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RESEARCH ARTICLE

Unveiling the Spectrum of Parotid Gland Neoplasms: A Retrospective Analysis at a Tertiary Care Hospital

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Abstract

Parotid gland neoplasms, though uncommon, represent a diverse and challenging group of salivary gland tumours. They account for approximately 3% of all head and neck tumours, with the parotid being the most commonly affected gland. This retrospective study was conducted over one year at the Department of Pathology, Madurai Medical College. A total of 19 parotidectomy specimens were evaluated, out of which 15 were benign and 4 were malignant. Histopathological analysis revealed pleomorphic adenoma and Warthin's tumour as common benign tumours, whereas mucoepidermoid carcinoma and acinic cell carcinoma were identified among malignant cases. Understanding their histopathology contributes to accurate diagnosis and appropriate treatment planning.

Keywords: Mucoepidermoid Carcinoma, Parotid Gland Neoplasms, Pleomorphic Adenoma, Salivary Gland, Tumours

1. Introduction

Salivary gland neoplasms are rare, comprising 3% of head and neck tumours, with the parotid gland affected in 70% of cases[1]. They show diverse histology, often overlapping morphologically. Benign tumours are more common in females, while malignant ones have a slight male predominance[1].

2. Aim and Objectives

To analyse the demographic profile, clinical features, and histopathological patterns of parotid gland neoplasms in a tertiary care hospital, and to correlate these findings with the literature to support accurate diagnosis and effective management.

3. Review of Literature

Salivary gland tumours are rare, with parotid gland neoplasms constituting the majority of cases[1,2]. Epidemiological data suggest a higher prevalence in females, particularly for benign tumours, while malignant lesions show a slight male predilection[1]. Pleomorphic adenoma is the most common benign tumour, followed by Warthin's tumour[3,4]. Among malignant tumours, mucoepidermoid carcinoma is most frequently encountered[4,5]. Diagnosis relies heavily on histopathological examination due to the heterogeneity of these tumours[6]. Management varies from conservative parotidectomy for benign tumours to extensive surgery with adjuvant radiotherapy for malignant lesions[2,6]. This study aligns with established literature and contributes additional data from a South Indian population.

4. Materials and Methods

This retrospective observational study was conducted in the Department of Pathology, Madurai Medical College, over a period of one year from October 2022 to October 2023. A total of 19 surgically resected parotid gland specimens were included (Figures 1-4). All specimens were received in formalin, processed

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Figure 1. Pleomorphic adenoma: Gross picture.

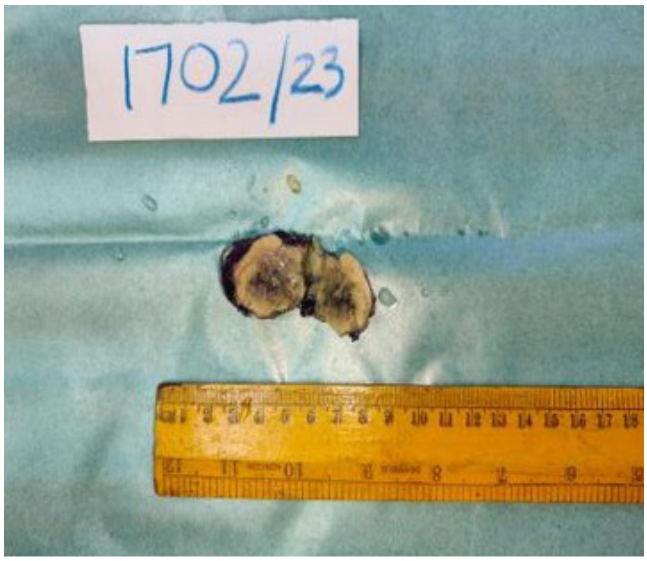

Figure 2. Warthin's tumour: Gross picture.

routinely, and embedded in paraffin blocks. Sections were stained with hematoxylin and eosin and examined microscopically for histopathological evaluation (Figure 5-8). Relevant clinical details such as age, sex, and tumour location were recorded. Inclusion criteria comprised all adequately preserved parotidectomy specimens with histologically confirmed neoplasms, while poorly preserved or incomplete specimens were excluded. The objective was to classify the tumours into benign and malignant categories and analyse their morphological features.

Figure 3. Mucoepidermoid carcinoma: Gross picture.

Figure 4. Acinic cell carcinoma: Gross picture.

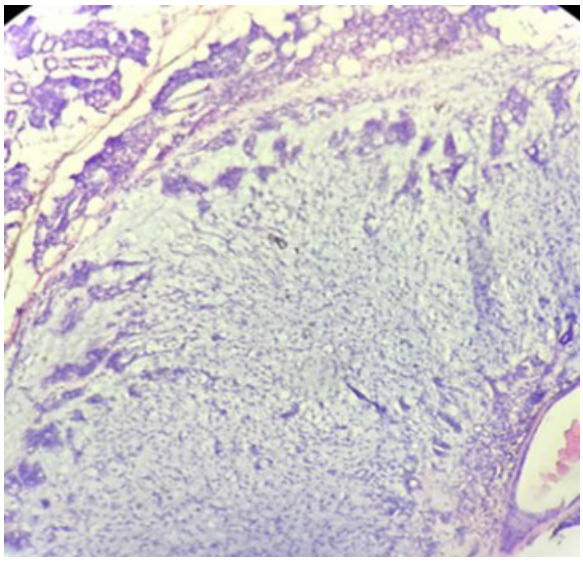

Figure 5. Pleomorphic adenoma: Microscopic picture.

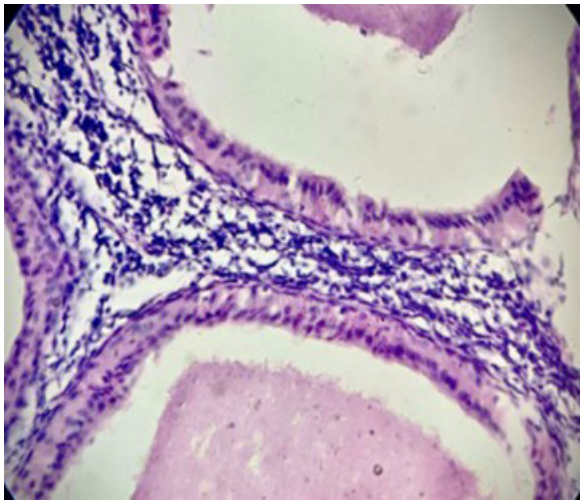

Figure 6. Warthin's tumour: Microscopic picture.

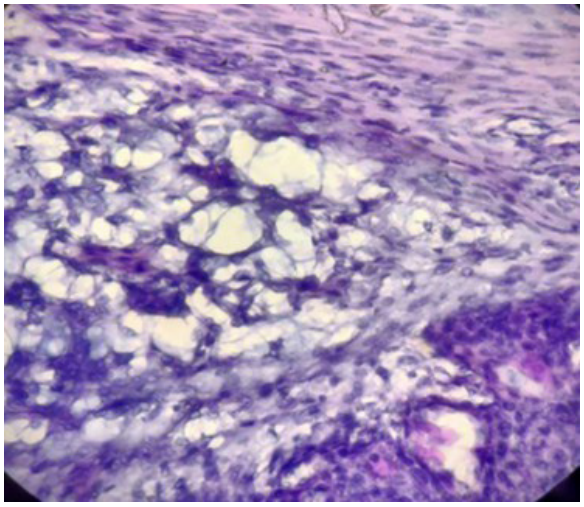

Figure 7. Mucoepidermoid carcinoma: Microscopic picture.

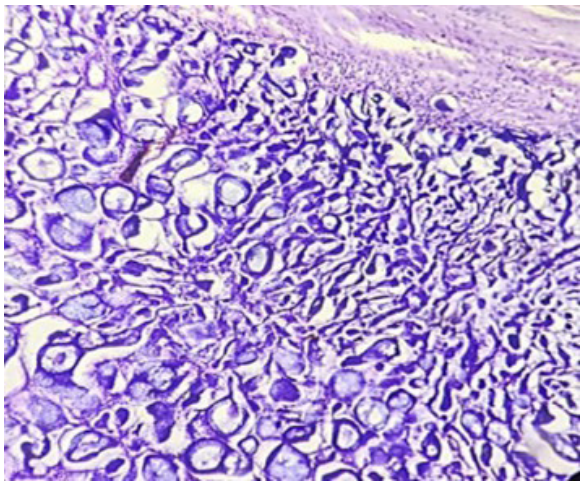

Figure 8. Acinic cell carcinoma: Microscopic picture.

Table 1. Benign parotid tumours (15 cases)

Diagnosis	Male	Female	Total cases	Percentage (%)
Pleomorphic adenoma	3	5	8	42.1%
Warthin tumour	3	4	7	36.8%
Total	6	9	15	78.9%

Table 2. Malignant parotid tumours (4 cases)

Diagnosis	Male	Female	Total cases	Percentage (%)
Mucoepidermoid carcinoma	1	1	2	10.5%
Acinic cell carcinoma	1	0	1	5.3%
Myoepithelial carcinoma	0	1	1	5.3%
Total	2	2	4	21.1%

5. Results (Including Observations)

Out of 19 parotid gland tumour specimens studied, 15 (79%) were benign (Table 1) and 4 (21%) were malignant (Table 2). Pleomorphic adenoma and Warthin's tumour were the common benign types (Table 1), while mucoepidermoid carcinoma and acinic cell carcinoma were observed among malignant cases (Table 2). Most patients presented with painless parotid swelling, with a slight female predominance in benign tumours. Tumour sizes ranged from 2 to 3.5 cm (Figures 1-8).

6. Discussion

Parotid gland neoplasms represent the most common subgroup of salivary gland tumours, accounting for approximately 64% to 80% of all primary epithelial salivary gland neoplasms[7]. Consistent with global data, our study also demonstrated a predominance of benign tumours over malignant ones (Tables 1, 2). Pleomorphic adenoma emerged as the most common benign tumour, followed by Warthin's tumour, aligning with previously reported literature[3-5] (Table 1). Mucoepidermoid carcinoma was the most frequently encountered malignant tumour, followed by acinic cell carcinoma[4,5] (Table 2). The typical clinical presentation in most cases was a painless swelling in the parotid region, highlighting the insidious nature of these tumours. A slight female predominance was

observed in benign neoplasms, whereas malignant cases did not show a definitive gender bias[1]. Surgical excision remains the mainstay of treatment. Superficial or total parotidectomy is preferred for benign tumours, while malignant tumours often require more extensive resection along with adjuvant radiotherapy to improve local control and survival[2,6]. Histopathological analysis remains indispensable for definitive diagnosis due to the overlapping morphological features seen in different tumour subtypes. The findings of this study are in concordance with established pathological and epidemiological trends, reinforcing the need for early diagnosis and individualised therapeutic strategies[1,7].

7. Summary and Conclusion

Parotid gland neoplasms, though infrequent, exhibit a wide histopathological spectrum, with benign tumours significantly outnumbering malignant counterparts. Pleomorphic adenoma emerged as the most prevalent benign lesion, while mucoepidermoid carcinoma was the most common malignant entity. Clinically, most patients presented with a painless parotid swelling. Accurate histopathological diagnosis is critical given the morphologic heterogeneity of these tumours. Timely recognition and precise classification are essential for guiding appropriate therapeutic interventions and optimising clinical outcomes.

8. References

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