Prevalence and Surgical Management of Benign Parotid Neoplasms in a Veteran Population

Louis Abarca, BA, Vlad Sandulache MD, PhD, David Hernandez, MD

Baylor College of Medicine; Houston, TX
Michael E. DeBakey Veterans Affairs Medical Center; Houston, TX

Introduction

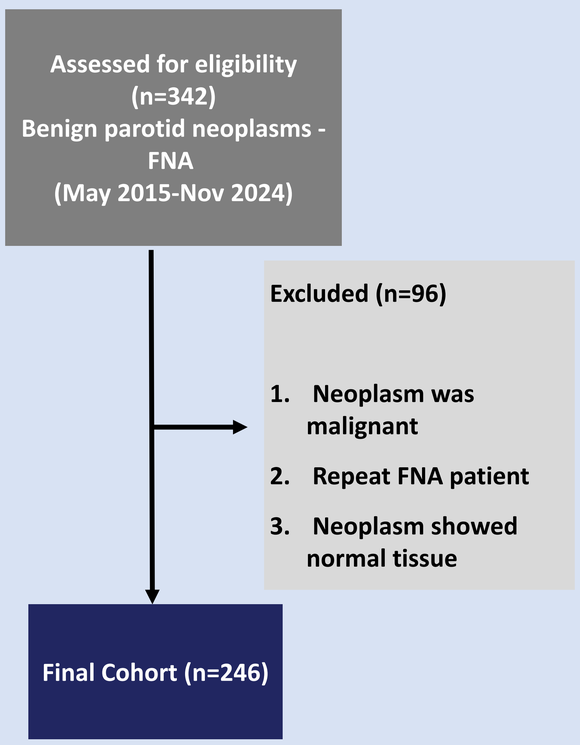
- Benign salivary gland tumors**: PA most common in civilians**; WT linked to tobacco exposure.
- **FNA widely used**, but diagnostic concordance varies. WT's heterogeneous features - necrotic areas, mucoid background, inflammation, and atypical squamous cells, highlight the diagnostic challenges and show that FNA diagnosis is not always straightforward.
- Veteran exposures (tobacco, military related toxins) may alter tumor patterns.

Objective

To evaluate the **distribution of benign parotid neoplasms in a veteran population** and assess the diagnostic accuracy of FNA compared with surgical pathology.

Methods

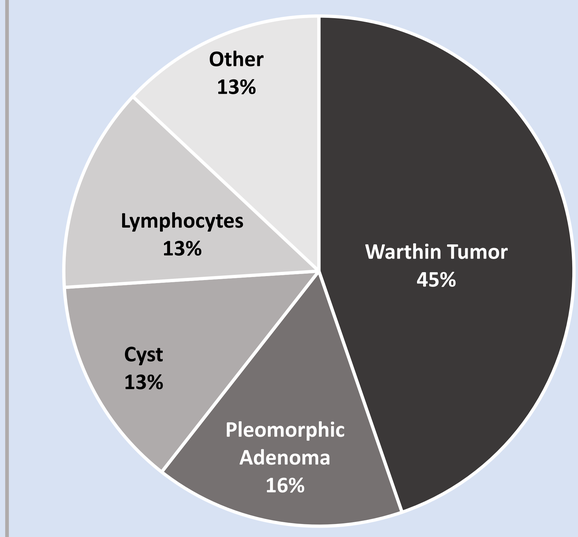
Retrospective cohort study conducted at the Michael E. DeBakey Veterans Affairs Medical Center for any veteran patient who were diagnosed with a parotid gland neoplasms from January 2018 to June 2024.



Results

Demographics of Veteran Population			
Sex, n (%)	**FNA Only**	**FNA + Surgical**	**Total**
Male (%)	147 (93%)	78 (89%)	**225 (91%)**
Woman (%)	11 (7%)	10 (11%)	21 (9%)
Age, years±SD	68.97±11.03	63.64±11.76	67.48±11.53
Race, n (%)			
White	92 (58%)	55 (62%)	**147 (60%)**
Black	62 (39%)	27(31%)	89 (36%)
Other	4 (3%)	6 (7%)	10 (4%)
Tobacco Use, n (%)			
History of Tobacco Use	113 (71%)	67 (76%)	**180 (73%)**
No History of Tobacco Use	45 (29%)	21 (24%)	66 (27%)

Benign Tumor Distribution



Additional Findings

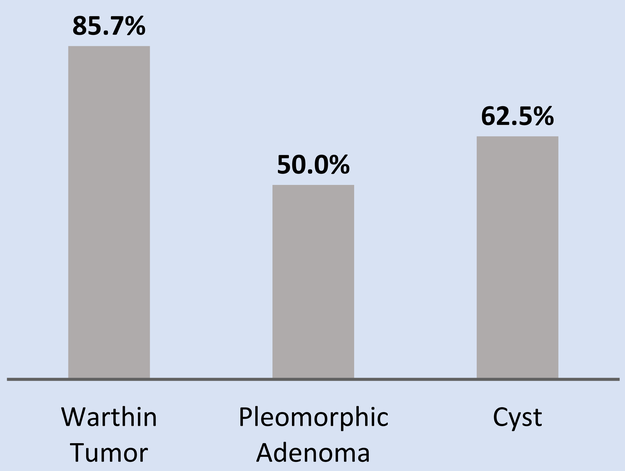
Diagnostic accuracy:
- FNA–surgical pathology concordance: **87.5%**

Complications (surgical patients):
- Overall low complication rate
- Most common: **sialocele/salivary fistula (8%)**

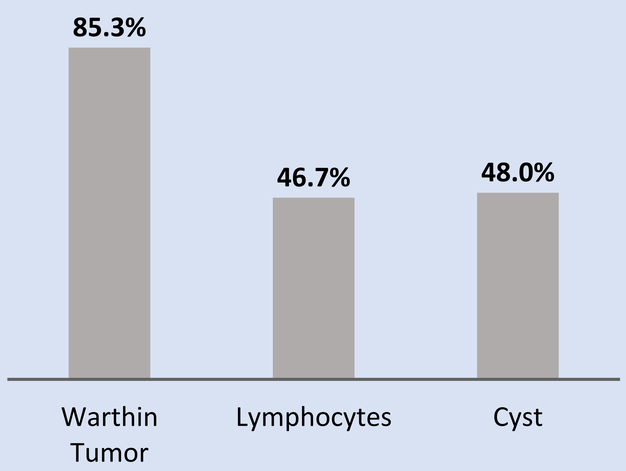
PET scan findings:
- Incidental avidity noted in **91% (20/22)** of patients

Smoking association:
- 10 pack-years more frequent in WT:
  - **85% (58/68)** vs **51% (36/70)** for PA, cysts, and lymphocytic tissue ($p<0.05$)
- Surgical cohort:
  - **84.8% (39/46)** of WTs vs **50% (16/32)** of PAs/cysts ($p<0.05$)

>10 Pack-Years – FNA + Surgical



>10 Pack-Years – FNA Only



Conclusion

- In this veteran and predominantly male population**, WT was the most prevalent parotid neoplasm**, strongly associated with heavy tobacco use.
- **The high degree of FNA and surgical pathology concordance** speaks to the adjusted pre-test probability of the cytopathologist and surgical pathologists that evaluate specimens in the veteran patient population.
- This agreement between pre-operative and surgical pathology **gives the surgeon confidence in the appropriate surgical approach to the disease.**
- **Recognizing FDG avidity** in benign tumors allows for more informed discussions with patients regarding prognosis.

Limitations

- Single Institution
- Predominantly male population
- Retrospective study design

Acknowledgements

I would like to thank Dr. Hernandez and Dr. Sandulache for their continued mentorship and support throughout the research process.

References

1. Alsanie I, Rajab S, Cottom H, et al. Distribution and Frequency of Salivary Gland Tumours: An International Multicenter Study. Head Neck Pathol. 2022;16(4):1043-1054. doi:10.1007/s12105-022-01459-0
2. Liu CC, Jethwa AR, Khariwala SS, Johnson J, Shin JJ. Sensitivity, Specificity, and Posttest Probability of Parotid Fine-Needle Aspiration: A Systematic Review and Meta-analysis. Otolaryngol Head Neck Surg. 2016;154(1):9-23. doi:10.1177/0194599815607841
3. Eytan DF, Yin LX, Maleki Z, et al. Utility of preoperative fine needle aspiration in parotid lesions. Laryngoscope. 2018;128(2):398-402. doi:10.1002/lary.26776
4. Cypel YS, Hamlett-Berry K, Barth SK, et al. Cigarette Smoking and Sociodemographic, Military, and Health Characteristics of Operation Enduring Freedom and Operation Iraqi Freedom Veterans: 2009-2011 National Health Study for a New Generation of US Veterans. Public Health Rep. 2016;131(5):714-727.
5. Trembley JH, Barach P, Tomáška JM, et al. Current understanding of the impact of United States military airborne hazards and burn pit exposures on respiratory health. Part Fibre Toxicol. 2024;21(1):43. Published 2024 Oct 21. doi:10.1186/s12989-024-00606-5
6. Sandulache VC, Hamblin J, Lai S, et al. Oropharyngeal squamous cell carcinoma in the veteran population: Association with traditional carcinogen exposure and poor clinical outcomes. Head Neck. 2015;37(9):1246-1253. doi:10.1002/hed.23740