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Original Research Article

A clinico-pathological study of minor salivary gland tumors: experience of our institute

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ABSTRACT

Background: Minor salivary glands are found throughout the entire upper aerodigestive tract. Minor salivary gland neoplasms represent less than 25% of intraoral salivary neoplasms. There are no uniform guidelines at present for treatment for minor salivary gland tumors as these are rare entities. The objective of the study was to evaluate the clinicopathological profile of minor salivary gland tumors and to evaluate follow up of patients after treatment.
Methods: The present study was a prospective observational study conducted on 11 patients of the Pacific Medical College and Hospital, Udaipur from 1 December 2020 to 31 December 2023 with complaints of intra-oral swelling with biopsy proven MSGT were included.
Results: Out of 11 patients, 7 were female and 4 were male. Highest incidence was found in patients in the 4th-5th decade of life. For most patients, painless swelling was the primary presentation. The most common site for minor salivary cancer was the hard palate 55%. The most common histological types were adenocystic carcinoma. In 10 cases complete surgical excision with clear margins was the preferred mode of treatment. In 1 palliative therapy was required. Among 11 patients, 2 required radiotherapy.
Conclusions: MSGT are rare, early diagnosed and resection with wide margins/neck dissections + SOS adjuvant therapy is key to treatment.

Keywords: Adenocystic carcinoma, MiSG, Palliative

INTRODUCTION

Minor salivary glands (MiSG) are found throughout the entire upper aerodigestive tract and lie within mucosa or submucosa. Minor salivary gland neoplasms represent less than 25% of intraoral salivary neoplasms. The sign and symptoms depend upon the anatomical site involved. The majority of patients diagnosed are in 5th to 6th decade, but tumors have been documented in children.[1,2] They have distinct characteristics, especially regarding frequency, distribution, and clinical aspects. These tumors are often malignant, in particular when compared to neoplasms of major salivary glands.[3-8] The incidence of salivary gland cancer (SGC) is 7-12 per 1,000,000. Most tumors arise in major salivary glands. Minor salivary gland tumors (MSGT) are a heterogenous and rare group of lesions. There are no uniform guidelines at present for treatment for minor salivary gland tumors as these are rare entities.

Aims and objectives

Aim and objectives of current study were to evaluate the clinicopathological profile of minor salivary gland tumors

in our institute and to evaluate follow up of patients after treatment.

METHODS

Study type, location and duration

Prospective observational study conducted on 11 patients of the study at Pacific Medical College and Hospital, Udaipur from 1 December 2020 to 31 April 2023.

Inclusion criteria

All the patients who presented to the outpatient department with complaints of intra-oral swelling (both painful and painless) with biopsy-proven MSGT were included.

Exclusion criteria

Patients those who are not fit for surgery, not willing for surgery, patients with distant metastasis, patients already underwent chemotherapy and non-biopsy proven MSGT were excluded from the study.

Procedure

Detailed history, thorough examination, and routine investigations were done. Patients underwent surgery and adjuvant therapy if required. Patients were followed up to till date postoperative and their status was analysed.

RESULTS

Age and sex distributions

Out of 11 patients, 7 were female and 4 were male, giving a ratio of 7:4 with age ranging from 22-55 years in this study. Highest incidence was found in patients in the 4^{th}-5^{th} decade of life followed by 3^{rd}-4th and 1 patient of age 22.

Clinical features

For most patients, painless swelling was the primary presentation as the chief complaint of the patient, only one patient presented with painful swelling.

Salivary gland tumour site

The most common site for minor salivary cancer was the hard palate 55% followed by retromolar trigone 18% and floor of mouth 9.09%, soft palate 9%, buccal mucosa 9%.

Histopathology

The most common histological types out of ten were, four had adenocystic carcinoma which is being most common tumor and accounted for 46% of all the cases followed by three were benign tumor (pleomorphic adenoma) 27%, two had clear cell carcinoma 18% and one had mucoepidermoid carcinoma 9% of minor salivary gland tumor.

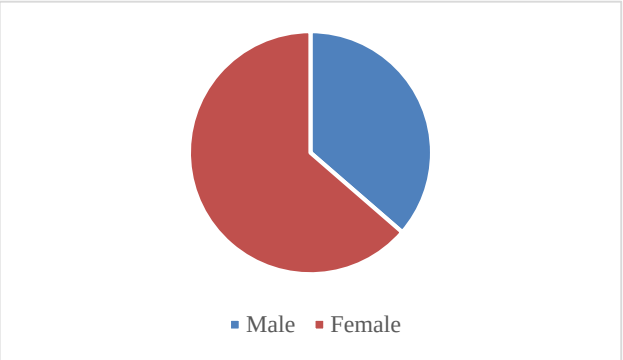

Figure 1: Sex based distribution.

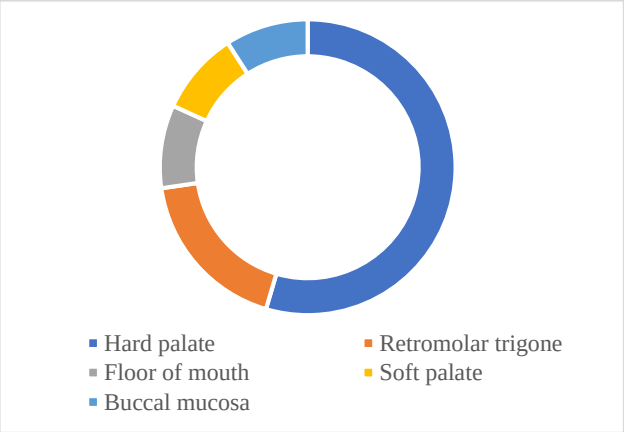

Figure 2: Distribution of tumor according to site.

Figure 3: Buccal mucosa as site of minor salivary gland tumor.

Treatment and outcomes

In 10 cases complete surgical excision with clear margins is the preferred mode of treatment for both benign and malignant intraoral MSGT. In 1 palliative therapy was required. Among 11 patients, 2 required radiotherapy.

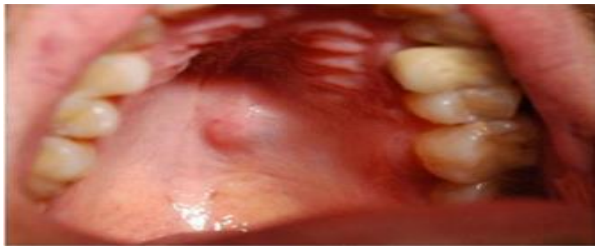

Figure 4: Hard palate as site of minor salivary gland tumor.

Follow up

Post treatment follow-ups were done for patients, out of 11 patients 2 patients turned up on 6th months, 3 patients turned up on 12 months, while 1 patient turned at 16th month, 1 on 18th month, 2 patients on 22 months and 1 patient at 24th month. For benign cases follow up was done within range of 6 months to 20 months and for malignant cases within range of 3 months to 24 months.

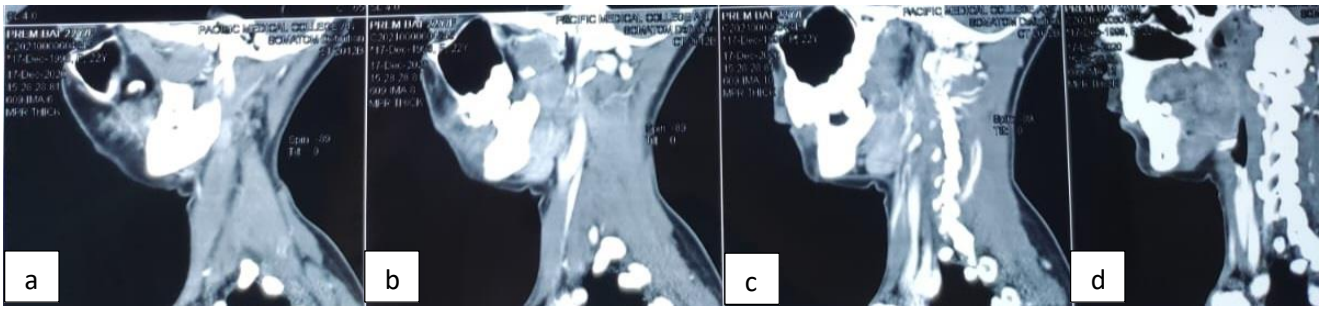

Figure 5: (a-d) CT-scan showing clear cell (sagittal section).

Table 1: Treatment and outcome in patients with minor salivary gland tumors.

Pathology	Operation	Outcome
Clear cell carcinoma	Wide excision+obturator	No recurrence
Adenoid cystic carcioma	Wide excision with neck dissection plus radiotherapy	No recurrence
Pleomorphic adenoma	Wide excision+Submental flap	No recurrence
Pleomorphic adenoma	Wide excision	No recurrence
Adenoid cystic carcioma	Wide excision	No recurrence
Adenoid cystic carcioma	Wide excision	No recurrence
Mucoepidermoid carcinoma	Wide excision+palatal flap with neck dissection	No recurrence
Clear cell carcinoma	Wide excision+rotation flap	No recurrence
Pleomorphic adenoma	Wide excision	No recurrence
Adenoid cystic carcinoma	Wide excision+nasolabial flat with neck dissection	No recurrence
Adenoid cystic carcinoma	Palliative therapy	-

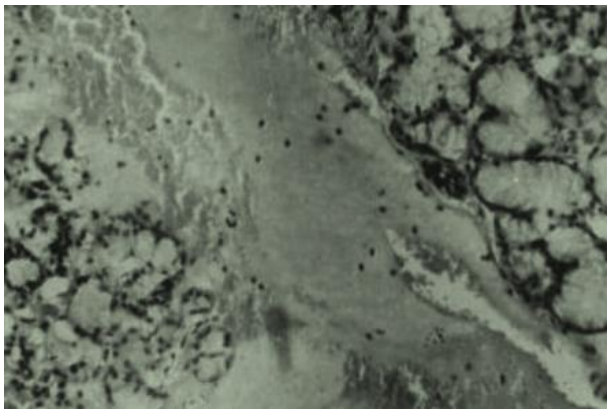

Figure 6: Pleomorphic adenoma in histopathological slide stained in Pas stain.

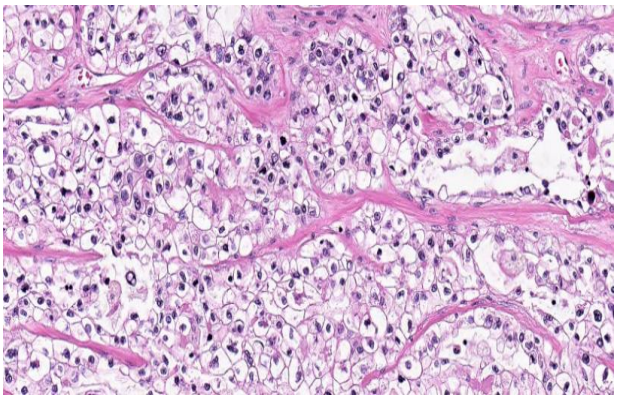

Figure 7: Clear cell carcinoma in histopathological slide in H&E stain.

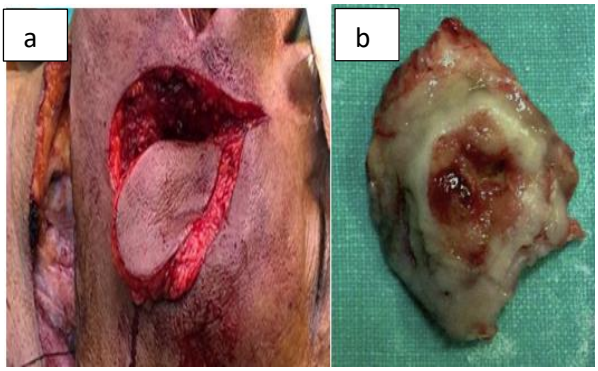

Figure 8: a) Wide local excision (left) and b) excised part of tumor (right).

DISCUSSION

The mucoepidermoid carcinoma, adenoid cystic carcinoma, clear cell carcinoma and pleomorphic adenoma are the most common tumors of the minor salivary glands. Clinical factors which would suggest the tumour may be malignant are pain, paraesthesia, rapid growth, facial/other nerve palsy, skin involvement, fixity, irregularity, ulceration and associated lymphadenopathy. No standardized treatment protocol exists for MSGT till date. Although there are several clinic-statistical studies on major salivary gland tumors of the head and neck, there are few reports about minor salivary gland tumors. CT±MRI is essential to estimate the anatomical location and extent of disease. An incisional or core biopsy determines the histologic type and grade. The preferred treatment for both benign and malignant intraoral MSGT is wide local resection with tumour-free margins. Most low-stage and low-grade tumors can be cured with surgery alone, other stages and grades require may postoperative radiotherapy. Neck should be treated if there is evidence of regional metastasis. Comparison of type, site, distribution and clinicopathological profile with other studies.

In the present study, tumours are more common in females (63.36%) than in males (36.36%). The age range of patients was from 32 years to 56 years. Our study is in accordance with the other studies where females were more common than males.[11,14-19] In a study done by Mishra et al female predominance was found at 59%, and males were 41%. Another study by Jansisyanont et al reported females 61.25% whereas males 38.75% however, few authors disagree.[13,21] In the present study, most of the tumors were malignant, with 72.72% and 27.27% were found to be benign. Our data is in agreement with other studies where they reported malignant being most commonly found.[13,14,17,18] A study done by Venkata et al found to be 75% malignant and 25% benign tumors, this is in co ordinance with our study.[17] The Hard palate 54.44% has been cited as the most common site for minor salivary gland tumors; other anatomical sites involved retromolar trigon, the floor of the mouth and buccal mucosa. This is in accordance with other studies.[11-14,16-21] Whereas in a study done by Venkata et al most common site was found to be buccal mucosa.[17] Adenocystic carcinoma was found to be most common in malignant tumors, followed by mucoepidermoid carcinoma. Our findings were in accord with other studies.[11,12,20,21] However, in a few studies, it was found mucoepidermoid carcinoma to be the most common.[14,16-18] Al-Khateeb et al found the most common malignant neoplasm to be adenoid cystic carcinoma (13%). Painless swelling was found to be the most common clinical feature in our cases. These findings were in accordance with other studies.[15,20] It did not significantly differ between benign and malignant tumours. As surgery has been the primary treatment option for resectable salivary gland carcinoma, and radiation is the main adjuvant therapy for tumours with high-risk factors. Nodal dissection should be done in case of regional metastasis. In our study, 10 patients underwent wide excision with positive margins clearance& defects were re-corrected with a variety of techniques, including obturator flap, palatal flap, and labial flap reconstruction. One patient out of 11 had distant metastases and required radiotherapy with chemotherapy. Also, for locoregional control, neck dissection was done in 3 patients out of 11. After 1 month to 24 months of follow-up. No recurrence was found.

Limitations

There are very few studies which is focused on the intra oral tumors, and the patients are under close and frequent follow up. And by the early diagnosis patient's quality of life has been improved.

CONCLUSION

MSGT are rare, often diagnosed early and resection with wide margins/neck dissections adjuvant therapy is key to treatment. Salivary gland tumors are uncommon and most reported series include tumors affecting both major and minor glands. Very few series have focused solely on intra-oral minor salivary gland tumors.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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