

CORE NEEDLE BIOPSY IN DIAGNOSIS OF HEAD AND NECK MASSES

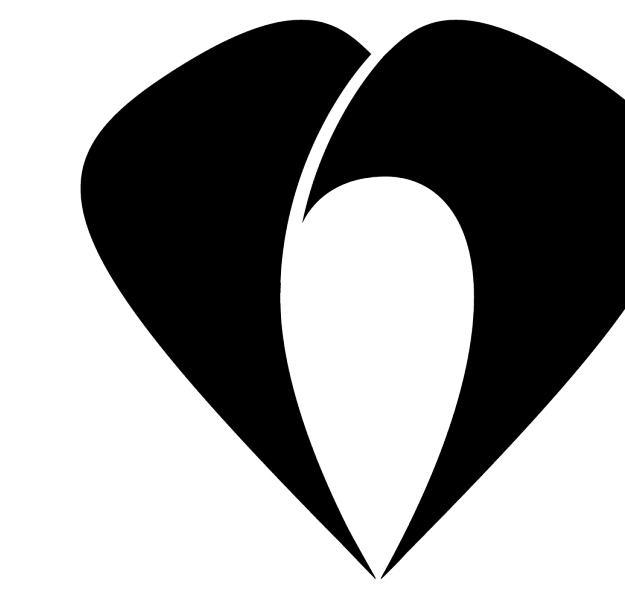
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Introduction

Head and neck masses are a common symptom in ENT. Their etiologies include neoplastic, which can pose a diagnostic challenge. While *Fine-Needle Aspiration Cytology* is commonly used, it often yields a high rate of non-diagnostic results. *Surgical biopsy* usually requires general anaesthesia and hospitalization. *Core Needle Biopsy* (CNB) is the least invasive method for obtaining tissue for histological examination. A total of 81 CNBs were performed in 2023. For the final statistical analysis, we included 39 biopsies for which the CNB result could be verified surgically.

Objectives

The aim of this study was to prove the clinical benefit of CNB in the diagnostic and therapeutic process of head and neck masses.

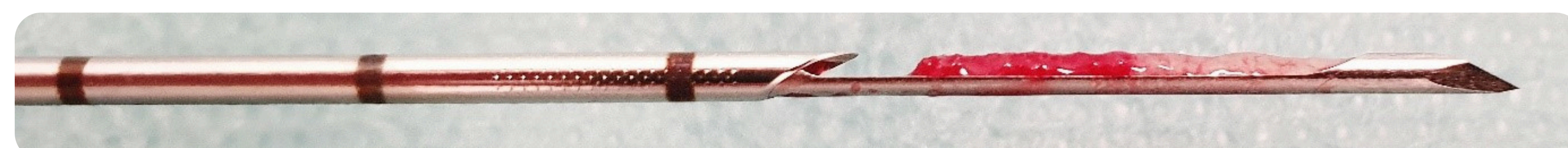


Figure 1 - Detail of the tip of a 16G biopsy needle with a tissue sample of a malignant melanoma metastasis in the parotid gland

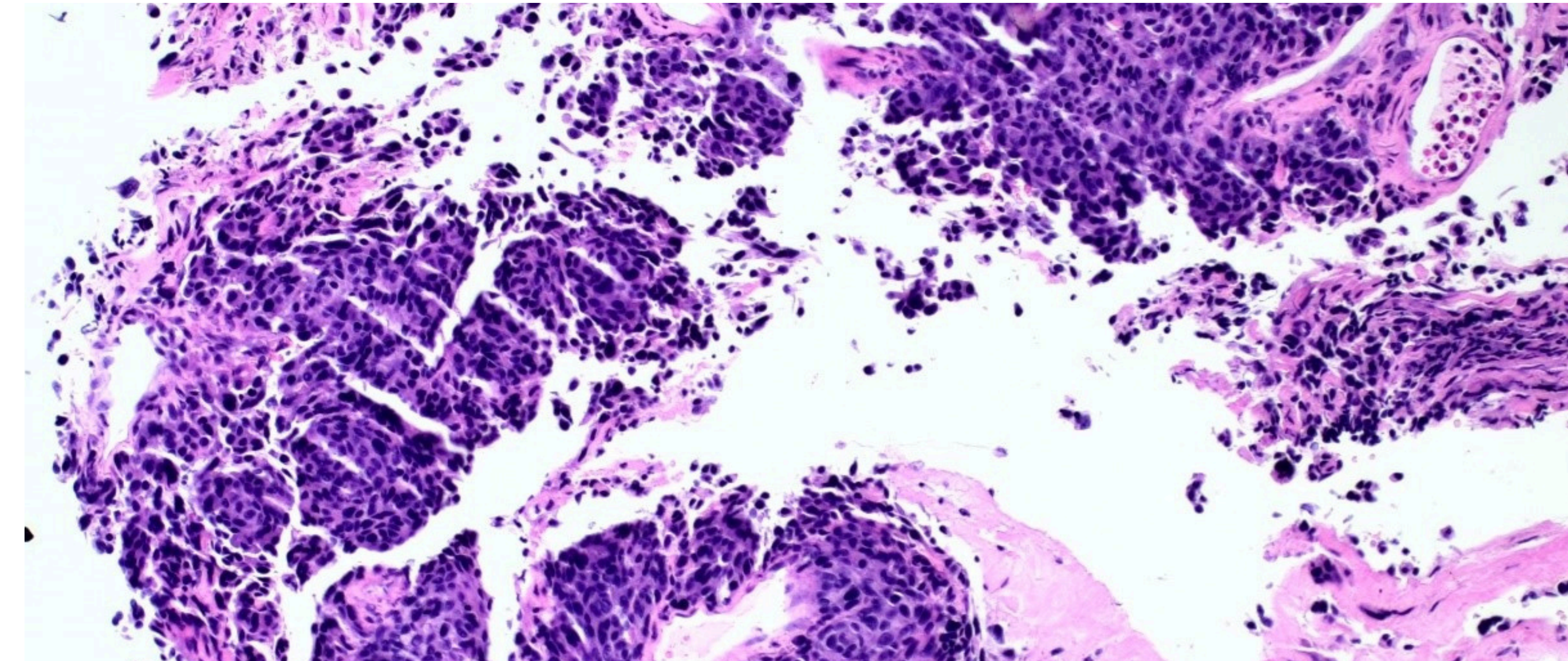


Figure 2 - Microscopic image of malignant melanoma of the parotid gland from the biopsy sample in Figure 1

Methodology

This retrospective study analysed a cohort of 74 patients. The data was divided into two groups: patients who *underwent only CNB* and patients *with results verified through surgical biopsy or radical surgery*. Within the *verified group*, statistical parameters were calculated. A group of patients *treated solely based on CNB results* was also formed.

| PATHOLOGIES | SENSITIVITY | SPECIFICITY | PPV | NPV |
|---------------------------|-------------|-------------|-------|--------|
| Squamous-cell Carcinoma | 84.6 % | 100 % | 100 % | 94.9 % |
| Warthin's Tumor | 100 % | 100 % | 100 % | 100 % |
| Pleomorphic Adenoma | 85.7 % | 100 % | 100 % | 97 % |
| lymphomas | 66.7 % | 100 % | 100 % | 97.3 % |
| malignant salivary tumors | 100 % | 100 % | 100 % | 100 % |

Figure 3 - Parameters calculated for the verified group

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Results

In the verified group we focused on the results of the most frequent pathologies: *Squamous-cell Carcinoma* (sensitivity: 84.6 %; specificity & PPV: 100 %; NPV: 94.9%), *Warthin's Tumor* (all parameters: 100 %), *Pleomorphic Adenoma* (sensitivity: 85.7 %; specificity & PPV: 100 %; NPV: 97 %), *lymphomas* (sensitivity: 66.7 %; specificity & PPV: 100 %; NPV: 97.3 %) and *malignant salivary tumors* (all parameters: 100 %). 19 patients from the non-verified group were treated solely based on CNB results without further verification.

| | | | |
|-------------------------|----|---------------------------|---|
| Squamous-cell Carcinoma | 12 | Melanoma | 1 |
| SLL/CLL | 2 | Colorectal Adenocarcinoma | 1 |
| Salivary Duct Carcinoma | 2 | | |

Figure 4 - List of pathologies with count of patients treated solely based on CNB results without further verification

Conclusion

The study demonstrated high sensitivity, specificity, PPV and NPV of CNB for the diagnosis of *Squamous-cell Carcinoma*, *Warthin's Tumor*, *Pleomorphic Adenoma* and *malignant salivary tumors*, while *lymphoma* diagnosis is limited by insufficient sensitivity. CNB also allows avoiding more invasive procedures in certain situations.