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Introduction

- Intranuclear cytoplasmic pseudoinclusions represent an invagination of the cytoplasm into the nucleus.
- Intranuclear cytoplasmic pseudoinclusions are a well-known feature of papillary thyroid carcinoma. However, they have also been described in different entities.
- We describe a case of a pleomorphic adenoma showing intranuclear cytoplasmic pseudoinclusions in a fine needle aspiration (FNA) sample.

Case Presentation

- A 63-year-old woman was referred due to presumed cervical lymphadenopathy. Physical examination revealed palpable right cervical lymphadenopathy at level 1B, possible level 2A that measured 3 cm. Fine needle aspiration was performed, six fixed smears were received and the material was submitted as right cervical lymph node FNA.
- Smears showed cohesive clusters of cells with nuclear enlargement, nuclear overlap, frequent intranuclear cytoplasmic pseudoinclusions and occasional nuclear grooves (Figure 1).
- Within the clinical context, the results were interpreted as “malignant cells composed of cohesive epithelial fragments with papillary structures and numerous intranuclear cytoplasmic pseudoinclusions consistent with papillary thyroid carcinoma”.

Case Presentation (Cont’)

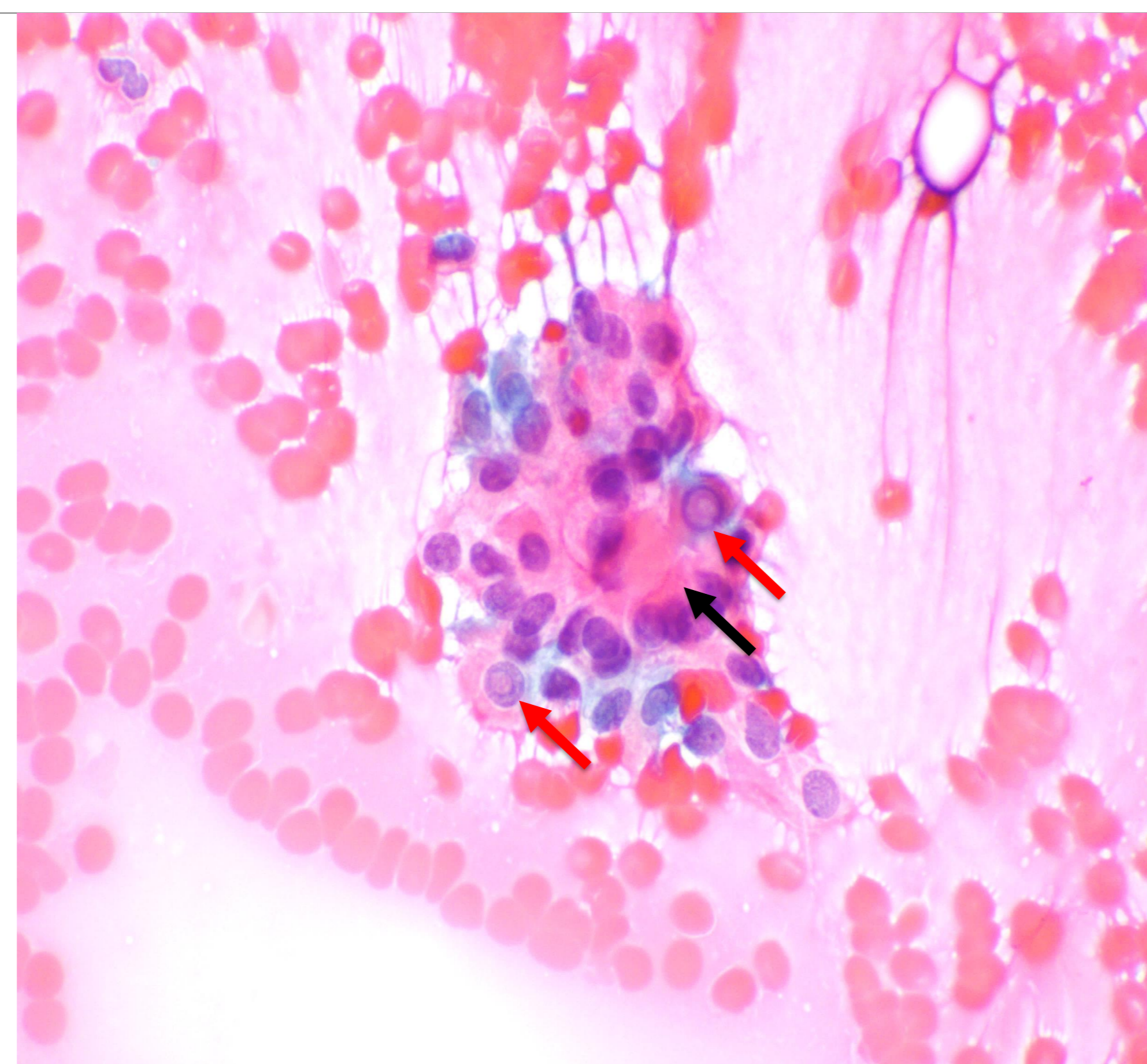


Figure 1 (PAP, 400 x): Thick pink material (Black arrow), suggestive of thick “bubble-gum” colloid and intra-nuclear cytoplasmic pseudoinclusions (Red arrows).

- Neck CT scan was subsequently performed showing a mildly enhancing, heterogeneous, round mass measuring 2.2 x 2 x 1.8 cm in the posterior aspect of the right submandibular gland. It failed to reveal any thyroid nodules or cervical lymphadenopathy.
- Surgical excision of the lesion was performed. On gross examination, a 2.6 cm, circumscribed, tan-pink and focally hemorrhagic nodule was seen.
- Microscopic examination of the lesion revealed the presence of a benign proliferation of epithelial and myoepithelial cells in a chondromyxoid background

Case Presentation (Cont’)

- diagnostic of a pleomorphic adenoma. While the chondromyxoid stroma was abundant in most of the sections taken, areas with scant stroma were also present (Figure 2A). Numerous intranuclear cytoplasmic pseudoinclusions were identified as well (Figure 2B).

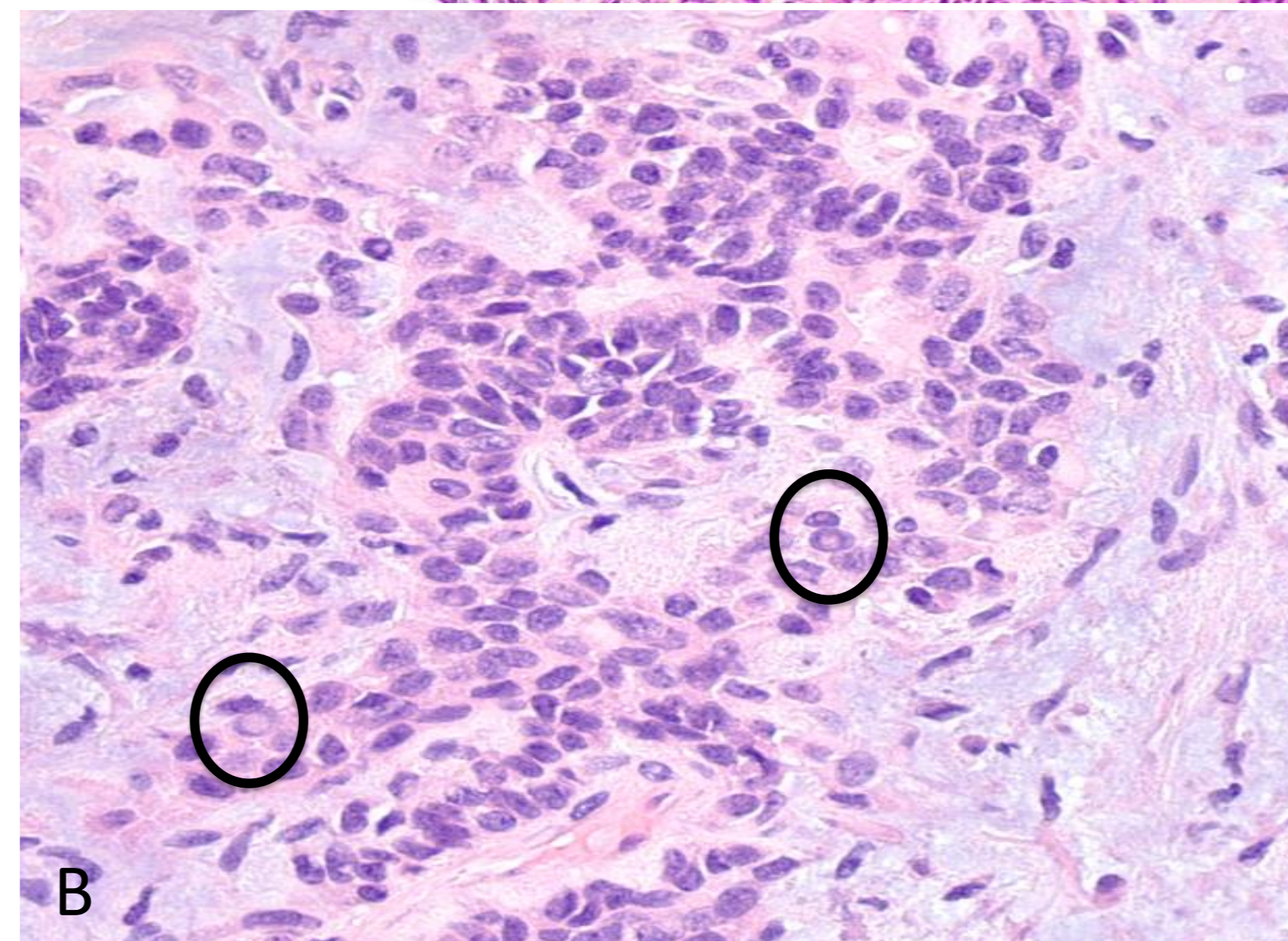
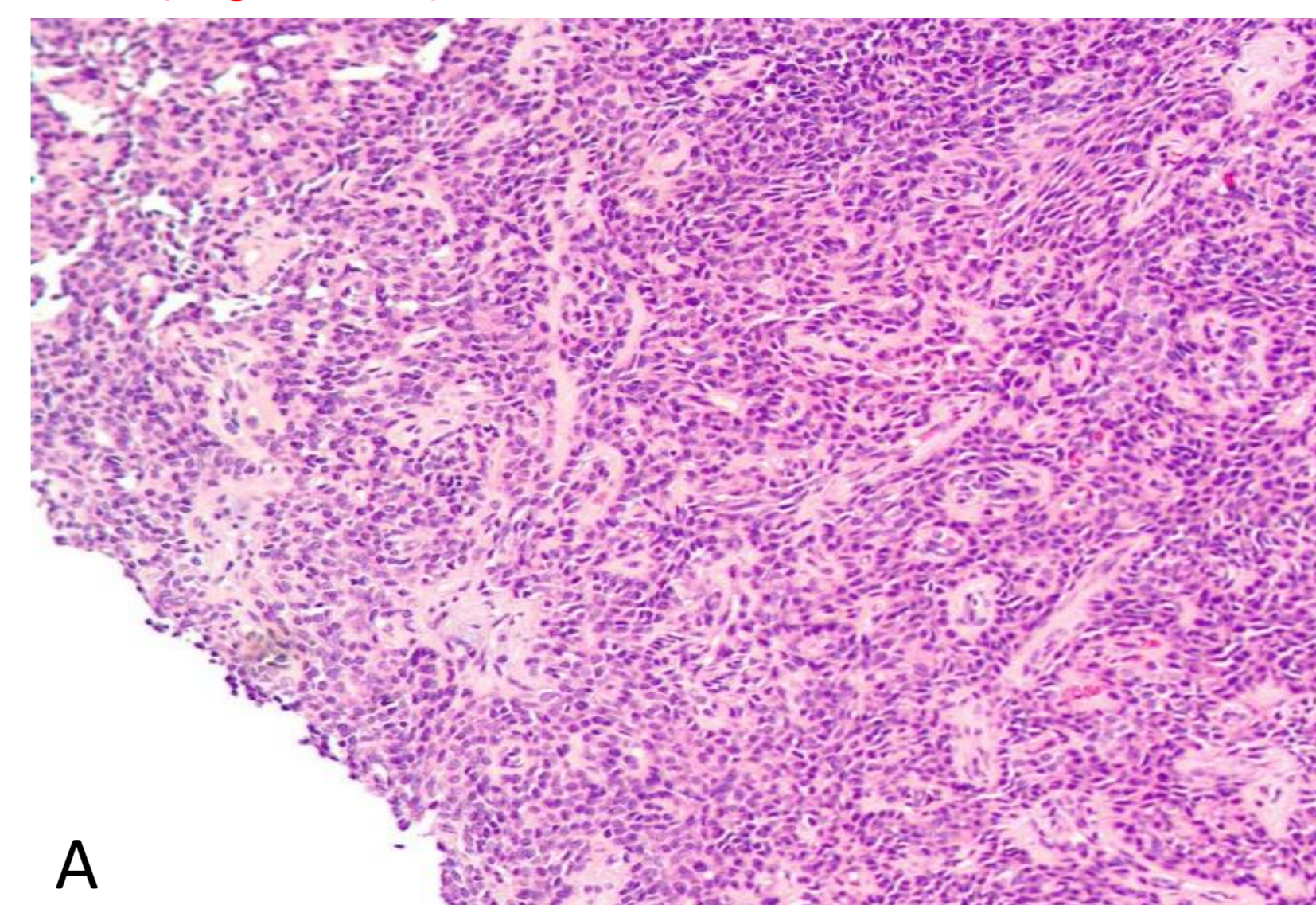


Figure 2 (H&E, 100X): A: The picture shows hypercellular areas, composed mainly of epithelial cells with paucity of the chondromyxoid stroma. B (H&E, 400 x): Occasional intranuclear cytoplasmic pseudoinclusions (circles) are seen.

Discussion

- To date three cases of intranuclear cytoplasmic pseudoinclusions in pleomorphic adenomas have been reported in the literature [1-3]. However, abundance of a chondromyxoid stroma as well as the plasmacytoid myoepithelial cells pointed out to the correct diagnosis in these three cases. Our case represents a unique diagnostic challenge given the misleading nature of the specimen (lymph node) and the paucity of the chondromyxoid stroma and myoepithelial cells in the fine needle aspiration specimen. We presume that the stroma-poor portions of the tumor (Figure 2A) were preferentially sampled.
- Along with the cohesive nature of the specimen and the presence of nuclear enlargement, intranuclear cytoplasmic pseudoinclusions and the colloid-like thick eosinophilic material lead to the erroneous diagnosis of papillary thyroid carcinoma.

Conclusion

- Caution is especially important when interpreting FNA samples from level 1 or level 2 cervical lymph nodes, given their close proximity to the submental and submandibular salivary glands. When epithelial cells are present in these samples, it is essential to consider the possibility of a salivary gland origin before diagnosing a metastatic carcinoma.

References

- Murty et al. 1993.
- Sironi et al. 1999.
- Saha et al. 2014.