Toppersnotes
Unleash the topper in you

NEET-PG

PART-C

VOLUME-I

GENERAL SURGERY

SIERRA INNOVATIONS
Private Limited

GENERAL SURGERY

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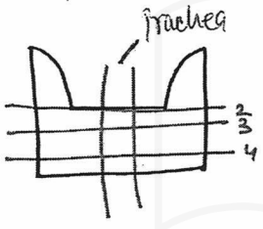
THYROID

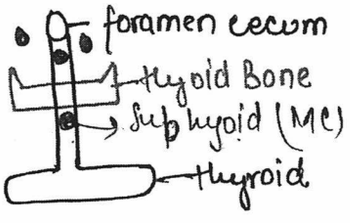
- Wt ≈ 20-25 gm
- >90% of Bodies Iodine is stored in Thyroid
- (RDA) Iodine Requirement :- 100-150 ug/day.
- Size of thyroid is inversely proportional to Iodine intake
- Theodor Kocher :- father of thyroid Sx.



- Isthmus is mainly in Relⁿ to 3rd Tracheal Ring

THYROGLOSSAL CYST

- Congenital.
- Age of presentaⁿ :- 15-30 Yr



Mc site :- Sub hyoid.
Other :- Supra hyoid
- Near thyroid Cartilage
- Near foramen cecum
- In floor of Mouth.

Clt :- (I) pt. will c Mid line swelling in the anterior part of Neck moving well c Deglution.
- Move up c Protrusion of Tongue

Complicaⁿ :- (I) Infecⁿ
(II) Abscess
(III) ↑ risk of Malignancy :- papillary Ca.

* I & D of abscess can lead to thyroglossal fistula (Acquired)

Rx :- Sistrunk operaⁿ

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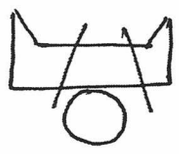
Sistrunk Operaⁿ :-



* En-block Removal of Central part / Body of Hyoid Bone

ENDEMIC GOITER

a) >5% people in populaⁿ are having Goiter

*) Retrosternal Goiter :- > 50% of thyroid tissue is located below Neck
(or)
Substernal
(or)
Mediastenal Goiter

↳ * Manifestaⁿ :-

① dyspnea (MC) :- d/t compression of trachea

② Dysphagea :- d/t " " Esophagus.

③ Hoarsness of voice " " " RLN

④ Dilated vein over anterior chest wall.

⑤ Pemberton sign is +ve :- on upper limb Elevaⁿ above forehead
↓
facial congestion, puffyness (or) dizziness

Rx :- Thyroidectomy by Cervical Incision.

- I^{123} :- 13 hr :- Used for RAI scan (diagnostic)
- I^{131} :- 8 day :- RAI Ablation (Therapeutic purpose)

*) Defin :-

① Radio Iodine uptake :- It's amt. of Radioactive Iodine taken by thyroid Gland & in Stipulated period of time usually 6-24 hr

② Radioactive Iodine Scan :- Scanning of Co Region & Gamma probe

③ Hot Nodule :- Nodule & takes Radio active Iodine
- Risk of Malignancy :- 1-3%.

④ Cold Nodule :- Nodule ∈ doesn't take Radioactive Iodine

∴ Risk of Malignancy :- 17-20% ✱

⑤✱) RAI Ablation :- Isotope used is :- I^{131}

I^{131} emit → β rays + γ-rays

(90%) (10%)

↓ ↓

✱) Responsible for therapeutic effect. ✱) Responsible for SIE ✱) Tracer Studies

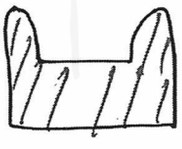
✱) depth of penetration of β-ray :- 0.5mm.

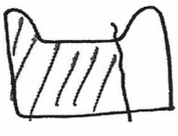
✱) Absolute CI :- RAI Abln?

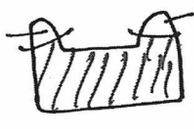
∴ pregnancy.

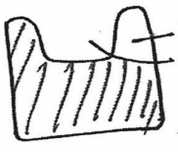
∴ Lacta?

✱ Types of Thyroidectomy :-

①  Total thyroid ectomy

②  Hemithyroidectomy :- Removal of 1 Lobe ∈ isthmus.

③ 4-6gm  4-6gm :- Sub total leaving 4-6 gm of thyroid tissue in each lobe superiorly ∈ Removal of Rest of thyroid Gland.

④  10-12 gm :- Hartley-Dunhill leaving 10-12gm of thyroid tissue in ① Lobe ∈ Removal of Rest of thyroid

⑤ Near-total :- Leaving small Remnant of thyroid tissue in thyroidectomy Tracheo-Eso. Groove

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*) Benign disorder involving (1) lobe Hemithyroidectomy is done

*) Benign " " Both lobe of thyroid (or) thyroid Malignancy
↓
Total thyroidectomy is done

*) Subtotal thyroidectomy was performed for multinodular goitre on prolong follow up (after 20-30Y) Recurrence occured from the thyroid Remnant that's why only Indica" of Sub-Total thyroidectomy is Elderly pt. c Multinodular Goitre.

Solitary thyroid Nodule :-

•) MC is :- colloid Goitre > follicular Adenoma.

•) 1st Lx :- Thyroid function Test. (TFT)
↓ in this
TSH is most informative. Ble of ultra sensitivity
↓ Ble of this
It can Ases :- Subclinical Hypothyroidism.
Subclinical Hyperthyroidism.

•) IOC :- FNAC

•) Limitation of FNAC :-

① It can not differentiate Btw follicular Adenoma from follicular Carcinoma
[Diagnosis of follicular Carcinoma is based on Vascular Invasion (or) Capsular Invasion which is not seen on FNAC]

② It can not diagnose Reidel's thyroiditis.

③ Thyroid Lymphoma (ble for lymphoma have to do Bx to put marker)

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> ~~for all lymphoma in body~~
> ↳ Bx ~~[illegible]~~ oc
> eg:- RCC :- CECT
> RCC c̄ lymphoma :- Bx

• Rx :- STN
↓ FNAC

- Inconclusive (नहीं पता) → Repeat FNAC
- Benign
  - Cystic → Aspira^n → if Recurrance → Q: Reaspira^n x 3 time → Hemithyroidectomy
  - Solid → Consider Thyroxine → Not-Responding (or) Pressure symptom → Hemithyroidectomy
- Suspicious → Radioactive Iodin Scan
  - HOT → Radio ablaⁿ / Imuno ~~[illegible]~~
  - COLD → Hemithyroidectomy
- Malignant → Total Thyroidectomy

* Basic funcⁿ of thyroid :- BMR
  ① ~~Metabolism~~ Mass ⟶ Energey.

All thyroid Related disorder :- MC in ♀

* MCC of Hypothyroidism (World wide) :- Hashimoto thyroiditis.
  MCC of Hyperthyroidis (World wide) :- Grave's D's

GRAVE's D's (Diffuse Toxic Goitre)

- Autoimmune Disorder
- Autoantibody against Thyroid stimulating Receptor

• a/w HLA B-8 / DR-3

• a/w :- (i) Thyrotoxicosis
  (ii) Opthalmopathy (Exopthalmos)
  (iii) Dermopathy (Pre-Tibial Myxedema)
  (iv) Acropathy (Subperiosteal New Bone formaⁿ in Metacarpal)
  (v) Gynecomastia.

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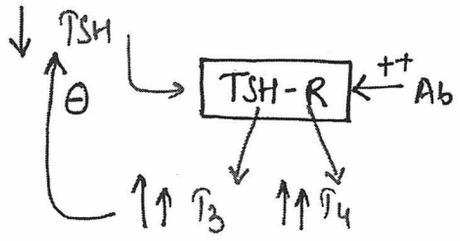
* Basic pathophysiology :-



*) In pt. of hyperthyroidism :- ↑ Expression of Beta Receptor occur leading to Sympathetic Stimula? :- Signs & symptom ↓

(I) Tachycardia
(II) Palpita?
(III) Excessive Sweating
(IV) Mental Imita? / Irritability
(V) lack of sleep
(VI) fine Tremor seen in fingers & Tongue

*) Thyroid stimula? Sign & symptom Blc ↑ BMR :-

(I) ↑ appetite But wt. loss.
(II) Heat intolerance.
(III) & Excessive Sweating
(IV) MC GI symptom :- Diarrhea.
(V) In Young pt. CNS symptoms are predominant.
(VI) in Elderly pt CNS " " " . like AF, Congestive HF.
VII) In children :- Early Growth and Matura?
VIII) In female :- Amenorrhea, ↑ Risk of Abortion & Infertility

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*) Thyroid gland is Hyperactive and Hyper Vascular

⁉ * Hypervascularity is Most prominent @ Superior pole.

•) There is audible Bruit.

•) " Venous Hum and palpable thrill

*) It is also ↑ Radio active Iodine uptake.

Diagnosis :- (I) presence of Eye sign in pt. of Hyperthyroidism ⟶ confirm diagnosis.

(II) Auto Antibodies :- Single Dx.

* Rx :- (I) Non-Selective β-B :- PROPRANOLOL

(II) Anti-thyroid Drugs :- (i) METHIMAZOLE
(ii) CARBIMAZOLE
(iii) PROPYL THIOURACIL
] SIE — AGRANULOCYTOSIS.

This is given just to make the pt. Euthyroid & to prepare for Sx.

•) pt. become Assymptomatic in 2 wks.

•) pt. become Euthyroid in 6 wks.

SIE *) Methimazole is also ↑ risk of Congenital Malformation :- Aplasia Cutis
Choanal Atresia

SIE *) propylthiouracil :- ↑ risk of Hepatic failure in female and children.

*) Doc in preg :- CARBIMAZOLE

*) Anti-thyroid Doc in Grave's :- METHIMAZOLE

*) " " " " Thyrotoxic crisis :- PROPYLTHIOURACIL
↓
Block peripheral conversion of $T_4 \not\rightarrow T_3$.

(III) Radioactive Iodine Ablation :- for (i) Eldelly pt.
(ii) pt. c comorbidity
(iii) Recurrance after Sx.

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Absolute CI of RAI	Relative CI
1° preg.	1° Young pt.
2° Lactation	2° Smoker.
	3° Opthalmopathy

(iii) Indicaⁿ of Sx :- ① All CI of RAI.
② Large Nodule (or) Suspicious of Malignancy
Sx :- Total thyroidectomy

HASHIMOTO'S THYROIDITIS.

aka. - STRUMA LYMPHOMATOSA
Thyroid — conversion into ~~fibrocaseoid~~ lymphoid.

- Conversion of thyroid tissue into lymphoid tissue
- Auto-immune Disorder alw Auto antibody :- Anti-TPO.
- Alw HLA-B8 | DR-3 | DR-5
- It ↑ risk of :- ① Thyroid lymphoma
② Papillary Carcinoma of thyroid.
- Etiopathogenesis :- CD4 mediated CD8 cytotoxicity
↓ LIT
Permanent destruc of thyroid follicle
↓ LIT
Permanent Hypothyroidism.

New update
AIIMS
↑TSH = ↓vit·D

C/F :- Sign & symptom of hypothyroidism ± Mild Enlargement of thyroid
↓ LIT
↑ Circumferance of Neck.

IOC:- Anti-TPO antibody.

•) On FNAC:- Lymphocytic Infiltra?
↳ Hurthle cell | ASKANAZY CELL

Rx:- Life long THYROXINE

DE QUERVAINS THYROIDITIS.

AIKIA - Subacute thyroiditis

- Viral
- Granulomatous
- Giant cell

•) It is characterized by URTI caused by Virus leading to Granulomatous inflama? leading to follicle distruc?

•) also HLA B-35

•) Stages:- ① Hyperthyroid.
② Euthyroid.
③ Hypothyroid.
④ Euthyroid → ∵ spontaneous Resolu° occur in 75%

•) C/F:- ① pain and Tenderness in thyroid region
⊕
Sign and symptoms of Hypothyroidism | Hyperthyroidism

•) dab:- •) ↓ RAI uptake
•) ↑ ESR (dlt inflamo°)

DOC:- FNAC (GIANT CELL

Rx:- •) DOC - NSAID $\xrightarrow[\text{Responding}]{\text{Non}}$ steroid.
•) >75%. pt spontaneous Resolu°.

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REIDEL'S THYROIDITIS.

- Invasive fibrous thyroiditis.

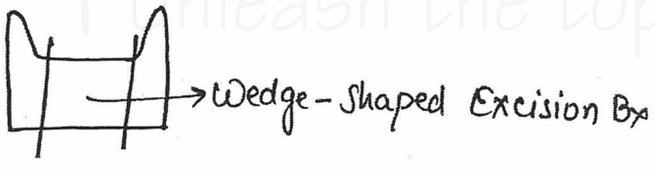
→ Complete Replacement of thyroid and parathyroid by fibrous tissue.

→ a/w :- (I) Retro-orbital fibrosis
(II) Peri-orbital fibrosis
(III) Retro-peritoneal "
(IV) Sclerosing cholangitis.

C/f :- pt. present C Sign and symptom of hypothyroidism and hypoparathyroidism
C Evidence of compression like :-
i) dyspnea
ii) dysphagia
iii) Hoarseness of voice

O/E :- Thyroid Gland is Hard and Woody

DOC :- Bx



Rx :- Life long thyroxine + Life long Calcium and Vit. D.

THYROID MALIGNANCY

- MC :- papillary ca. > follicular > Medullary > Anaplastic

Papillary Carcinoma

- MC thyroid Malignancy
- seen in Iodine Sufficient area
- Low dose Exposure during childhood ↑ the risk.

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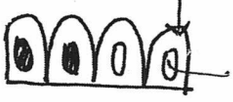
Pathology :- papillary projec^{n}

Pseudo- Inclusion Bodies. Nuclear Groove

Orphan Annie Eye Nuclei



Optically clear Nuclei

Clf :-) pt. +nt c palpable swelling in the anterior part of Neck in Mid line

) Lateral aberant thyroid is Metastatic deposite from papillary Ca thyroid to Lateral Cervical LN.

) Most common Route of Spread :- Lymphatic

) MC site of Mets :- Lung

) Dx :- FNAC

) Rx :- Total thyroidectomy + Removal of Enlarged Central group of LN. +/-

IIC MRND (Modified Radical Neck Dissec^{n})

↳ if LN is +ve then do.

FOLLICULAR CARCINOMA

- Seen in Iodine deficient area.
- MC malignancy seen in long standing Goitre
- Age :- 5 | 6th Decade
- Muta^{n} :- ① PAX-8 | PPAR-1 → RAS.
  ② → P-TEN ④
  ③ → P53

Sudden ↑ in size of swelling
↓
Anaplastic

Clf :- Sudden ↑ in size of swelling in long standing Goitre c Minimal (or) No pain. c out any Evedence of Compression.

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* MC Route of spread :- Hematogenous
* MC site of Met :-) Bone
↓
Flat bone :- Vertebra > Ribs > Pelvis > Skull.

) UT osteolytic 2° | Pulsatile 2° → RCC
→ follicular

*) Lymphatic spread is Not seen.

~~ROC~~ :- *) FNAC is not able to differentiate follicular adenoma & Ca. Bic diagnosis of Malignancy based on Capsular (or) Vascular Invasion

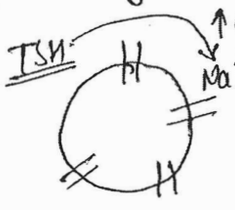
Doc :- Bx

Rx :- Total thyroidectomy.

* post-op. Mx of well-diff. thyroid Ca :-

① Thyroxine suppresion :- High dose thyroxine is used for suppresion of TSH. it s/b continued for 4-6wks

② Whole Body Scan :- By Iodine ^{131}



) T4 s/b stop atleast 6wk befor whole body scan, if pt. is not able to tolerate Hypothyroidism switch T4 to T3 and stop T3 atleast 1wk before whole body scan

) If pt. is not able to tolerate the symptoms give Recombinant TSH atleast 48hr before whole body scan.

*) whole body scan make thyroglobulin a better marker for post-operative follow up.

* Dx performed for post-operative follow up of well differentiated thyroid Ca :-

(i) Thyroglobulin ⟶ Slb < 2ng/ml.[27]

(ii) USG Neck

(iii) Chest x-ray

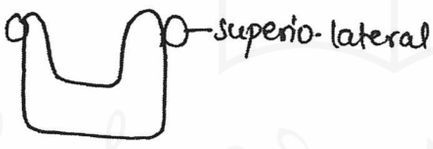
If thyroglobulin ↑ :- Indicate Recurrance

Q:- Indica[n] of PET scan :- Rising thyroglobulin ± (N) USG Neck and CXR.

*) The Recurrance is Managed by Radioactive Iodine ablat[n].

MEDULLARY CA. OF THYROID

- arise from para-follicular C-cell.

Loca[n]  superio-lateral

- derived from ULTIMOBRANCHIAL BODIE
- ↑ Calcitonin ⟶ then also Ca^{2+} is (N) (Normocalcemia)
- 2 type :-

SPORADIC	MEN IIA / IIB
- 5th / 6th decade	- Young pt.
- Single	- Multiple
- UIL	- BIL
RET - PROTO ONCOGENE Muta[n]	

also :- (i) ↑ Calcitonin and ↑ CEA

(ii) Diarrhea

(iii) IFNAC :- Amyloid stroma

(iv) +ve family Hlo :- pheochromocytoma, Hyper parathyroidism.

(v) Both lymphatic and Hematogenous spread.

vi) MC site of Met :- LIVER - Malignant Melanoma
- Ca. Bladder
- Medullary Ca. of thyroid } Three non-GI Malignancy

- TSH independent tumor.
- ∴ Radio active Iodine is not Effective

*) Chemotherapy is having very limited Role in thyroid Malignancy

*) IOC :- FNAC

* Rx :-) Total thyroidectomy ⊕ Routine Central Lymphnode dissec? ⊕ I/L MRND
if size of TU. is > 1cm +/- B/L MRND if any LN +ve.

) also poor prognosis.

ANAPLASTIC Ca.

) Rare

) 7th/8th decade

C/f :-) Sudden ↑ in size of swelling

) Severe pain over the swelling

) Evidence of compression +/t :- dysp nea, dysphagia, Hoarsness of voice.

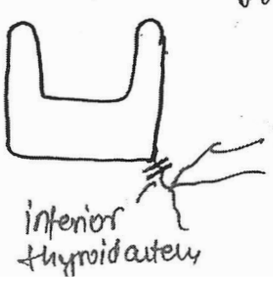
*) MC Route of spread :- DIRECT INVASION

*) MC site of Met :- Lung

*) IOC :- FNAC

Rx :- for Resectable Malignancy :- Total thyroidectomy
UnResectable " :- Tracheostomy

Q :- Superior thyroid vessel s/b ligated close to thyroid to prevent injury of External branch of superior laryngeal Nerve.



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1) Risk of permanent RLN injury :- 0.3 - 3%

*) Inferior thyroid artery s/b ligated closed to thyroid to prevent vascular infec^{n} of parathyroid gland.

*) Hypocalcemia seen after thyroid Sx Manifest on :- 2-5th day.

*) MCC of thyrotoxic crisis in intra-operative :- Inadequate Pre-operative prepn?

SUTURES

Absorbable

- Absorbed by the body due to Enzymatic digest^{n} (or) phagocytosis

(I) Natural :-
- (i) Catgut
- (ii) Chromic catgut

(II) Synthetic :-
- P - Polyglycaprone, Polydioxanone (↓ Kla, ↓ Kla)
- V - Vicryl (Monocryl) (PDS)
- D - Dexon (Kla → Polyglactin; Kla → (polyglycollic acid))

Non-absorbable

- Persist for indefinite period of time

(I) Natural :-
- (i) Silk
- (ii) Linen.

(II) Synthetic :- PEN
- Prolene (Polypropylene)
- Polyester
- Ethilon
- NYLON

Types of Suture :-

Monofilament
- contain single strand.
- Smooth
- Knots are less stable

Advantage :- Low ↓ Risk of infec^{n}

eg :- Prolene
- Ethilon
- Catgut

Polyfilament
- Multiple strands. Braided together
- Knots are stable
- Suture are having crevices ↓↑ → ↑ risk of infec^{n}

eg
- Silk Mn :- 'SLip'
- Linen
- polyglycolic acid (Dexon