

# Thyroid Quiz

Dr. Gagan Priya

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Q1.

Where was the first ever successful, prospective, large-scale experiment on the role of Salt Iodization for the prevention of endemic goiter conducted?

- A. Nubra valley, India
- B. Lauterbrunnen valley, Switzerland
- C. Kangra valley, India
- D. Michigan, USA

Q2.

- How is this related to thyroid?
- Cartoon character with goiter
  - An eye sign in thyrotoxicosis
  - A sign in thyroid cancer
  - Cartoon drawn by Edward C Kendell



Q3.

Before the availability of thyroid hormone assays, what was the first parameter used for assessing the clinical response and adequacy of thyroid hormone replacement?

- A. Serum protein-bound iodine
- B. Basal metabolic rate
- C. Body weight
- D. Total cholesterol

Q4.

In patients with hypothyroidism, a polymorphism in which of these genes indicates that they are likely to benefit from addition of T3 to ongoing LT4 therapy?

- A. T3 receptor ( $TR\beta$ )
- B. TSH receptor
- C. Type 1 deiodinase
- D. Type 2 deiodinase

## Q5.

22 year lady, GD x 2 months, on carbimazole 30 mg/d.

Presents with abdominal cramps, vomiting and diarrhea for 2 days.

Family history of T1D in brother.

Dehydration, cachexia, PR 110 bpm, BP 98/60, Grade 2 diffuse goiter, no bruit.

Labs: Na 130/K 5.5, creatinine 1.6 mg/dl, T4 12 ug/dl, T3 198 ng/dl, TSH 0.02.

What is the most likely diagnosis?

- A. Acute gastroenteritis
- B. Type 1 diabetes
- C. Adrenal insufficiency
- D. Drug intolerance

## Q6.

Which of the following **is incorrect** regarding physiological alterations in thyroid functions during pregnancy?

- A. Total T4 rises progressively in 2<sup>nd</sup> trimester to approximately 1.5 times the non-pregnant range
- B. The downward shift in the upper RR for TSH during 1<sup>st</sup> trimester is typically not seen in first 7 weeks of pregnancy
- C. Free T4, when measured by commercially available immunoassays is reduced in 3<sup>rd</sup> trimester
- D. Free T4 measured by commercially available immunoassays is more reliable than total T4 during pregnancy

# Q7.

- 31-year lady, occasional rectal bleeding and swollen hard gums.
  - Multiple papules on her nose, enlarge gingiva with multiple small papillomas on gingiva, buccal mucosa and tongue.
  - Biopsy – suggestive of non-inflammatory epithelial hyperplasia.
  - Colonoscopy – multiple intestinal lymphoid polyps.
  - Thyroid USG – goiter with multiple nodules, largest 4 cm – FNA – follicular neoplasm.
  - Family H/O FTC in mother
  - What is the likely diagnosis?
1. Carney complex
  2. Gartners complex
  3. Cowden syndrome
  4. Werners syndrome





Q8.

What is this sign called?

- A. Moebius sign
- B. Dalrymple's sign
- C. Joffroy's sign
- D. Von Graefe's sign



## Q9.

65 year lady, C/O anxiety

TSH 0.09, FT4 1.6 ng/dl (0.8-1.8), total T3 - 150 ng/dl (70-200).

Hypertension, well controlled on ARB + CCB.

Osteopenia detected 3 years back, on calcium, vitamin D; now osteoporosis.

No history of fractures or cardiac disease.

What is the next best approach?

- A. Active surveillance with repeat TFTs
- B. Thyroid scintigraphy
- C. Bisphosphonate therapy
- D. Beta blockers

## Q 10.

45 year male, recently diagnosed GD, started on Carbimazole 20 mg/d.

Lightheadedness, increased appetite 1 month later.

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Serum insulin 250 U/L, C-peptide 9.4 pg/ml.

Wife has diabetes for which she is taking Glibenclamide and metformin FDC.

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What is Meserburger triad and who described it?

- A. Tachycardia, exophthalmos, goiter – Carl Adolph von Basedow
- B. Tachycardia, tremors, exophthalmos – Robert Graves
- C. Goiter, tachycardia, tremors – Caleb Parry
- D. Goiter, tachycardia, thyroid bruit – Meserburger Chaikoff

# Q 12.

36 year lady, presents with thyrotoxic symptoms.

Past history of hypothyroidism x 12 years, LT4 100 µg/d

2 months back, LT4 was stopped due to thyrotoxicosis

After 1 month, thyrotoxicosis persisted – MMZ 30 mg/d

She insists she has been regular with her medications.

What is the most likely diagnosis?

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- B. Painless thyroiditis
- C. Factitious thyrotoxicosis
- D. Graves' disease

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- Tc99m scan - no uptake.
- Thyroid USG - small gland with no nodule or increased vascularity.
- USG abdomen and pelvis normal.

## Q 13.

What is the cut-off of TSH (**serum units**) for recall recommended in the Neonatal Screening Guidelines for CH in India (ISPAE, 2018)?

- A. TSH > 10 mIU/l in cord blood and > 20 mIU/L in postnatal sample (48-72 hrs)
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Which of the following drugs is not useful in the management of thyrotoxicosis?

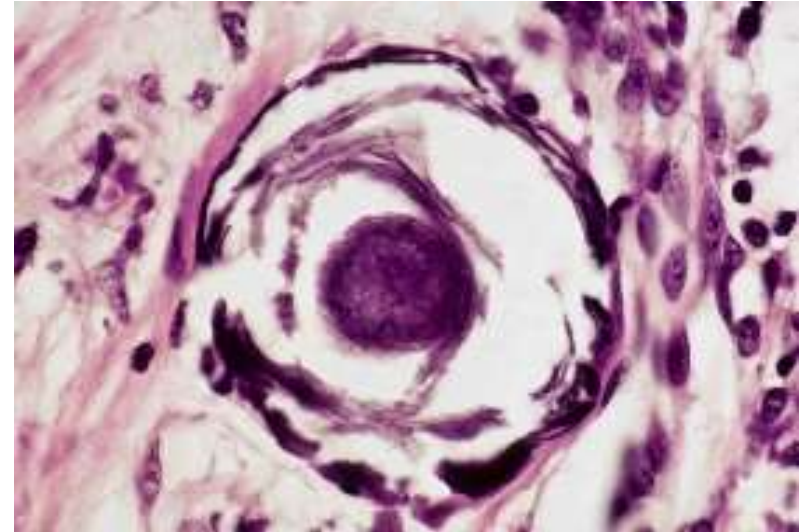
- A. Cholestyramine
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FNAC from a 1.5 cm X 1.1 cm right solitary thyroid nodule.

What is the diagnosis?

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- B. Follicular neoplasm
- C. Papillary thyroid cancer
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## Q 16.

Patient referred for abnormal TFT after a routine lab package

Total T4 and total T3 low; TSH normal

No clinical signs and symptoms

What is the most likely cause?

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- B. Non-thyroidal illness
- C. TBG deficiency
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# Answer Key

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Little Orphan Annie – daily comic strip (1894-1968). Dr. Nancy E Warner (California) described tumor cells with empty nuclei in PTC with a thin rim of peripheral chromatin

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Thr92Ala polymorphism in type 2 deiodinase gene

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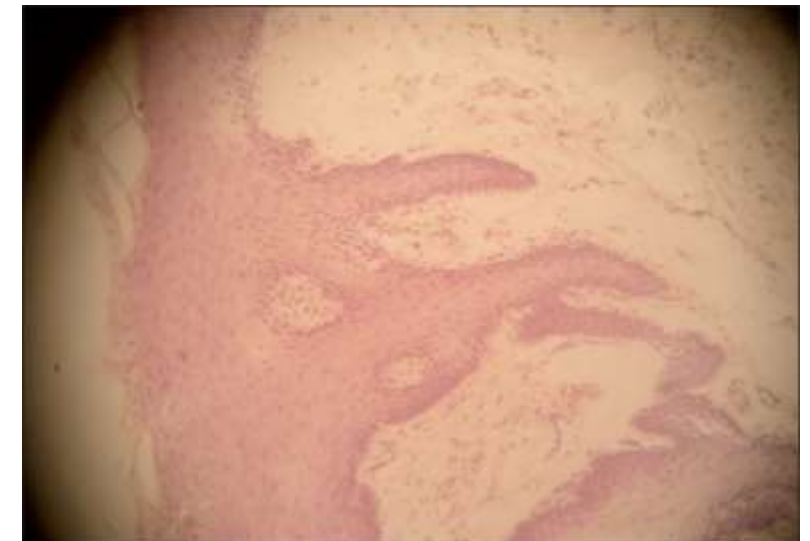
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- Cowden syndrome:
  - AD with incomplete penetrance, mutation in PTEN tumor suppressor gene
  - Multiple hamartomas and neoplasms – skin, oral mucosa, GI tract, GUT, bones, eyes, CNS
  - Associated with breast and thyroid cancers
- FAP:
  - AD inheritance, defect in APC gene
  - Hundreds to thousands of colorectal polyps – risk of colon cancer by 35-40 years
  - Desmoid tumors
  - Other rare cancers – medulloblastoma, hepatoblastoma, thyroid, gastric, pancreatic, adrenal cancers
  - Congenital hypertrophy of retinal pigment epithelium
- Gardner syndrome (variety of FAP):
  - Germline mutation of APC
  - Multiple colonic polyps
  - Osteomas, dental abnormalities and soft tissue tumors
  - Epidermoid cysts on scalp, shoulder, arms and back
- Carney complex:
  - PPNAD
  - Cardiac and skin myxomas
  - Lentigenes, blue nevi
  - Tumors of thyroid, testis, ovary, pituitary

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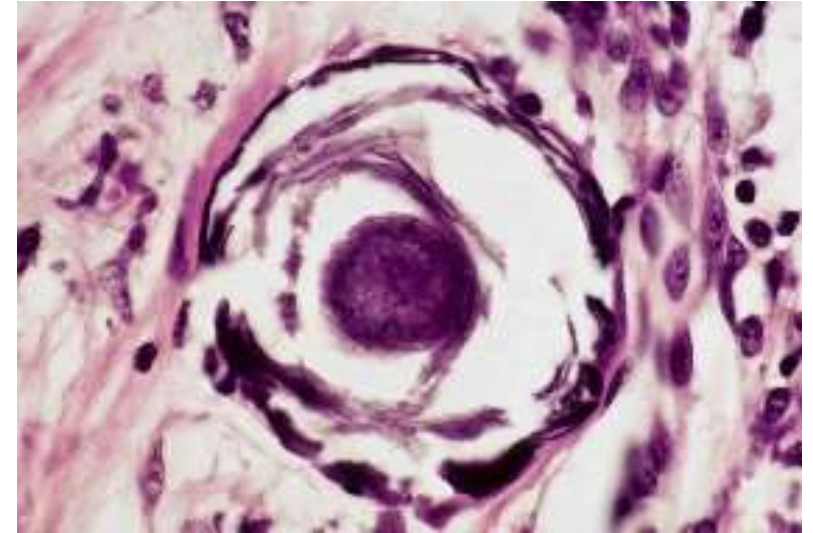
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