



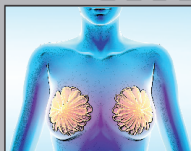
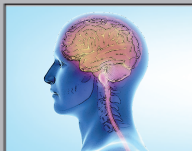
**asia medical specialists**

亞 洲 專 科 醫 生



ISO 9001:2015  
FS 550968

## My thyroid has nodules! What shall I do?



Nodular thyroid disorder is common (5~10%) but solitary nodules in the thyroid are found in 0.22~1.35% among paediatrics and 4.0% in the adult population. The goal in the evaluation of a solitary thyroid nodule is to differentiate true neoplasms from the rest of a multitude of thyroid conditions.

Introduction

The prevalence of thyroid nodules in any population will depend on various factors which include... sex, age,diet, iodine deficiency and also to the likelihood of radiation exposure be it environmental or therapeutic. Thyroid nodules are more common in females and the prevalence increases with age such that 5% of the population aged 60 years will have a thyroid nodule. There is also a direct dose response relation of thyroid nodularity to radiation exposure to the head and neck region (i.e. treatment for acne in early 20th century, and such).

Although thyroid nodules are less common in the paediatric population, the risk of malignancy among these nodules (15~20% of the thyroid nodules) is much higher when compared to the adult. The majority of nodules in children are benign but as thyroid cancer is considered more aggressive among children, accurate and timely diagnosis is critical.

Initial Evaluation

A comprehensive history (of the neck mass, past medical and family) with a careful examination of the head and neck region is important. Symptoms of neck pain, stridor, dysphagia as such increase clinical suspicion but are not diagnostic. Physical characteristics of the neck are also poor predictors of malignancy.

Malignant	Benign
<20 Age >70 Male	Family history of auto-immune disease
Past history of Thyroid Ca	History of benign nodule/goiter
History of Neck Radiation	Presence of thyroid hormonal dysfunction
Symptoms of dysphagia	Pain /tenderness of nodule
Firm/hard nodule	Soft smooth nodule
Lymphadenopathy	

Table 1 Indications for malignant vs. benign nodule

Recent change in size, fixation or invasion of adjacent tissues and presence of palpable lymphadenopathy are suggestive of malignancy. Vocal cord paralysis is not an absolute indicator of malignancy as this can be associated with benign conditions.

Thyroid function tests should be undertaken as routine investigation of a solitary thyroid nodule but this is usually normal in patients with thyroid cancer. Serum thyroglobulin level should not be taken at this stage as benign thyroid conditions can also cause an elevation.

Imaging

The various options available for imaging all have different advantages and disadvantages.

Mode		Pros	Cons	Remarks
Ultrasound	✓ ✓ ✓	Safe, effective, sizes, differentiates solid vs cystic	Picks up “incidentalomas”!!	Useful to guide FNA
Radionuclide	✓	Safe	Inability to 1. delineate nodules clearly 2. differentiate functional status	I [123] and Tc [99m]
CT	✓	Useful to assess invasion / compression of trachea, mediastinal masses, recurrent disease	Cannot use iodinated contrast agent	Limited role in the initial investigation
MRI	?			
PET	?			

Table 2 Different modalities of imaging thyroid nodule(s) and neck structures

Fine Needle Aspiration Biopsy (FNAB)

This is the initial investigation of choice in view of its accuracy, safety, and cost effectiveness. This procedure is performed (using a fine needle - 23G) as an ambulatory procedure preferably under ultrasound guidance. The results of FNA cytology should be clearly classified as shown. (Table 3)

Classification	Remarks
Malignant	
Suspicious	
Indeterminate	Follicular or Hurthle Cell neoplasm
Benign	
Insufficient	for diagnosis

Table 3 Classification of FNAB Results

In a review of over 28 series of FNAB, the sensitivity (83%), specificity (92%) and accuracy (95%) has been rated well above all other modalities of thyroid investigations. Using larger bore needle may improve the accuracy also increases the risks of haematoma, and injuries to adjacent structures.

Evaluation and Management

Following a careful history and clinical examination and fine needle aspiration biopsy of the solitary thyroid an appropriate management plan of observation vs. surgery can be clearly delineated. In patient when the FNAB has indicated a benign pathology, a period of observation using ultrasound is appropriate. Surgery in the form of a thyroidectomy is indicated where the pathology has been confirmed to be malignant.

The choice of thyroid surgery will be addressed in a future paper.

Benign	Malignant
Adenoma (follicular & papillary)	Carcinoma
Hyperplastic	
Thyroid cysts	
Thyroiditis	

Table 4 Differential Diagnosis of Nodules

References

For the references of this article, please refer to the full version on our website: [www.asiamedicalspecialists.hk](http://www.asiamedicalspecialists.hk).