A correlative study of fine needle aspiration cytology and histopathology findings in thyroid swellings

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BACKGROUND AND OBJECTIVE Swellings of thyroid are frequently encountered in surgical practice. Clinical evaluation helps in diagnosis but it is difficult to distinguish the early malignant lesions from the more prevalent benign goitres. A radionuclide scan with Radioiodine or Technetium scan help in diagnosis but fails to establish accurate histological nature. USG can only differentiate solid from cystic swellings. Surgical excision has been the only means by which precise diagnosis of the swelling could be made based on HPE. An alternative approach other than operative is called for, since most swellings are benign. FNAC is a simpler and safer procedure, carried out in OPD with minimum equipment and has a good patient compliance. This study aims at correlating the cytological diagnosis with the final histological diagnosis to evaluate the sensitivity, specificity and positive predictive value of smears. Thereby its role in the preoperative diagnosis of thyroid swellings is assessed in planning proper management. METHODS A proforma will be drafted for the study of all patients, who present with palpable thyroid swellings and undergo surgery at this hospital. Clinical presentations, FNAC findings and HPE findings will be documented. Only those patients, whose specimen contains adequate material will be included for the study. A few cases of toxic goitres are also included to complete the gamut of pathological thyroid swellings. Those patients whose clinical findings and lab investigations affect the cytological criteria are excluded to avoid bias.

RESULTS 615 patients who presented with palpable thyroid swellings during the study period from November 2009 to June 2011 were subjected to fine needle aspiration cytology. Of these 52 turned out to be unsatisfactory, as aspirate consisted only of blood. Of the remaining 563 cases, 130 patients underwent surgery at this hospital. The histopathological diagnosis was compared with cytological diagnosis in these patients. The majority of the patients were in their 3rd and 4th decade of life. 115 were females and 15 were males, the female to male ratio being 7.66:1. Whereas only 9 cases were diagnosed as thyroiditis cytologically, 13 cases were proved to be so histologically, 10 Hashimoto’s thyroiditis and 3 lymphocytic thyroiditis. A few cases of toxic goitres were included in the study to include the entire gamut of thyroid diseases with due care. Whereas 2 cases were reported as toxic goitres cytologically and proven histopathologically. Of the 121 cases reported cytologically as benign, 117 cases proved to be so histologically. Of the remaining 4 cases, 1 turned out to be papillary carcinoma, 1 follicular carcinoma, 2 were Hashimoto’s thyroiditis. The accuracy of FNAC in the diagnosis of benign lesions was 96.69%. The predictive values of FNAC in the present series are: Sensitivity – 75%; Specificity – 99.15%; Overall accuracy – 96.92%; Predictive value of a positive result – 90%. INTERPRETATION AND CONCLUSION The majority of our patients were in the third to fourth decade of life, females being predominant. The majority of the cases were benign, of which multinodular goitre was the most common pathology (35.38%). Among the malignancies, the majority of the cases were papillary carcinomas (76.92%). The sensitivity, specificity and predictive value of positive smears were 75%, 99.15% and 90% respectively. FNAC was of greater help in the preoperative diagnosis of thyroid swellings. Multinodular goitres and colloid goitres were easily diagnosed by FNAC, but confusion prevailed in cases of follicular adenomas. Difficulty was experienced in distinguishing Hashimoto’s thyroiditis from hyperplastic nodular goitre. Majority of our patients are rural folks, who cannot be followed up regularly and for long time, hence clinical suspicion of malignancy should be one of the indications of surgery, inspite of FNAC report being negative. FNAC is simpler, safer, quicker and more informative, compared to other sophisticated investigations in the diagnosis of thyroid lesions. It should be exploited to its maximum benefit on all thyroid swellings.

Abstract:

Fine needle aspiration cytology (FNAC) is being increasingly used in the diagnosis of salivary gland lesions. The objective of this study was to evaluate the diagnostic accuracy and the sensitivity and specificity of FNAC in various salivary gland lesions in correlation with their histopathology, which helps in the appropriate therapeutic management. Methods: A total of 120 FNACs were done on salivary gland tumours from July 2010 to June 2012 in the Department of Pathology, P.D.U. Government Medical College, Rajkot (Gujarat, India). Formalin fixed (10%), surgically resected specimens were rece In conclusion, fine needle aspiration cytology is cost effective, simple procedure that has great patient acceptance and as an initial screening test provides the diagnosis with high degree of accuracy thereby limiting the number of surgeries in benign conditions of thyroid gland. A negative diagnosis should be followed up with repeat ultrasound and FNA should be repeated in suspicious cases. Correlation of cytology and histopathology is an important quality assurance measure. Fine needle aspiration of thyroid nodules : a study of 4703 patients with histologic and clinical correlations.Cancer.2007;111:306-15. 7Hall TL, Layfield LJ, Philippe A, Rosenthal DL. Source of diagnostic error in the fine needle aspiration of the thyroid. Cancer 1989;63:718-25.