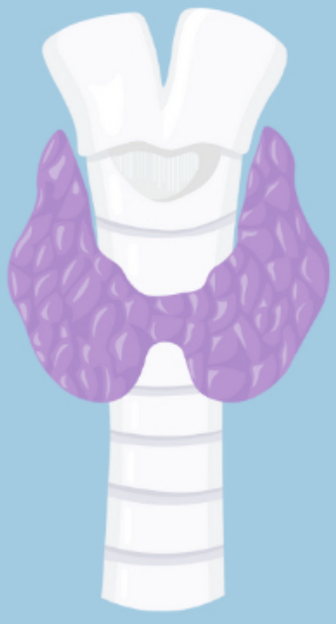
SUMMARY

Surgery

Endocrine



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Surgical management of thyroid nodules

Etiology of thyroid nodules:Benign or malignant

Approach to thyroid nodules :

1-take hx (patient profile, CC ask about the duration,
HPI :
1-ask about the nodule itself onset , progression,etc
2-ask about risk factors (radiation, family hx of thyroid cancer, drugs)
3-ask about mass effects compression or obstruction like dysphasia for example

Some of these nodules are non palpable and and detected incidentally on U/S or other imaging = incidentalomas

2-Do PE(physical exam)
The mass itself (SPACESPIT) , vocal cord paralysis and cervical lymphadenopathy.

3- investigations
Firstly U/S & TSH should be done for all patients with thyroid nodules

- Serum thyrotropin (TSH)
  a) Subnormal TSH radionuclide thyroid scan should be performed
  b) Normal or elevated Don't start radionuclide scan as initial imaging evaluation
- US
  Indications of FNA from US : (additional)
  - Solid hypoechoic nodules ≥ 1 cm with/without additional sonographic signs of thyroid cancer

- Consider for solid hypoechoic nodules < 1 cm if any of the following are present:
- Extrathyroidal growth
- Cervical lymphadenopathy
- Symptoms suggestive of distant metastases
- Patient preference for FNAC over observation
- Partly cystic, isoechoic, and hyperechoic nodules ≥ 1.5 cm
- Consider in spongiform or partly cystic nodule ≥ 2 cm

- FNA
  Used for nodules evaluation when clinically indicated (size or US features)

BETHESDA SYSTEM

It is a classification system based on the results of thyroid FNA

Bethesda Category	Characteristics
Bethesda I Nondiagnostic or unsatisfactory	• Virtually acellular specimen; • Cyst fluid only; • Other (obscuring blood, clotting artifact, etc.).
Bethesda II Benign	• Consistent with a benign follicular nodule (includes adenomatoid nodule, colloid nodule, etc.) • Consistent with lymphocytic (Hashimoto) thyroiditis in the proper clinical context • Consistent with granulomatous (subacute) thyroiditis
Bethesda III Undetermined	• Atypia of undetermined significance or Follicular lesion of undetermined significance
Bethesda IV Undetermined	• Follicular neoplasm/suspicious for a follicular neoplasm • Specify if Hürthle cell (oncocytic) type
Bethesda V Suspicious for malignancy	• Suspicious for papillary carcinoma • Suspicious for medullary carcinoma • Suspicious for metastatic carcinoma • Suspicious for lymphoma
Bethesda VI Malignant	• Papillary thyroid carcinoma • Poorly differentiated carcinoma • Medullary thyroid carcinoma • Undifferentiated (anaplastic) carcinoma • Squamous-cell carcinoma • Carcinoma with mixed features (specify) • Metastatic carcinoma • Non-Hodgkin lymphoma

Bethesda class	Diagnostic category	Cancer risk (%)
I	Nondiagnostic	1-4
II	Benign	0-3
III	AUS or FLUS	5-15
IV	FN/SN	15-30
V	SUSP	60-75
VI	Malignant	97-99

AUS: Atypia of undetermined significance, FLUS: Follicular lesion of undetermined significance, FN: Follicular neoplasm, SN: Secondary neoplasm, SUSP: Suspicious for malignancy. Adapted and modified from reference [ ]

Management:

According to Bethesda system
I:nondiagnostic : repeat FNA with US guidance
II:benign:

- Completely asymptomatic:clinical and sonographic follow up
- Symptomatic: surgery/RAI/PEI/PLA

III: AUS/FLUS: repeat FNA , molecular testing or lobectomy
IV:FN/SFN:molecular testing and lobectom
V:suspicious for malignancy : near total thyroidectomy or lobectomy
VI:malignant: near total thyroidectomy or lobectomy

Thyroid surgery:

total thyroidectomy (removal of all grossly visible thyroid tissue) , near total (leaving only small amount of thyroid tissue <1g adjacent to the RLN) , subtotal thyroidectomy (leaving >1g with the posterior capsule)

Risk of recurrence after initial therapy

1) High risk = surgery,TSH suppression &RAI
2) Intermediate risk :surgery, TSH suppression,RAI(in some cases)
3) Low risk : surgery (RAI isn't indicated)

if a thyroid cancer <1cm , no extrathyroidal extension and no lymph nodes involvement cN0 , then the initial surgical procedure is ***thyroid lobectomy***

Complications of thyroid surgery (important) :
Immediate complications :
Haemorrhage , infection, RLN palsy, thyroid crises, respiratory obstruction, parathyroid insufficiency
Late complications:
Thyroid insufficiency, recurrent thyrotoxicosis, keloid or hypertrophic scars, progressive exophthalmos .

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