ABSTRACT

Objective: Fine needle aspiration biopsy (FNA) is often utilized as a well-accepted and both sensitive and specific diagnostic adjunct in the workup of parotid masses. In the case of pleomorphic adenoma, the most common benign tumor of the parotid gland, we examine cytopathologic reports to assess the performance of FNA for this particular histologic diagnosis.

Methods: 317 patients who underwent parotidectomy over the last 5 years and met eligibility criteria of (1) primary parotid tumor, (2) age greater than 18, and (3) availability of pathology (FNA, intraoperative frozen section, final pathology) were reviewed. Clinical history and demographics, physical exam findings, and intraoperative findings were noted.

Results: Pleomorphic adenoma was noted on final pathology in 136 patients (42.9%). 96% of patients maintained that diagnosis on intraoperative frozen section, while the remainder were non-pleomorphic benign masses.

Conclusion: While FNA and frozen section are commonly utilized as preoperative diagnostic adjuncts for parotid masses, when FNA is diagnostic for pleomorphic adenoma, intraoperative frozen section may be of limited clinical benefit.

INTRODUCTION

FNA is a technique which has gained support as an adjunctive preoperative diagnostic modality though may not be performed in all cases secondary to either surgeon or patient preference. Zbaren (2008) noted accuracy, sensitivity, and specificity rates for FNA of 79%, 74%, and 88%, respectively. Seethala (2005) described improved sensitivity/specifity of FNA for benign masses over malignancy, with 88-98% versus 58-96%/71-88%, respectively.

Pleomorphic adenoma is the most common benign tumor of the parotid gland, commonly treated with surgical excision. In this investigation, we examine cytopathologic reports to assess the performance of FNA for this particular histologic diagnosis.

We specifically aim to address: (1) the need/benefit of intraoperative frozen section in the context of diagnostic FNA for pleomorphic adenoma, and (2) the specificity of FNA particularly for pleomorphic adenoma along with a cytopathologic review of the pleomorphic adenomas which were not identified on FNA and the accompanying clinical/operative implications.

METHODS

Three-hundred and seventeen (n=317) patients underwent parotidectomy between the years of 2005-2010. Eligibility criteria included: (1) primary parotid tumor, (2) age greater than 18, and (3) availability of 3 pathologic specimens (FNA, intraoperative frozen section, final pathology) all of which were reviewed. Clinical history and demographics, physical exam findings, and intraoperative findings were noted. Subsequent statistical analysis was performed.

FNA data was obtained from within the university system as well as outside reports to reflect the reality of clinical decision-making based on outside cytopathologic reviews.

FNAB reports were reviewed and classified as (1) "conclusive" (diagnostic) when a diagnosis was suggested, (2) "indeterminate" when sample contained adequate cellular/acellular material for cytopathologic evaluation, but not enough for diagnosis (only descriptive assessment was given by the cytopathologist), and (3) "insufficient" (non-diagnostic) when no meaningful material was available for cytopathologic evaluation.

RESULTS

Pleomorphic adenoma was noted on final pathology in 136 of 317 patients (42.9%) with a male: female distribution of 43% vs 57%, respectively. Within this overall group of 317 patients, 192 (61%) of the FNAs were considered by cytopathology to be "diagnostic." Within that diagnostic group (n=192), 115 (60%) FNAs were read by cytopathologist as consistent with pleomorphic adenoma.

Of the 115 diagnostic pleomorphic FNA samples, 96.5% (n=111), maintained that diagnosis on intraoperative frozen section. Of the 4 falsely diagnosed pleomorphic adenoma FNAs, 100% were benign. The benign intraoperative frozen diagnosis of all 4 patients was maintained on final pathology.

Of the 316 patients with final diagnosis of pleomorphic adenoma, 112 (82%) had been correctly identified on FNA. Interestingly 24 (17.6%) of these patients had initially undergone FNA and been given an incorrect diagnosis, despite the FNA being "diagnostic." Two (8%) FNAs were falsely identified as malignant, the remainder (92%) benign.

Of the 24 patients with incorrect diagnosis of pleomorphic on FNA, 15 (62.5%) received the correct diagnosis of pleomorphic adenoma with intraoperative frozen section, though one patient received false positive intraoperative frozen diagnosis of malignancy (low grade mucoepidermoid carcinoma), and one false positive for papillary thyroid carcinoma—both of which ended up as pleomorphic adenoma on final pathology.

CONCLUSIONS

For parotid masses, when FNA is diagnostic for pleomorphic adenoma, intraoperative frozen section may be of limited clinical benefit.

REFERENCES