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UTILIZATION AND RELIABILITY OF FINE NEEDLE ASPIRATION IN THYROIDECTOMY CASES

Ibrahim Sumaily¹, Ramzi Daghri¹, Majed Assiri¹, Mohammad Alshareef¹
and Mubarak Alqahtani²

¹ORL-HNS Department, Asir Central Hospital, KSA

²King Faisal Medical City, Asir Region, KSA

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ABSTRACT

Introduction: fine needle aspiration (FNA) for cytology is one of the most common investigational modality utilized by head and neck surgeon as it has a high sensitivity and specificity all through the literature. In patients with thyroid nodule, FNA is almost a must, and it should be included in the surgeon decision. Herein we studied the utilization of FNA and its reliability in thyroidectomy cases.

Method: a retrospective study. We reviewed the records of 214 patients who underwent total or hemi thyroidectomy between 2010 to 2016. We reviewed the use of FNA and compared it with final histopathology results.

Results: out of the 214 patients, 183 patients met the inclusion criteria. 80.3% females and 19.7% males. 42.1% operated by ENT, and 57.9% by GS. 37.2% have no FNA diagnosis pre operatively. Of them 22% came to be malignant tumor, and 78% benign. 65% of those who were operated without FNA diagnosis were operated by GS and 35% by ENT. FNA found to be highly specific and sensitive, especially for malignant tumors where specificity was 100% and sensitivity was 65.2%.

Conclusion: FNA showed a high sensitivity and specificity for thyroid nodule. We recommend to distribute a memo to mandate doing FNA for any patient going for thyroid surgery.

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INTRODUCTION

Aim

Fine needle aspiration (FNA) for cytology is one of the most common investigational modality utilized by all surgeon. In head and neck it is more commonly used and it has a high sensitivity and specificity all through the literature. In patients with thyroid nodule, FNA is almost a must, and it should be included in the surgeon decision. Herein we studied the utilization of FNA in our center (Asir Central Hospital) and its reliability in thyroidectomy cases.

METHOD

A retrospective study we reviewed the records of 214 patients who underwent total or hemi-thyroidectomy between 2010 to 2016. We reviewed the use of FNA and compared it with final histopathology results. Also we document the percentage of those who underwent thyroid surgery without FNA diagnosis either by ENT or GS team. Inclusion criteria: Tissue diagnosis is available. Exclusion criteria: All patient with completion procedure, those with repeated FNA more than 3 times and it

came with no clear diagnosis and those with incomplete records. SPSS v.22 used for data analysis.

Candidates divided into 2 groups

Group 1: FNA diagnosis obtained preoperatively, in them we studied the reliability of FNA.

Group 2: Those without FNA diagnosis preoperatively, in them we define the final diagnosis and studied the impact of this practice on patient management.

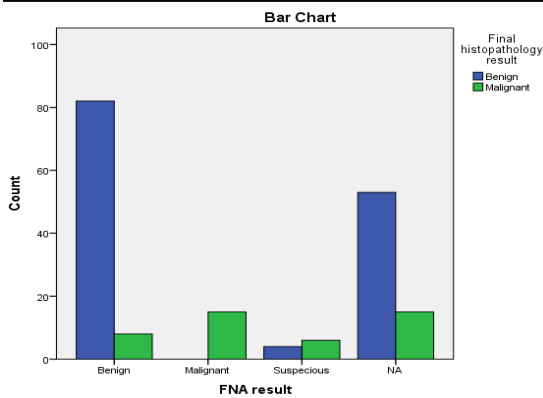
Limitations: Those with suspicious FNA or bloody sample or not enough cells for cytological assessment in the first sample and the surgeon decided to go for surgery before getting another FNA were considered in second group.

RESULTS

Out of the 214 patients, 183 patients met the inclusion criteria. 80.3% females and 19.7% males. The mean age was 40 years old. 42.1% operated by ENT, and 57.9% by GS. 37.2% have no FNA diagnosis pre operatively. Of them 22% came to be malignant tumor (15 cases) and 78% benign. Of those who were operated without FNA diagnosis 65% were operated by

GS and 35% by ENT. All those who were operated without FNA diagnosis found being labeled preoperatively as multinodular goiter depending on radiological findings only. FNA specificity for malignant tumors was 100%. And sensitivity were 65.2%.

			Final histopathology result		Total
			Benign	Malignant	
FNA result	Benign	Count	82	8	90
		% within Final histopathology result	59.0%	18.2%	49.2%
	Malignant	Count	0	15	15
		% within Final histopathology result	0.0%	34.1%	8.2%
	Suspicious	Count	4	6	10
		% within Final histopathology result	2.9%	13.6%	5.5%
	NA	Count	53	15	68
		% within Final histopathology result	38.1%	34.1%	37.2%
Total	Count	139	44	183	
	% within Final histopathology result	100.0%	100.0%	100.0%	



DISCUSSION

FNA is a well known diagnostic modality for thyroid nodule, and all the recent guidelines do recommend it strongly.¹ Some studies mentioned that FNA may be not needed in some cases like: cases solitary nodules in patients who have a strong family history of thyroid cancer, multiple endocrine neoplasia type II, history of radiation to the head and neck, multinodular goiter and compressive symptoms, patients who have Graves disease and a thyroid nodule, patients who have large (greater than 4 cm) or symptomatic unilateral thyroid nodules, and patients who have a solitary hyperfunctioning nodule.² Depending on such studies, some surgeon are doing thyroidectomy in some cases without FNA. In the English literature, up to our knowledge, only one study tackled the utilization of FNA in thyroid cases among surgeon in US and UK centers in 2003, and showed it is 84% vs. 52% respectively.³ We studied this practice and its impact on the patient care, and found that it is common and it may badly affect the initial management.

Some cases went for hemithyroidectomy while having malignant pathology mandating total thyroidectomy as an initial management procedure for them. Also other patients underwent thyroidectomy only while they were in need for proper staging as well as neck dissection. The reliability of FNA is well studied and showed varying degree of sensitivity for malignant nodules. It is affected by the nodule size, guidance, and experience.^{4,5}

Musani *et al.* found the FNA thyroid specificity 98.9% and sensitivity 61.53%.⁶ Asli Muratli *et al.* found less results for specificity and sensitivity, (87.1% and 64.6% respectively).⁷ In our study, FNA found to be highly specific in malignant tumors (100%) and moderate sensitivity (65.2%). Depending on ultrasound findings of thyroid nodule is not enough to label the patient as multinodular goiter and proceed to thyroid surgery without FNA diagnosis. Salini Sumangala *et al.* studied the reliability of ultrasound findings in thyroid nodule to rule out malignancy and found that more than 10% of the cases which seem to be benign found to be malignant.⁸

CONCLUSION

FNA is a very important tool in approaching any patient going for thyroid surgery and should be employed in the decision of the surgery type. It showed a high specificity and sensitivity in the diagnosis of thyroid nodule. There was a high percentage of patient who underwent thyroidectomy without FNA. Some of them found to have malignant tumor. Therefore their management was relatively inappropriate. We recommend to distribute a memo to mandate doing FNA for any patient going for thyroid surgery.

Disclosure: The authors declare that there is no conflict of interest in conducting or publishing this study.

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