Agreement between Rapid On-site Evaluation and Final Cytologic Diagnosis of Salivary Gland Specimens

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ABSTRACT

Objective: To evaluate diagnostic agreement and compare the performance (accuracy) between rapid onsite evaluation (ROSE) and the final cytologic diagnosis of salivary gland specimens.

Methods: Patients with salivary gland lesions who underwent fine-needle aspiration (FNA) with ROSE during 2009 to 2013 were evaluated. Patient clinical characteristics, ROSE, final cytologic diagnosis and histopathologic diagnosis were obtained. The cytologic diagnosis was categorized into six groups: benign, atypical, suspicious for malignancy, malignant, indeterminate and inadequate. Agreement and performance were assessed by Kappa statistic and receiver operating characteristic (ROC) curve analysis, respectively.

Results: A total of 347 patients (median age 52 years) underwent FNA with ROSE for 386 lesions including parotid glands (64.2%), submandibular glands (29.5%), and minor salivary glands (1.8%). On follow-up, 171 (44.3%) had the histopathologic diagnosis, 134 (34.7%) had clinical follow-up and 81 (21%) were lost to follow-up. Agreement between on-site and the final cytologic diagnosis was good to excellent (simple kappa = 76% [95% CI, 0.68-0.84]; weighted kappa = 81% [95% CI, 0.73-0.89]). The on-site interpretation was changed in the final cytologic diagnosis in 26 lesions (7.1%). The final cytologic interpretation yielded higher sensitivity (75% vs 69.23%) and similar specificity (91.59% vs 93.46%); however, no significant difference was found in performance between ROSE and the final cytologic diagnosis (area under the ROC curve = 82.39% vs 84.54%, p = 0.826).

Conclusions: There was excellent agreement and comparably good performance between rapid on-site and the final cytologic evaluation in detecting malignant lesions of salivary glands.

Keywords: Rapid on-site cytologic evaluation, salivary glands, accuracy.