma and undergoing treatment at Oral and Maxillofacial Surgery Department of Hasan Sadikin General Hospital Bandung period 2017 to 2022. The data obtained include age, gender, patient domicile, tumor predilection location, supporting examination, and definitive treatment.

Results: The total participants in this study were 27 patients, with women 8 (70%), range at the age of 31-50 years old (30%). The majority of patients were from Bandung City (56%). Most of the lesion were found in major salivary glands was at parotid gland with 3 patient (10%) and in minor salivary was at the palate region with 18 patients (77%). Most common supporting examination used in this study were fine needle aspiration biopsy (FNAB), panoramic x-ray, and CT scan, with definitive treatment received by the respondent were surgical excision.

Conclusion: Pleomorphic adenomas are often occurred in women during third decade of life. The majority of the lesion occurred in minor salivary gland at the palate region. Surgical excision is most definitive treatment were performed.

Keywords: *Patient characteristics, pleomorphic Adenoma, salivary gland*

Introduction

Pleomorphic adenoma, also known as benign mixed tumor, is a common benign tumor of the salivary glands, accounting for two-thirds of all salivary gland tumors. Pleomorphic adenomas occur in the parotid salivary glands (85%), minor salivary glands (10%), and submandibular salivary

glands (5%). Nearly half of cases of pleomorphic adenomas occur in the parotid gland, some in the submandibular salivary glands, but most rarely in the sublingual salivary glands. Submandibular salivary gland tumors are most often malignant. Pleomorphic adenomas can occur in the minor salivary glands such as lips, cheeks, tongue, and floor of mouth.[1,2] Pleomorphic adenomas usually occur between the third and sixth decades of life, with a mean age of 43 to 46 years and female to male ratio of 2:1.[1]

Pleomorphic adenoma is a slow-growing tumor, its symptoms depend on its size, location, and potential for malignant transformation.[3] Pleomorphic adenoma manifests in the form of a well-defined lump or mass that is not attached to the skin, is mobile, and is usually asymptomatic.[1,2] Several predisposing factors that are suspected to cause pleomorphic adenoma include radiation exposure, genetics, tobacco use, chemical exposure, and viruses.[4] The diagnosis of pleomorphic adenoma is made through history taking, clinical examination, radiological examination, and histopathology as well as adjunct examination with fine needle aspiration biopsy.[5,6]

According to research data, the incidence of pleomorphic adenoma is 45 to 75 percent of all salivary gland tumors, with an incidence of two-thirds and a half cases per 100.000 inhabitants. The incidence of these tumors increases 15 to 20 years after radiation exposure.[3] Treatment of pleomorphic adenoma includes surgical excision. However, the recurrence rate of this tumor after surgery is very high around 2% to 3% at 5 years after the initial operation and even 7% at 20 years after the initial operation. Malignant transformation of pleomorphic adenoma occurs in approximately 0-23% of recurrent tumors and is known as carcinoma ex pleomorphic adenoma.[7]

Due to the high incidence and recurrence of pleomorphic adenomas after radical treatment and its potential transformation into malignant tumors, researchers are interested in studying the characteristics of pleomorphic adenomas at Dr. Hasan Sadikin General Hospital Bandung as the last referral hospital in West Java province. This study also can be used as information to determine the characteristics of pleomorphic adenoma in Indonesia, especially in the West Java province.

Methods

This research is a retrospective descriptive study using medical records of patients who were diagnosed with pleomorphic adenoma during 2017-2022 at OMFS Department Dr. Hasan Sadikin General Hospital Bandung. Other inclusion criteria are patients who were receiving treatment during the time given and completion of the accessible medical record. The variables studied in this research include age, gender, address, diagnosis, location of the lesion, adjunct examination, and definitive treatment. The data collection was conducted with a total sampling method using medical records of patients diagnosed with pleomorphic adenoma from January 2017 until December 2022 at OMFS Department Dr. Hasan Sadikin General Hospital Bandung. All the data collected is then computerized as a set of information. Before execution of the research, an ethical clearance letter has been obtained from the Research Ethics Committee of the Faculty of Medicine, Universitas Padjadjaran with ethics number 48/UN6.KEP/EC/2023.

Results

The data used in this research were secondary data collected from the medical records of patients with pleomorphic adenoma who were treated at OMFS Department Dr. Hasan Sadikin General Hospital Bandung during January 2017 - December 2022 to determine its characteristics based on age, gender, address, diagnosis, location of the lesion, adjunct examination, and definitive treatment. This research obtained 27 patient's data that fit the inclusion criteria. The characteristics of pleomorphic adenoma in patients at the Oral Surgery Department of Dr. Hasan Sadikin General Hospital Bandung are presented below.

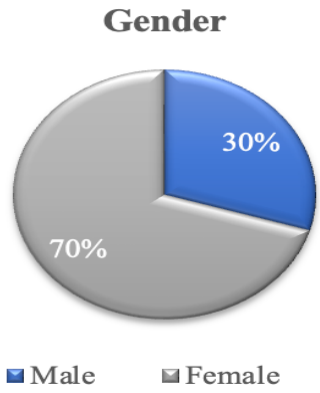

Diagram 1: Distribution of genders among patients with pleomorphic adenoma

Pleomorphic adenomas have been detected in as many as 27 patients, with the majority of these patients being female, accounting for 19 of the cases (70%) as seen in the diagram 1. According to the data in Diagram 2, the majority of those suffering from pleomorphic adenoma are 8 patients (30%) between the ages of 41 and 50. The minority is 4 patients (14%), between the ages of 11 and 30.

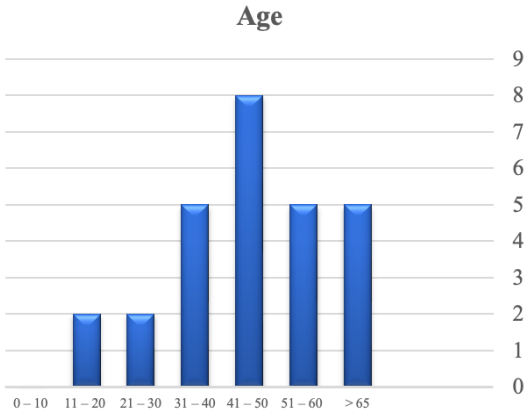

Diagram 2: Distribution of ages among patients with pleomorphic adenoma

Table 1: Distribution of patients' domicile

Patient's Domicile	Number (%)
Bandung	16 (57%)
Tasikmalaya	5 (19%)
Subang	1 (4%)
Soreang	1 (4%)
Baleendah	1 (4%)
Cimahi	1 (4%)
Sukabumi	1 (4%)
No data	1 (4%)

Based on the data in table 1, shows the domicile address of patients suffering from Pleomorphic Adenoma in the West Java area, the most common being in Bandung City with 16 patients (57%).

Table 2: The location preference of pleomorphic adenoma

Predilection Location	Number (%)
Major Salivary Gland	
Parotid gland	3 (10%)
Submandible gland	2 (7%)
Sublingual gland	2 (7%)
Minor Salivary Gland	
Palate	18 (62%)
Buccal	1 (4%)
Mental	2 (7%)
Mandible	1 (3%)

Table 2 illustrates the distribution of Pleomorphic Adenoma in the major salivary glands in 6 patients (23%) and the Parotid gland in 3 patients (10%), indicating the predilection location of these tumors in the major and minor salivary glands. There were 21 patients with pleomorphic adenomas in the minor salivary glands, with the palate region showing the highest predilection location in 18 patients (77%).

Table 3: Supporting examination in confirming the diagnosis of pleomorphic adenoma

Supporting Examination	Number (%)
Panoramik x-ray	19 (31%)
CT Scan Kepala Leher	13 (21%)
FNAB	18 (29%)
USG Massa	2 (3 %)
MRI	1 (2%)
Waters	2 (3%)
Biopsi insisi	5 (8%)
Data tidak tersedia	2 (3%)

Based on the data in table 3, supporting examinations that helped confirm the diagnosis of Pleomorphic Adenoma included a panoramic x-ray examination in 19 patients (33%) and a fine needle aspiration biopsy examination in 18 patients (32%). The least common examination was a magnetic resonance imaging (MRI) examination, which was performed in 1 patient (2%) while supporting examinations with incisional biopsy were carried out in 5 patients (2%).

Table 4: Definitive treatment of pleomorphic adenoma

Definitive Treatment	Number
Major Salivary Gland	
Parotidectomy superficial	1
Parotidectomy	1
Minor Salivary Gland	
Hemimaxillectomy	5
Enucleation	2
Extirpation	6
Excisional	7

Based on the data in table 4, the definitive treatment for Pleomorphic Adenoma was surgical excision followed by removal of the periosteum bone and salivary glands in 14 patients (52%).

Discussion

The purpose of this study is to examine the characteristics of Pleomorphic Adenoma that occurred and has been treated at the Oral and Maxillofacial Surgery Department in Dr. Hasan Sadikin General Hospital Bandung. The characteristics that were examined include age, gender, place of residence, tumor predilection location, supporting exams, and definitive treatment utilized. According to the research findings, 27 patients diagnosed with Pleomorphic Adenoma met the inclusion criteria between January 2017 and December 2022.

The majority of the patients with pleomorphic adenoma were found to be in the age range of 31 to 50 years old, with the majority of the patients being women. According to research Almeslet (2020) and Dheer (2023) found that most patients with pleomorphic adenomas in the salivary glands are female and that the age range for this condition's occurrence is 30 to 60 years, with an average of 43.90 years.[8,9]

Research data revealed that Bandung City, West Java, is home to the majority of patients with Pleomorphic Adenoma. More research is necessary because environmental or genetic factors could cause these variations.[9]

Pleomorphic adenoma is the most common tumor of the salivary glands. Its incidence rate can reach 85% in the major salivary glands, particularly the parotid gland, 10% in the minor salivary glands, and 5% in the submandibular glands. The floor of the mouth, lips, palate, and buccal regions are the most common locations for intraoral pleomorphic adenomas of minor salivary glands. Predilection locations for Pleomorphic Adenoma are distributed as follows according to study results, three patients (10%) have parotid gland predilection locations, and eighteen patients (77%) have palate regions as their primary predilection locations for minor salivary glands. This corresponds with research by Alsufyani (2021) that shows the hard palate (76.5%) to be the most common site for Pleomorphic Adenoma in the minor salivary glands, with the tongue and buccal area following at 5.9% and 5.9%, respectively. [5,9,10]

The Fine Needle Aspiration Biopsy (FNAB) method, panoramic x-ray, and contrast-enhanced CT scan of the head and neck were utilized as supporting examinations to help confirm the diagnosis in this study. Conventional radiography, such as panoramic x-ray, CT-scan, and MR, is the radiographic modality most frequently used for intraoral tumors, particularly those localized in the palate. Due to its ability to display images of tumor invasion in the nasal cavity, maxillary sinus, and bone, CT scan is considered the gold standard modality.[11]

Due to the pseudocapsule-like nature of Pleomorphic Adenoma, incisional biopsy is not recommended for confirming the diagnosis. Surgical excision is the appropriate definitive treatment for Pleomorphic Adenoma because the damaged tumor pseudocapsule will demonstrate the expansion of tumor cells into normal tissue when viewed under a microscope.[9]

Management of Pleomorphic Adenoma is differentiated according to the salivary glands involved, in the major salivary glands, especially the parotid glands, if it affects the superficial lobe of the parotid gland then the action taken is superficial parotidectomy, if it involves the deeper parotid lobe then the definitive therapy is total parotidectomy. Enucleation is not recommended because of the high risk of recurrence. Based on the results of this study, the treatment carried out for pleomorphic adenomas in the parotid salivary glands is surgical excision accompanied by removal of the involved salivary glands, namely by superficial parotidectomy.[9]

Treatment for Pleomorphic Adenoma in the minor salivary glands is surgical excision of the affected salivary glands along with the periosteum and

affected bone. Based on data from the results of this study, the majority of treatment for pleomorphic adenomas in the minor salivary glands is surgical excision by removing the periosteum and involved bone.[9,12]

Conclusion

Pleomorphic adenoma occurred more frequent in women, between the age range of 31–50 years. The most common pleomorphic adenoma occurred in the minor salivary gland at palate region. Surgical excision is the most frequent definitive therapy for patient.

It is necessary to carry out further research regarding the rate of recurrence and malignant transformation in pleomorphic adenoma to obtain accurate data for treatment evaluation.

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