

# Top 60 Endocrinology Concepts

BASED ON KMU PRE-PROFFS 2024

MEDICINE • PEADS • SURGERY

## 1. THYROID GLAND (Highest Yield)

Concept	Clinical Pearl / Exam Question Answer
Graves' Disease	Most common cause of hyperthyroidism (Weight loss, Anxiety, Palpitations).
Thyroid Storm	Life-threatening thyrotoxicosis. Precipitated by surgery/infection. Rx: PTU, Propranolol, Hydrocortisone.
Hypothyroidism Symptoms	Weight gain, lethargy, constipation. Diarrhea is NOT a symptom.
Myxedema Coma	Hypothermia, Bradycardia, Altered mental status. Rx: Passive warming + IV T4/Steroids.
Congenital Hypothyroidism	<b>Thyroid Dysgenesis</b> is the most common cause.
Congenital Hypo Signs	Prolonged jaundice, large tongue (macroglossia), umbilical hernia, constipation.
Thyroid Nodule Workup	1st: TSH. 2nd: Ultrasound. 3rd: Radionuclide scan (if low TSH) or FNAC (if normal/high TSH).
Thyroglossal Cyst	Midline neck swelling, moves up with <b>tongue protrusion</b> .
Papillary Carcinoma	Most common cancer. Associated with Psammoma Bodies. Lymphatic spread. Good prognosis.
Medullary Carcinoma	Arises from Parafollicular <b>C-Cells</b> . Produces Calcitonin. Associated with MEN 2.
Thyroidectomy Complication	<b>Hypocalcemia</b> (Tetany) due to parathyroid removal/injury.
Nerve Injury	Unilateral Recurrent Laryngeal Nerve injury causes hoarseness. Bilateral causes airway obstruction.
De Quervain's Thyroiditis	<b>Painful</b> goiter/neck lump, often post-viral. High ESR. Transient hyperthyroidism.
Pregnancy Physiology	TBG (Thyroid Binding Globulin) increases, leading to increased Total T3/T4 but normal Free T4.
Sick Euthyroid Syndrome	Abnormal TFTs in severe illness (Low T3, Normal/Low TSH). Do not treat.

## 2. PARATHYROID & CALCIUM

Concept	Clinical Pearl / Exam Question Answer
Primary Hyperparathyroidism	"Stones, Bones, Groans". High Calcium, High PTH, Low Phosphate. Cause: Adenoma.
Secondary Hyperparathyroidism	Seen in CKD. Low/Normal Calcium, High Phosphate, High PTH.
Tertiary Hyperparathyroidism	Long-standing CKD. Parathyroids become autonomous. Very High Calcium & PTH.
Hypercalcemia Crisis	Acute management: <b>IV Normal Saline</b> (Rehydration) is 1st step. Then Bisphosphonates.
Hypocalcemia Rx	Emergency (Tetany/Seizure/Laryngospasm): <b>IV Calcium Gluconate</b> .
Sestamibi Scan	Investigation of choice to localize Parathyroid adenoma before surgery.
Post-Op Tetany	Occurs after thyroidectomy. Symptoms: Paresthesia fingers/mouth (circumoral).
Vitamin D Deficiency	In CKD, impaired renal production of 1,25-dihydroxyvitamin D3 causes bone disease.

## 3. ADRENAL GLAND

Concept	Clinical Pearl / Exam Question Answer
Addison's Disease	Autoimmune destruction. Weakness due to <b>Glucocorticoid deficiency</b> . Pigmentation due to high ACTH.
Addison's Diagnosis	Gold standard: Short Synacthen (ACTH Stimulation) Test. Screening: 9am Cortisol.
Addisonian Crisis	Shock (Hypotension) + Hyponatremia + Hyperkalemia. Rx: <b>IV Hydrocortisone</b> immediately.
Cushing's Screening	Overnight Dexamethasone Suppression Test (1mg).
Cushing's Disease	Pituitary Adenoma. Suppresses with High Dose Dex test.
Ectopic ACTH	Small Cell Lung Ca. High ACTH, No suppression with Dex. Severe pigmentation & hypokalemia.
Pheochromocytoma	Headache, palpitations, sweating. 24h Urinary Metanephhrines. Alpha-blocker before Beta-blocker.
CAH (Congenital Adrenal Hyperplasia)	21-Hydroxylase deficiency. Ambiguous genitalia (girls), salt wasting, virilization. Rx: Steroids.

## 4. PITUITARY & HYPOTHALAMUS

Concept	Clinical Pearl / Exam Question Answer
<b>Acromegaly Features</b>	Large hands/feet, coarse features, prognathism. Associated with Diabetes & Cardiomyopathy.
<b>Acromegaly Diagnosis</b>	Screen: IGF-1. Confirm: OGTT (GH fails to suppress).
<b>Prolactinoma</b>	Most common functional tumor. Infertility/Amenorrhea/Galactorrhea. Rx: Cabergoline (Medical).
<b>SIADH Criteria</b>	Hyponatremia + Concentrated Urine ( $>100$ mOsm) + Euvoolemia. Low Serum Osmolality.
<b>SIADH Causes</b>	Small Cell Lung Ca, Pneumonia, Meningitis, SSRIs, Carbamazepine.
<b>Diabetes Insipidus (DI)</b>	Polyuria ( $>3L/day$ ), Polydipsia, High Serum Na. Urine is dilute.
<b>Water Deprivation Test</b>	Differentiates Cranial vs Nephrogenic DI based on response to Desmopressin.
<b>Short Stature</b>	Constitutional Delay: Bone age $<$ Chronological age. Parents normal height. "Late bloomer".

## 5. DIABETES MELLITUS

Concept	Clinical Pearl / Exam Question Answer
<b>Diagnostic Criteria</b>	Fasting $> 126$ mg/dL (7.0). Random $> 200$ (11.1) + Symptoms. HbA1c $> 6.5\%$ .
<b>DKA Diagnosis</b>	Must have: Hyperglycemia, Ketonemia/Ketonuria, and Acidosis ( $pH < 7.3$ ).
<b>DKA Management</b>	<b>IV Fluids (Saline)</b> is the FIRST priority. Insulin follows. Potassium replacement is vital.
<b>HHS vs DKA</b>	HHS: Type 2, Higher Glucose ( $>600$ ), High Osmolality ( $>320$ ), No Ketones/Acidosis.
<b>Lactic Acidosis</b>	Complication of Metformin in renal failure or sepsis. High Anion Gap Metabolic Acidosis.
<b>Nephropathy Screening</b>	<b>Urine Albumin:Creatinine Ratio (ACR)</b> . Detects microalbuminuria early.
<b>Nephropathy Rx</b>	<b>ACE Inhibitors / ARBs</b> are renoprotective (reduce intraglomerular pressure).
<b>Gestational DM (GDM)</b>	Screening: 75g OGTT at 24-28 weeks. Fetal risk: <b>Macrosomia</b> (due to fetal insulin).
<b>Metformin</b>	First line T2DM. Stop if eGFR $< 30$ or before Contrast CT.
<b>SGLT-2 Inhibitors</b>	(-frozin). Causes Glycosuria. Benefits: Weight loss, Heart Failure & Renal protection. Risk: UTI/Thrush.
<b>GLP-1 Agonists</b>	(-glutide). Injectable. Best for weight loss. Risk: Pancreatitis.

## 6. REPRODUCTIVE & PEDIATRIC

Concept	Clinical Pearl / Exam Question Answer
<b>PCOS Criteria</b>	Rotterdam: 2 of 3 (Hyperandrogenism, Oligo-ovulation, Polycystic ovaries on USG).
<b>Male Infertility</b>	<b>FSH</b> acts on Sertoli cells to stimulate spermatogenesis. <b>LH</b> acts on Leydig cells (Testosterone).
<b>Female Infertility</b>	Test for Ovulation (Day 21 Progesterone) and Tubal Patency (HSG/Laparoscopy).
<b>Gynecomastia</b>	In young male: Physiological or drugs. Always do Endocrine workup if persistent.
<b>Cryptorchidism</b>	Undescended testis. High risk of malignancy (Seminoma). Surgery: Orchidopexy.
<b>Testicular Tumor</b>	Painless lump. Marker: Alpha-fetoprotein (Non-seminoma), bHCG.
<b>MEN 2B</b>	Mucosal Neuromas + Medullary Thyroid Ca + Pheochromocytoma + Marfanoid habitus.
<b>Down Syndrome</b>	Screening: Nuchal Translucency, High HCG, Low PAPP-A.