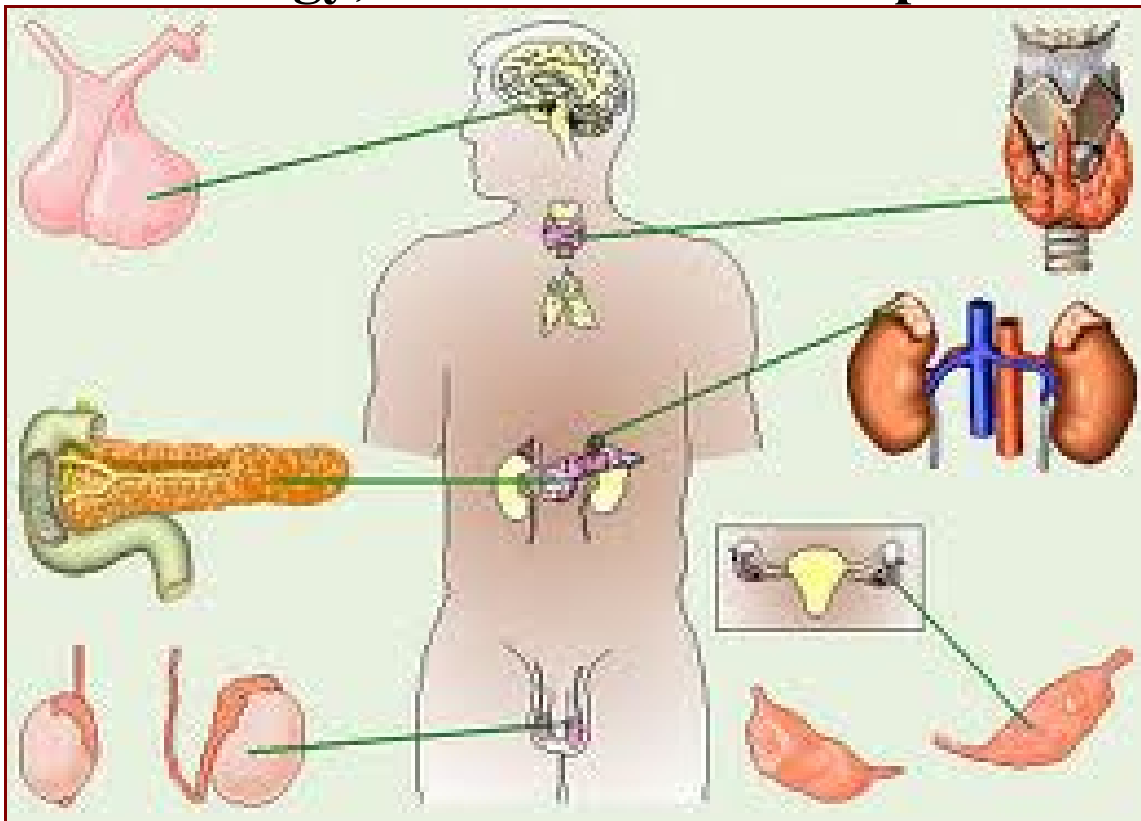


AJK Medical College,

Muzaffarabad, AJK, Pakistan

Study Guide

Endocrinology, Metabolism and Reproduction



Year Code: 2
Spiral Code: 1
Module Code: 8

Department of Medical Education

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EMR Module Team

1. Prof. Dr. Sarosh Majeed Salaria	Principal/Patron in Chief
2. Prof. Dr. Muhammad Ayub	Associate Dean/Planner
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5. Dr. Zahid Azeem	Member
6. Dr. Mohsina	Member
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INTRODUCTION

This module introduces the students to the integrative structure & functions of the major endocrine axes. The module is concerned with how the major hormones are produced and how they each act to integrate metabolism and fluid balance. We will investigate the role of selected endocrine axes in maintaining a stable environment for cells to function within the body, and will consider how defects in hormone production and/or action can lead to profound clinical symptoms. We will also look at how the production and metabolism of each hormone is normally controlled by feedback loops and how these can go wrong in disease.

In this module students will also learn how to explain the cellular and anatomical components of reproduction and early development. These components include the development of the reproductive track, development of gametes, fertilization, use of stem cells in the clinic and effects of sexually transmitted disease, and endocrinology of the system. Students will learn the behaviours, attitudes and psycho-social factors that accompany the physical changes of puberty during normal development, as well as some of the psychiatric disorders that may emerge and disrupt normal development during this period. Students will also become familiar with psychosocial treatments for pre and postpartum psychiatric disorder. Finally, students will critically evaluate basic and clinical research in the field.

Aims of the module:

The module aims to provide:

- clinical relevance of endocrine disorders, including iatrogenic states, Growth disorders, thyroid disease, diabetes and other syndromes of hormonal dysfunction
- Knowledge and understanding of each of the major endocrine axes, emphasizing the clinical significance of normal and abnormal feedback loops
- Knowledge and understanding of the scientific basis of treatment options available for specified endocrine disorders
- Knowledge and understanding of the reproductive, developmental and genetic processes that contributes to the development of a healthy individual.
- A foundation for understanding the clinical basis of infertility, developmental anomalies and genetic disease.

Learning outcomes

Our intended learning outcomes, in terms of knowledge are:

By the end of the module students will be able to:

- Describe the normal structure and function of endocrine system.
- Recognize and identify the changes in structure and/or functioning of the Endocrine system in disease states such as Diabetes mellitus, acromegaly, Cushing's syndrome, Addison's syndrome, thyrotoxicosis and infertility.

In terms of psychomotor skills, our intended outcomes are:

- Identify normal and abnormal findings related to the endocrine system on gross, microscopic and radiologic examination
- Interpret growth charts
- Interpret normal and distinguish abnormal BMI
- Elicit clinical history in a patient suspected of hormonal diseases
- Recognize normal and abnormal secondary sexual characteristics on physical examination
- Perform a focused physical examination

Our intended outcomes in terms of attitude are to sensitize the learners about:

- Importance of lifestyle modification in the prevention and control of endocrine diseases.
- Effective communication and counselling skills

Teaching Strategy

The content of this module will be delivered by a combination of different teaching strategies. These include small group discussions (SGD), large group interactive sessions (LGIS), demonstrations in dissection hall, lab practical and clinical skill sessions at skill lab. Group projects will be assessed at the end of the block.

Organization of Module

The module consists of eight themes, each based on a real life situation. The module will employ different modes of instruction, briefly described below. Major emphasis will be on discussion, analysis and deductions; all by the students and guided by the faculty.

Content Delivery

Entire curriculum will be delivered by clinical case scenarios each covering a theme. Read the cases and the objectives of the theme which you are supposed to encounter next day, understand and explain the case to yourself and read the relevant information. Following learning/teaching strategies will be employed to discuss the cases:

Small Group Discussion

Main bulk of the course content will be delivered in small group sessions. Each theme has an associated case. The case will be the centre around which learning will take place. Depending on the case you might be required to deduce objectives and learning issues or only learning issues. Every group will have a facilitator assigned to it. The facilitator will be there to keep you on track, giving you maximum liberty to discuss and achieve the objectives as a group. Small groups in some cases may be followed by a wrap up session. Rest of the information will be there in the schedule.

Large group

Large group instruction will be employed at times sparingly. Attend large group sessions with the following focus

- a. Identify important points
- b. Ask questions of points not well understood in the text
- c. Measure your learning comprehension

Videos

Video demonstrations on history taking and clinical examination, on diseases will be shown to give you an idea into the disease process, testing and practical aspect of communication with the patients.

Hands-on Activities/Practical

Practical activities, linked with the case, will take place.

Lab:

Attend your scheduled lab and take advantage of free time for study. Use your labs to correlate text structures to actual specimens in lab practice.

Self Directed Learning

A few SDLs have been added in between to create an environment for you to search literature as well as to deduce and synthesize information from different sources to meet the learning objectives. It will also help in breaking the monotonous / strenuous schedule and make you life- long learner.

Assessment

In this 6-weeks duration module, you will have surprise quizzes and intermittent short tests. A full-fledged formative assessment will be taken at the end of module. This will give you an idea about the format of the

examination that you will go through at the end of the Block. Of course, this will be followed by feedback on your performance in the exam.

Marks obtained in the module examination will contribute 30% (internal assessment) towards end of year Professional University Examination.

Recommended list of Icons



This Icon will refer to Introduction to case



This Icon will refer to Objectives

These Icons will refer to critical questions



This Icon will refer to resource material



This Icon will refer to key words

Table of Specifications (ToS)

MCQs and SAQs

S#	Themes	Total	Subjects	%
1	Short stature	2 SAQ	Anatomy-0.5 Physiology -0.5 Biochemistry-1	15
		15 MCQs	Anatomy-5 Biochemistry-5 Physiology-5	
2	Polyuria and polydipsia	2 SAQ	Anatomy-0.5 Biochemistry-0.5 Physiology -1	15
		15 MCQs	Anatomy-5 Biochemistry-5 Physiology-5	
3	Obesity	1 SAQ	Biochemistry-0.5 Physiology -0.5	10
		10 MCQs	Anatomy-2 Physiology-4 Biochemistry-4	
4	Heat and cold intolerance	1.5 SAQ	Anatomy-0.5 Biochemistry-0.5 Physiology-0.5	15
		15 MCQs	Anatomy-5 Physiology-5 Biochemistry-5	
5	Psychic moans	1 SAQs	Physiology-0.5 Biochemistry-0.5	10
		10 MCQs	Anatomy-3 Biochemistry-3 Physiology-4	
6	Stress	0 SAQs		10
		10 MCQs	Anatomy-3 Biochemistry-4 Physiology-3	
7	Infertility	1.5 SAQ	Anatomy-1.5	15
		15 MCQs	Anatomy-8 Biochemistry-4 Physiology-3	
8	Nipple discharge	1 SAQ	Anatomy-1	10
		10 MCQs	Anatomy-6 Biochemistry-2 Physiology-2	
	Grand Total			100%

THEME-1: Short stature



Case history

A 12-year-old girl was brought to medical outpatient clinic of AIMS by her mother with the concern that she is shorter than her fellows.

History of Present Illness:

Her mother was concerned because her daughter is short even compared with other family members. She estimates that her daughter has grown less than 3 cm in the past 1 year.

Past Medical History:

No history of any major illness in the past

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

She does not follow any particular diet.

Sleep patterns: The girl sleeps approximately eight hours nightly.

Family Medical History:

No history of any major illness in the family

Her father is 170 cm tall (10th percentile for a man), and her mother is 160 cm tall (25th percentile for a woman).

Social History and Lifestyle:

She is a good student and has not been subjected to physical or verbal bullying at school.

Review of Systems

Cardiovascular: Normal

Respiratory: The patient denies any history of pain, wheezing, chronic cough, hemoptysis, fever, or night sweats.

Gastrointestinal: Normal

Genital/Reproductive: Normal

Urinary: Normal

Musculoskeletal: Normal

CNS: Normal

Psych: Patient feels a little bit depressed

General physical examination

Temp: 37 °C, Pulse: 72 bpm, normal peripheral pulses, Respiration: 18 pm, BP: 110/70 mmHg

Weight: 35 kg (77 lb), Height: 133 cm (4 ft 4 in)

General Appearance: 12 year old girl, oriented to person, place and time, bit anxious.

Neck: Thyroid not palpable, trachea central,

CVS: No jugular venous distension, no carotid bruit, no murmurs on auscultation; normal S1 and S2; but tachycardia with regular rhythm.

Respiration: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

GIT: flat; non-tender to palpation; no masses; no hepatosplenomegaly, bowel sound present

CNS: No neurological deficit found

Labs:

Blood complete picture: Normal

Urine R/E: Normal

Radiology:

Chest X-ray: Normal

Special Investigations:

Growth hormone level: Normal



Short stature, growth hormone, percentile for man/women



At the end of theme student should be able to:

- Enlist the sources, chronological order, positional changes, histogenesis and congenital anomalies associated development of Pituitary gland
- Demonstrate the gross anatomy of pituitary gland
- Enlist the histological features of pituitary gland on a given slide
- Illustrate the hypothalamic-hypophyseal portal system to growth hormone secretion
- Relate positive/negative control of Pituitary hormones with growth spurt
- Describe the synthesis, and transport of Growth Hormone
- Correlate the Physiological and Biochemical role of growth hormone with stature
- Evaluate the function of hypothalamic pituitary axis
- Measure growth with the help of growth chart
- Enlist various imaging modalities for pituitary gland
- Perform counselling of a person with short stature



1. What are the possible causes of short stature?
2. Do you think this is girl is having short stature?
3. What role growth hormone plays in normal growth of an individual?
4. What lab tests will you request for this patient immediately? What additional studies might be appropriate? Justify your answer.
5. What is the rationale for measuring growth?
6. List risk factors of short stature in this patient?
7. What is positive and negative feedback control?
8. What role hypothalamic hypophyseal portal system has to play in secretion of growth hormone?
9. What is a growth percentile?
10. What imaging modalities can be used in patients with pituitary diseases?
11. does this girl or her mother needs counselling?

THEME-2: Polyuria and polydipsia



A 44 year old woman who weighs 160 pounds and has four children comes to OPD, complaining of polyuria, polyphagia and polydipsia

History of Present Illness:

The patient was alright three months back. Gradually she had feeling of excessive hunger and thirst. On questioning, she had noticed that she had been passing more urine than normal. She also complained of generalized body aches and weakness.

Past Medical History:

She has been on a diet and has been told that she has elevated fat in her blood but has not taken any medicines.

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

Healthy looking

Family Medical History:

Her mother was diabetic. Her 38 year old sister had her gallbladder removed.

Social History and Lifestyle:

She belongs to mediocre family and sedentary lifestyle.

Review of Systems

Cardiovascular: Palpitations on and off

Respiratory: She occasionally feels dyspnoea after climbing stairs.

Gastrointestinal: Normal

Genital/Reproductive: Normal

Urinary: passes urine more frequently than routine

Musculoskeletal: Normal

CNS: Normal

Psych: Patient feels a little bit anxiousness.

General physical examination

Temperature: 37 °C

Pulse: 80 bpm with normal peripheral pulses

Respiration: 16 pm

Blood Pressure: 140/90 mmHg

Weight: 160 lb)

Height: 133 cm (4 ft 4 in)

General Appearance: 44 year old woman, oriented to person, place and time, bit anxious.

Neck: Thyroid not palpable, trachea central,

CVS: No jugular venous distension, no carotid bruit, no murmurs on auscultation; normal S1 and S2; but tachycardia with regular rhythm.

Respiratory: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

GIT: Normal

CNS: No neurological deficit found

Investigations:

Labs:

Serum:

Urea	10 mmol/L (3.3–6.7 mmol/L)
Creatinine	100 μ mol/L (60–120 μ mol/L)
Calcium	2.10 mmol/L (2.2–2.6 mmol/L)
Albumin	30 g/L (35/50 g/L)
Glucose Fasting	12 mmol/L (2.8–6.0 mmol/L)

Blood complete picture: Normal

Urine sugar: ++

Chest X-ray: Normal



Polydipsia, polyuria, polyphagia, Diabetes, Cholecystectomy



At the end of theme student should be able to:

- Describe the development of Pancreas [Revisit]
- Demonstrate the gross anatomical features of Pancreas on dissected specimen
- Identify the histological features of Pancreas on a given slide.
- Enlist the steps involved in transplantation of Pancreatic islet
- Compare and contrast the structure and function of islet cells
- Interpret the synthesis, transport and mechanism of action of insulin on target cells in health and disease
- Compare and contrast the effects of Insulin and Glucagon
- Enumerate the steps involved in the synthesis of ketone bodies, and development of ketoacidosis
- Give the biochemical and physiological basis of diabetes insipidus and correlate it with clinical manifestations
- Record medical interview of a diabetic patient and perform clinical examination
- Counsel the patient for primary and secondary prevention of diabetes mellitus



1. What are the possible causes of Polyuria and polydipsia?
2. What is role of insulin and glucagon in blood glucose control?
3. What lab tests will you request for this patient immediately? What additional studies might be appropriate? Justify your answer.
4. What is the rationale behind performing fasting and random blood glucose tests?
5. Enlist risk factors of Diabetes mellitus.
6. Enlist the long term complications of uncontrolled Diabetes mellitus
7. How insulin is regulated by high and low blood glucose levels?
8. What imaging modalities can be used in patients with Diabetes mellitus?
9. Does this woman need counselling for lifestyle modification?

THEME-3: Obesity



A 47-year-old obese woman weighing 82kg was admitted to hospital for severe diarrhoea and vomiting.

History of Present Illness:

In the last two years she had been admitted to hospital for one episode of acute cholecystitis.

Past Medical History:

The woman had been receiving insulin and oral hypoglycemic drugs (glibenclamide and metformin) over the last seven years for diabetes. She was also taking atorvastatin for hypercholesterolemia and hypertriglyceridemia.

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

She does not follow any particular diet.

Sleep patterns: The woman sleeps approximately ten hours daily.

Family Medical History:

No history of any major illness in the family

Social History and Lifestyle:

She is well behaved lady and has not been subjected to physical or verbal bullying.

Review of Systems

Cardiovascular: Palpitation

Respiratory: Dyspnoea on exertion

Gastrointestinal: Normal

Genital/Reproductive: Normal

Urinary: Normal

Musculoskeletal: Normal

CNS: Normal

Psych: Patient feels a little bit depressed

General physical examination

Temperature: 98.6F

Pulse: 82 bpm

Respiration: 18 pm

Blood Pressure: 150/90 mmHg

Weight: 82 kg

Height: 5.2 inches

General Appearance: 82 year old woman, oriented to person, place and time, bit anxious.

Neck: Thyroid not palpable, trachea central,

CVS: tachycardia with regular rhythm.

Respiratory: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

GIT: Tenderness in right hypochondrium

CNS No neurological deficit found

Investigations:

Labs:

Total cholesterol 6.5mmol/L (<5.0)

HDL 1.0mmol/L (>1.2)

LDL 4.0mmol/L (<3.0)
BSF 7.8mmol/L(5.5-6.1)
Blood complete picture: Normal
Urine R/E: Normal
Radiology:
Chest X-ray: Normal
Special Investigations:
USG abdomen: Multiple stones in gall bladder



Hypercholesterolemia, Obese, Cholecystectomy



At the end of theme student should be able to:

- Define BMR and discuss the factors affecting BMR
- Demonstrate the methods of measurement of BMI
- Enumerate steps involved in Beta- Oxidation & its energetics
- Relate synthesis of cholesterol with Triacylglycerol
- Relate Glycogen Metabolism with storage diseases
- Relate obesity with different hormones
- Perform counseling for lifestyle modification regarding obesity on an SP



1. What are the possible causes of high BMR?
2. How will you measure BMI?
3. What lab tests will you request for an obese patient? What additional studies might be appropriate? Justify your answer.
4. What is the rationale behind performing fasting lipid profile?
5. Enlist the long term complications of sedentary lifestyle
6. What is the role of different hormones in obesity?
7. Describe different complications related to obesity.
8. Why statin is preferred over other lipid lowering drugs?
9. Does this woman need counseling for lifestyle modification?

THEME-4: Heat/Cold intolerance



Mrs Saba 42 year old woman presents to accident and emergency department AIMS with Stridor.

History of Present Illness:

Patient gives history of Stridor, due to a neck mass, which was clinically suspicious of Multinodular goitre. The patient was placed on antithyroids; however the gland continuously enlarged, over the course of three weeks as evidenced by increased Stridor and Dysphagia. She lost a 15 Kg weight loss in the last six months. Additional symptoms included Chronic Fatigue, and occasional hot flashes.

Past Medical History:

No history of any major illness in the past

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

She does not follow any particular diet.

Sleep patterns: The woman has disturbed sleep.

Family Medical History:

No history of any major illness in the family

Social History and Lifestyle:

She is a well behaved lady

Review of Systems

Cardiovascular: Palpitations

Respiratory: The patient feels difficulty in breathing

Gastrointestinal: Dysphagia

Genital/Reproductive: Menorrhagia

Urinary: Normal

Musculoskeletal: Muscle weakness, tremors

CNS: Normal

Psych: Patient feels irritable and anxious

General physical examination

Temperature: 37 °C

Pulse: 84 bpm with normal peripheral pulses

Respiration: 18 pm, stridor

Blood Pressure: 130/80 mmHg

Weight: 48 kg

General Appearance: 42 year old woman, oriented to person, place and time, bit anxious.

Neck: Thyroid palpable with multiple nodules, trachea central, Thyroid bruit: +ve

CVS: No jugular venous distension, no carotid bruit, no murmurs on auscultation; normal S1 and S2; but tachycardia with regular rhythm.

Respiratory: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

Abdomen: flat; non-tender to palpation; no masses; no hepatosplenomegaly, bowel sound present

CNS No neurological deficit found

Investigations:

Labs:

Total Thyroxin = 19 ng/dl (Normal Range: 4.5–10.9 ng/dl)

TSH= 0.004 IU/l (Normal Range: 0.4–6)

Blood complete picture: Normal

Urine R/E: Normal

Radiology:

Chest X-ray: Normal

Special Investigations:

Anti-TSH receptor antibodies: +ve, Thyroid scan: multiple rounded areas of increased uptake in both lobes

Due to compression of trachea, Total Thyroidectomy was done. The gland measured, 14x12x8cm and weighed 450 grams and was sent for histopathology.



Stridor, Dysphagia, Chronic Fatigue, Multinodular goitre



At the end of theme student should be able to:

- Illustrate the developmental features of Thyroid gland and enlist its anomalies
- Demonstrate the surface anatomy of Thyroid gland on a model
- Demonstrate the gross anatomical features of Thyroid gland on dissected specimen
- Enlist the histological features of Thyroid gland on given slide
- Relate the formation, transport, mode of action, and regulation of thyroid hormones with hyperthyroidism
- Relate the role of thyroid hormones with metabolism and growth
- Define goitre and relate association of goitre with thyroid functions.
- Demonstrate the examination of Thyroid gland on SP
- Perform counselling on a SP presenting from a endemic region (iodine deficiency)
- Enlist the imaging modalities for evaluation of hyperthyroidism (Isotope scan, hormonal assay and iodine uptake)



1. What is the aetiology of hyper and hypothyroidism?
2. What is the role of thyroid hormone in growth and metabolism?
3. What lab tests will you request for the evaluation of thyroid functions? What additional studies might be appropriate? Justify your answer.
4. What is positive and negative feedback control?
5. What role hypothalamic hypophyseal portal system has to play in secretion of thyroid hormone?
6. What imaging modalities can be used in patients with thyroid disease?
7. Does this woman need counselling?

THEME-5: Psychic Moans



A 35 year old man presented to OPD of AIMS with constipation loss of appetite and weakness

History of Present Illness:

Patient presented with loss of appetite, muscle weakness and weight loss. According to him on a previous visit he was told that his calcium was elevated. The serum phosphates level was decreased and parathyroid hormone level is increased. He felt weakness and lethargic for one month

Past Medical History:

Operated for gall stones two years back

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

He does not follow any particular diet.

Sleep patterns: He sleeps approximately eight hours nightly.

Family Medical History:

The patient's mother had parathyroid surgery for hypercalcemia

Social History and Lifestyle:

He is well behaved man at his work place

Review of Systems

Cardiovascular: Low heart rate

Respiratory: The patient denies any history of pain, wheezing, chronic cough, hemoptysis, fever, or night sweats.

Gastrointestinal: constipation

Genital/Reproductive: Normal

Urinary: Normal

Musculoskeletal: complain of pain and weakness of muscles.

CNS: slow reflexes

Psych: Patient feels a little bit depressed

General physical examination

Temp: 37 °C, Pulse: 65 bpm, normal peripheral pulses, Respiration: 15 pm, BP: 110/70 mmHg

Weight: 50 kg, General Appearance: 35 year old man, oriented to person, place and time, bit depressed.

Neck: Thyroid not palpable, trachea central,

CVS: bradycardia

Respiratory system: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

GIT: flat; tenderness in right hypochondrium

CNS: sluggish reflexes

Investigations:

Labs:

Calcium 15 mg/dL (Normal range 10–12 mg/dL)

Phosphate 1.0 mmol/L (Normal >1.2 mmol/L)

PTH 150 ng/L (Normal range: 10–65 ng/L)

Urea, ALP, albumin Normal

Blood complete picture: Normal

Urine R/E: Normal

Radiology:

Chest X-ray: Normal

Special Investigations:

Bone X-ray: generalised bone resorption

USG abdomen: Multiple gall stones



Hypercalcemia, Hypophosphatemia, Hyperparathyroidism



At the end of theme student should be able to:

- correlate the developmental features of parathyroid glands in terms of source of origin, chronological order, positional changes and congenital anomalies
- Demonstrate the anatomy of parathyroid gland on given specimen
- Enlist the histological features of parathyroid gland
- Relate the Synthesis, Transport, mechanism of action, Regulation of PTH with clinical manifestations of hypo & hyperparathyroidism
- Compare the regulation of calcium and phosphate in ECF and plasma
- Relate the role of parathyroid hormone with bone mineralization
- Elucidate the activation, mode of action and role of vitamin D in bone metabolism
- Differentiate between primary and secondary hyperparathyroidism
- Interpret the role of PTH in osteoporosis
- Interpret the imaging modalities used in detection of bone mineral density



1. What are the causes of hyper and hypo parathyroidism?
2. What is typical clinical picture in psychic moans?
3. Why this patient is having generalized weakness?
4. What lab tests will you request for this patient immediately? What additional investigations might be appropriate?
5. Enlist complications of hyperparathyroidism
6. Describe the regulation of PTH in relation to changes in calcium and vitamin D levels
7. What imaging modalities can be used in patients with hyperparathyroidism?
8. What is primary and secondary hyperparathyroidism?
9. How will you differentiate among renal osteodystrophy, Paget's disease and metabolic bone disease

THEME-6: Stress



A 35 year old nursing staff presented to medical outpatient department AIMS with muscle weakness.

History of Present Illness:

This muscle weakness mainly affected her thighs with the result that she sometimes had to use her hands to help herself up from sitting position. She was also finding it difficult to climb ladder at work. She had no other complaints. She was admitted to hospital for further investigation. She admitted that she noticed the changes in her appearance over past 9 months but she had been too shy to seek medical advice

Past Medical History:

No history of any major illness in the past

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

She does not follow any particular diet.

Sleep patterns: She sleeps approximately eight hours nightly.

Family Medical History:

No history of any major illness in the family

Social History and Lifestyle:

She is well behaved and socially active.

Review of Systems

Moon like face, truncal obesity, hirsutism, abdominal striae

Cardiovascular: tachycardia

Respiratory: The patient denies any history of pain, wheezing, chronic cough, hemoptysis, fever, or night sweats.

Gastrointestinal: Normal

Genital/Reproductive: amenorrhea

Urinary: Normal

Musculoskeletal: proximal muscle wasting

CNS: Normal

Psych: Patient feels a little bit anxious

General physical examination

Temp: 37 °C, Pulse: 90 bpm, normal peripheral pulses, Respiration: 22 pm, BP: 180/110 mmHg

Weight: 80 kg, General Appearance: 35 year old woman, oriented to person, place and time, bit anxious.

Neck: Thyroid not palpable, trachea central,

CVS: No jugular venous distension, no carotid bruit, no murmurs on auscultation; normal S1 and S2; but tachycardia with regular rhythm.

Respiratory system: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

GIT: non-tender on palpation; no masses; no hepatosplenomegaly, bowel sound present

CNS: No neurological deficit

Investigations:

Labs

Serum: Sodium 136 mmol/L

Potassium 3.2 mmol/L

Bicarbonate 33 mmol/L

Blood glucose (fasting)	7.5 mmol/L
Serum cortisol (0900 h)	930 nmol/L
(2400 h)	900 nmol/L
Plasma ACTH (0900 h)	48 ng/L (Ref range: <50 ng/L)
Urine cortisol secretion	840 nmol/24 hrs

Radiology:

Chest X-ray: Normal

Special Investigations:

Imaging of adrenal gland



WORDS

Moon like face, abdominal striae, hirsutism



At the end of theme student should be able to:

- Illustrate the developmental features & congenital anomalies of Adrenal glands
- Demonstrate the anatomical features of Adrenal glands
- Enlist the histological features of Adrenal gland
- Relate the Synthesis, Transport and Bio-Chemical Role of Cortisol with Hypo & hypercortisolism
- Interpret the clinical features of Hypo & hypercortisolism on given picture/video
- Correlate the effect of cortisol on metabolism of carbohydrates, fats and proteins
- Relate the effect of cortisol on resisting stress and inflammation
- Relate the Synthesis & functions of catecholamine's with pheochromocytoma
- Enlist stress hormones.
- Interpret adrenal functions on lab report.
- Relate Paraneoplastic syndrome with non endocrine tissues



1. Identify three factors responsible for cortisol regulation.
2. Enumerate hormones of adrenal cortex and adrenal medulla
3. What lab tests will you request for this patient immediately? What additional studies might be appropriate?
4. Enlist clinical features of Cushing's syndrome.
5. What is the difference between Cushing's disease and Cushing's syndrome?
6. Enlist etiological factors of Cushing's syndrome?
7. What is positive and negative feedback control for cortisol?
8. What is the role of hypothalamic hypophyseal portal system in secretion of cortisol?
9. How secretion of aldosterone is regulated?
10. Describe the formation of cortisol, aldosterone, and adrenal androgens from cholesterol.
11. What imaging modalities can be used in patients with pituitary diseases?

THEME-7: Infertility



Mr. Afzal 32-year-old man presented with a history of painful mass in left groin.

History of Present Illness:

Patient was alright when he noticed a lump in his left groin two weeks back. It was firm and mobile and a bit painful to touch. He is married and issueless for the last five years.

Past Medical History:

No history of any major illness in the past

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

He does not follow any particular diet.

Sleep patterns: sleeps approximately eight hours nightly.

Family Medical History:

No history of any major illness in the family

Social History and Lifestyle:

He is a chain smoker.

Review of Systems

Cardiovascular: Normal

Respiratory: The patient denies any history of pain, wheezing, chronic cough, hemoptysis, fever, or night sweats.

Gastrointestinal: Normal

Genital/Reproductive: Swelling in the left groin

Urinary: Normal

Musculoskeletal: Normal

CNS: Normal

Psych: Patient feels a little bit depressed

General physical examination

Temp: 37 °C, Pulse: 72 bpm, normal peripheral pulses, Respiration: 18 pm, BP: 110/70 mmHg

General Appearance: 32 year, oriented to person, place and time, bit anxious.

Neck: Thyroid not palpable, trachea central,

CVS: No jugular venous distension, no carotid bruit, no murmurs on auscultation; normal S1 and S2; but tachycardia with regular rhythm.

Respiratory system: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

Abdomen: flat; non-tender to palpation; no masses; no hepatosplenomegaly, bowel sound present

CNS No neurological deficit found

Genitourinary system: Firm, mobile and mildly tender swelling in left inguinal region with empty scrotal sacs.

Investigations:

Blood complete picture: Normal

Urine R/E: Normal

Chest X-ray: Normal

Ultrasound: heterogenous testicles(Right in the abdominal cavity and left in the inguinal canal

Doppler scan: No blood flow seen in the left testis



Genitourinary examination, heterogeneous testicles, inguinal canal



At the end of theme student should be able to:

- Relate the development of male and female reproductive system
- Demonstrate the anatomy of Male and female reproductive system on dissected specimen/model
- Perform the dissection of Pelvis and perineum
- Enlist histological features of male and female reproductive system
- Relate Bio-Synthesis, Regulation & Functions of Testosterone with infertility
- Compare Formation, Fate & Actions of oestrogen & Progesterone.
- Relate infertility with endocrine dysfunction
- Evaluate infertility through investigative parameters
- Demonstrate History taking and examination on SP for infertility
- Investigate an infertile couple through a structured questionnaire.
- Enlist three advanced reproductive techniques
- Enlist imaging techniques to ascertain the causes of infertility
- Perform counseling of an infertile couple



1. What are the possible causes of infertility?
2. What role reproductive hormones play in secondary sexual characteristics?
3. What lab tests will you request for an infertile couple? What additional studies might be appropriate.
4. Illustrate a flow chart to evaluate infertility?
5. What is positive and negative feedback control for reproductive hormones?
6. What role hypothalamic hypophyseal portal system has to play in secretion of reproductive hormone?
7. What imaging modalities can be used in an infertile couple?
8. How will you counsel an infertile couple?

THEME-8: Nipple discharge



Mariam, a 32-year lady presented with history of lump in the right breast with nipple discharge of 2 months duration.

History of Present Illness:

The patient was all right 2 months back when she developed discharge from right nipple. The discharge was watery in consistency most of the time. Occasionally there was tinge of blood in it. Now for the last two weeks she noticed a hard lump in the upper outer quadrant of right breast.

Past Medical History:

She gave history of early menarche at 10 yrs of age.

Allergies:

The patient denies any significant drug or environmental allergies.

Personal Health:

She does not follow any particular diet.

Sleep patterns: The woman sleeps approximately eight hours nightly.

Family Medical History:

No history of any major illness in the family

Social History and Lifestyle:

She is an active lady and her 7yrs old son was never breastfed.

Review of Systems

Cardiovascular: Normal

Respiratory: The patient denies any history of pain, wheezing, chronic cough, hemoptysis, fever, or night sweats.

Gastrointestinal: Normal

Urinary: Normal

Musculoskeletal: Normal

CNS: Normal

Psych: Patient feels a little bit depressed

Reproductive system: pain in the breast

General physical examination

Temperature: 99.6F

Pulse: 72 bpm with normal peripheral pulses

Respiration: 18 pm

Blood Pressure: 110/70 mmHg

General Appearance: 32 year old woman, oriented to person, place and time, bit anxious.

Neck: Thyroid not palpable, trachea central

Breast examination: nipple discharge and tenderness around the areola. A 2x2cm hard, non tender mass sticks to underlying structures. There were few palpable axillary lymph nodes as well.

CVS: No jugular venous distention, no carotid bruit, no murmurs on auscultation; normal S1 and S2; but tachycardia with regular rhythm.

Respiratory system: Normal shape chest, equal movements bilaterally, with vesicular breathing, no added sound

GIT: non-tender to palpation; no masses; no hepatosplenomegaly, bowel sound present

CNS No neurological deficit found

Investigations:

Labs:

Biochemical profile: normal

Blood complete picture: Normal

Urine R/E: Normal

Radiology:

Chest X-ray: Normal

Special Investigations:

FNAC breast:

FNA of the breast lump was done. Smears were made, fixed and stained. Nipple discharge showed clumps of ductal epithelial cells arranged in papillary fronds. These cells had pale and scanty cytoplasm, round nuclei, dark with finely granular cytoplasm. The cells showed no cytological atypia. Several naked bipolar nuclei were seen at the margin of the cell clusters. Background showed RBCs and foamy macrophages. Aspirate from the lump was moderately cellular comprised of numerous papillary fragments of regular appearing ductal epithelial cells with connective tissue cores. Few apocrine cells and bare nuclei were also seen.

Mammogram: Scattered satellite lesions in right breast.



Breast, discharge, lump, FNAC



At the end of theme student should be able to:

- Illustrate the developmental features of breast
- Demonstrate the anatomy of breast in relation to underlying structures
- Enlist the histological features of breast on a given slide
- Relate lymphatic drainage of breast with breast carcinoma
- Illustrate the formation and transport of prolactin
- Correlate the Physiological and Biochemical role of prolactin with breast development
- Evaluate the function of hypothalamic pituitary axis for prolactin
- Relate triple assessment of breast with breast lump
- Enlist various imaging modalities for evaluation of Ca breast
- Demonstrate surface marking of breast on manikins/skeleton/peer/SP
- Perform self-examination of breast.
- Perform counselling of a woman after mastectomy.



1. Describe the role of prolactin in pregnant woman
2. What are risk factors to develop breast carcinoma?
3. What lab tests will you request for this patient? What additional studies might be appropriate?
4. Signify the role of FNAC in diagnosis of breast carcinoma
5. What is positive and negative feedback control for prolactin?
6. What role hypothalamic hypophyseal portal system has to play in secretion of prolactin?
7. What imaging modalities can be used in patient of Ca breast?
8. What is breast cancer screening?
9. What is triple assessment for breast pathologies?

Resource for learning

Reference Books:

- 1) Guyton & Hall: Text Book of Medical Physiology, 13th Edition
- 2) Sherwood 7th Edition
- 3) Ganong: Review of Medical Physiology, 25th Edition
- 4) Clinical Anatomy by Snells
- 5) RJ Last: Regional Anatomy
- 6) Clinically Oriented Anatomy by Keith. L. Moore
- 7) The Developing Human by Moore & Persaud
- 8) Basic Histology by Luiz Carlos Junqueira
- 9) DiFiore's Atlas of Histology 11th Edition
- 10) Lippincot: Biochemistry review 5th edition
- 11) Harper's Biochemistry 28th Edition
- 12) Mark's Biochemistry 3rd Edition
- 13) Macleod's Clinical Examination

Glossary: Following online medical dictionaries can be referred to
www.nlm.nih.gov/medlineplus/mplusdictionary.html
www.online-medical-dictionary.org
www.medterms.com

PBL-1

A 45 year old man attended the outpatient department of AIMS with history of increasing headaches and pain in the knee joints. He also noticed that his shoe size is changing quite rapidly and his finger rings were becoming tight. He had some difficulty in chewing food and used to get tired quickly. His friends noticed that his voice was deep and heavy and sometimes husky. The patient also noticed excessive sweating and small papillomatous lesions over his trunk. At night he had some tingling sensations in both forearms. Recently he was getting breathless and was passing excessive amount of urine.

He had no serious illnesses in the past and was not allergic to any drugs. He smoked 20 cigarettes a day. On examination, he was of large built. His facial features were a bit coarse and he had frontal bossing. There was no pallor, cyanosis, jaundice or clubbing, but his hand was abnormally broad with coarse skin. His pulse was 78 per minutes regular and BP was 160/100 mm Hg.

Cardiovascular system revealed displaced apex beat. Chest was clear.

Abdominal examination was unremarkable except for small papillomatous lesions over his trunk

Neurological examination revealed bitemporal hemianopia. Fundoscopy was normal.

He was admitted for further workup.

PBL-2

A 63 year old man was admitted in the ward with a history of painful right thigh and increasing difficulty in climbing the stairs for the last four weeks. He also complained off and on cramp like pain in his both calves. He was known late onset diabetic but was well controlled with oral hypoglycemic agents in the recent past. Recently, he had experienced excessive thirst and passed urine at night more frequently. He had lost 6.5kg weight over the last three weeks. He had attended casualty department following a fall while getting out of the bathroom about ten days ago, but he was sent home since there was no evidence of bony injury on the x ray of his pelvis and hips. He was not known hypertensive. He occasionally smoked five to six cigarettes per day.

On examination, he was mentally alert. There was no clubbing, cyanosis, lymphadenopathy, anaemia or jaundice. Examination of cardiovascular system showed feeble femoral pulses and both dorsalis pedis were hardly palpable. Respiratory system showed bilateral crackles and abdomen was normal. He had hard exudates in his fundi. There was wasting of thigh muscles and they were weak as well without sensory changes. Reflexes were normal apart from sluggish knee jerks on both sides and absent ankle jerks.

His Blood sugar was 23mmol/l or 414mg/dl, Hb-A1c was 11g/dl (5-8g/dl)

Urine analysis revealed sugar+++, no ketones, Blood urea 78mg/dl or 13mmol/l and serum Potassium 5.2mmol/l

After initial investigations he was put on regular insulin 12 unit TDS. Blood and urine sugar was monitored regularly to adjust the dose.

PBL-3

A 52 year old woman was admitted with three month history of undue tiredness, shortness of breath on exertion, swelling of both legs and occasional palpitations which she described as butterflies in the chest. She denied having any chest pain. Her appetite had been good and she had not lost any weight. Bowels were normal and there were no urinary symptoms. She also complained of rumbling noise in her abdomen and it was told by her daughter that she felt very uncomfortable in hot weather. She also had become a little bit irritable and on times disoriented and rather confused.

On examination, she looked tired and apathic and was mildly confused. JVP was raised by 2cm and she had bilateral pitting ankle oedema. Blood pressure 160/80mm Hg sitting, 155/90mm hg standing. Pulse was 130 per minute and irregular. Her palms were sweaty. Apex beat was in fifth intercostals space inside mid clavicular line. Thyroid and lymph nodes were enlarged. She had tremors in her both hands when stretched out, but there was no lid lag or exophthalmos. she had bilateral crackles in her chest. Apex rate was 140 irregular and she had a wide spread soft systolic murmur. Abdomen was normal and there were no localizing neurological signs. She could walk without any help. Investigations revealed high serum T3 and very low TSH. She was suggested FNAC and Thyroid scan and placed on propylthiouracil 100mg 8hrly and propranolol 20 mg bd. FNAC showed colloid material with hyperplasia. Thyroid scan showed enlarged right lobe of thyroid with multiple rounded areas of increase uptake.

PBL-4

A 36 years old house wife presented in OPD of AIMS with a three month history of excessive weight gain, facial hair growth and weakness. She had gained about 4kg of weight during the last three month. Her diet and level of physical activities had not changed significantly. She had found the facial hair growth embarrassing, and in spite of the fact that she had shaved frequently, she had not felt like going out in recent weeks. She felt depressed and weak and also noticed that she was developing bruises on the skin easily. There was no history of urinary symptoms and her bowels were normal. She lived with her husband and three young children. Her periods were regular and she was not taking any drugs including contraceptive pills. There was no significant history of past illness.

On examination, she was obese, weight was 71 kg, and height was 5ft 1inch.jvp was normal. Blood pressure was 160/100mHg. Pulse was 78 per minute and regular. Peripheral pulses were normal. There was no anemia, cyanosis, jaundice, clubbing or oedema. She had a few hairs on her chin and above upper lips. Abdomen was distended with stretch marks on the skin. Respiratory and neurological examinations were normal.

Provisionally she was put on Mitotane 500mg B.D and admitted for further workup.

PBL-5

32 years old lady married for 10 year presented in OPD of SKBZ hospital with presenting complain of inability to conceive for last 10 year, on inquiring history she lived with her husband and it was couple's first marriage with no coital problem. Her husband is shopkeeper,

Regarding detail history of female she had regular cycle with no dysmenorrhea, dyspareunia and intermenstrual spotting. There is history of wt. loss, wt. gain, heat or cold intolerance, no h/o excessive hair growth. No h/o nipple discharge and T.B. in her r family. She took multiple courses of clomiphin citrate for ovulation induction but to conceive.

On examination normal height wt and well oriented lady with normal vital signs. Thyroid was not enlarged and there was no lump in breasts.

On speculum examination vulva, vagina, and cervix healthy looking

On bimanual examination uterus was of normal size with no adenexal mass.

Her INVESTIGATION showed normal husband semen analysis, day 21 progesterone is 35 nmole /lit, 12 day scan showed 18mm size mature follicle, hysterosalpingography and laparoscopy revealed normal tubal patency.

She is diagnosed as a case of unexplained infertility and you advise her to seek for assisted reproductive techniques.

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EMR Module 2nd Year MBBS

Week 1					
Date →					
↓ Time	Monday	Tuesday	Wednesday	Thursday	Friday
8-9am	<u>SPS Module Assessment</u>	<u>LGIS</u> Development of pituitary Dr. Shakeel	<u>LGIS</u> Hypothalamic hypothyseal portal system Dr. Shakeel	<u>SGD</u> Anatomy of pancreas Dr. Asad Bilal & Team-1	Islamiat
8-10am		<u>LGIS</u> Pituitary Hormones Dr. Zahid Azeem	<u>LGIS</u> Functions of GH Dr. Ijaz Anwar	<u>Wrap-up</u> Dr. Asad Bilal	Pakistan Studies
	Tea Break 10:00 to 10: 30				
10:30-11:30 pm	<u>Introduction to EMR Module</u> Prof. Ayub, Prof. Alam Khan & Dr. Asad Bilal	<u>SGD</u> Topographic anatomy of pituitary Dr. Asad &Team-1	<u>PBL 1B</u> Dr. Fauzia & Team-2	<u>LGIS</u> Functions and abnormalities of TSH, ACTH, FSH, LHes Dr.Ijaz Anwar	<u>Multimedia Slide Show</u> Histology of Exocrine and endocrine pancreas Auditorium/L H-3
10:30-11:30 pm	<u>PBL 1A</u>				
11:30-1:30 pm	Dr. Fauzia & Team-2	<u>DSL</u> Blood Supply of Pituitary Gland	<u>LGIS</u> Abnormalities of GH Dr. Ijaz Anwar	<u>LGIS</u> How to prepare & present a research paper Prof. Anwar	SDL
	Lunch & Prayer Break 1:30-2:00				
1:30-3 pm	<u>Practical</u> Histology of pituitary Histo-lab 1-50 Patho-lab 51-100 Dr. Asad &Team-1	<u>Practical</u> Evaluation of hypothalamic pituitary axis Histo-lab 1-50 Patho-lab 51-100 Prof. Anwar & Team-3	<u>Practical</u> Growth chart Histo-lab 1-33 Physio Lab 34-67 Bio-lab 68-100 Drs. Uzma Hafeez, & Team-2	<u>SGD</u> Synthesis, transport & regulation of Growth hormone Prof.Alam & Team-2 <u>Wrap-up</u> Prof. Alam Khan	<u>SDL</u> <u>Diabetes mellitus</u>
3-4 pm					

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EMR Module (2nd Year)

Week 2					
Date					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
8-9 am	<u>SGD</u> Endocrine pancreas Dr. Fouzia & Team-2	<u>LGIS</u> Functions of insulin and glucagon Dr. Fouzia	<u>LGIS</u> Diabetes mellitus & regulation of blood glucose Prof. Javed Rathore	<u>LGIS</u> Type-I & Type-II Diabetes Mellitus Dr. Zahid Azeem	Islamiat
9-10 am			<u>LGIS</u> Acute pancreatitis Dr. Naheed	<u>LGIS</u> Endocrine pancreas Dr. Ali Arshad	Pakistan Studies
	Tea Break				
10:30 - 11:30 pm	<u>LGIS</u> Synthesis, Transport & mechanism of action of insulin Prof. Alam Khan	<u>LGIS</u> Development of Pancreas Dr. Asad Bilal	<u>Dissection</u> Pancreas Dr. Asad & Team-1	<u>Skill Lab</u> Counselling of diabetic patient Dr. Ashfaq, Muazza, Col. Muhammad Ilyas	<u>PBL 2B</u> Dr. Ijaz Anwar & Team-2
11:30 - 12:30 pm	<u>PBL-2A</u> Prof. Ayub & Team-2	<u>LGIS</u> Effect of insulin on fat and protein metabolism Prof. Alam Khan			
12:30 -1:30 pm		<u>LGIS</u> Diabetic ketoacidosis Dr. Zahid Azeem	<u>LGIS</u> Effect of somatostation on endocrine pancreatic function Dr. Zahid Azeem	DSL Preparation of PBL-2B in Groups	DSL Exocrine Pancreas
	Lunch & Prayer Break 1:30-2:00				
2-4 pm	<u>Practical</u> A: Histology:(1-34) Topic: Pancreas B: Biochemistry:(35-68) Topic: Glucose C: Physiology: (69-103) Topic: Diabetes Mellitus	<u>Practical</u> A: Histology: (35-68) Topic: Pancreas B: Biochemistry:(69-103) Topic: Glucose C: Physiology: (1-34) Topic: Diabetes Mellitus	<u>Practical</u> A: Histology: (69-103) Topic: Pancreas B: Biochemistry: (1-34) Topic: Glucose C: Physiology: (35-68) Topic: Diabetes Mellitus	<u>SGD</u> Thyroid Team-1 <u>Wrap Up</u> Dr. Asad Bilal/ Shakeel	<u>SDL</u>

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EMR Module (2nd Year)

Week 3					
Date →					
↓ Time	Monday	Tuesday	Wednesday	Thursday	Friday
8-10am	<u>Practical</u> A: Physiology:(G:1; 1-34) Topic: BMI B: Histology: (G:2; 35-68) Topic: Thyroid Gland C: SDL : (G:3; 69-103) Topic: Iodine metabolism	<u>Practical</u> A: Physiology:(G:2; 35-68) Topic: BMI B: Histology: (G:3; 69-103) Topic: Thyroid Gland C: SDL : (G:1; 1-34) Topic: Iodine metabolism	<u>Practical</u> A: Physiology: (G:3; 69-103) Topic: BMI B: Histology: (G:1; 1-34) Topic: Thyroid Gland C: SDL : (G:2; 35-68) Topic: Iodine metabolism	<u>LGIS</u> Calcium Metabolism & control Dr. Zahid Azeem	<u>SGD</u> Tetany Team-2
10 - 10:30	Tea Break				
10:30-11:30 pm	<u>SGD</u> Thyroid Team-1 <u>Wrap Up</u> Prof. Ghuncha	<u>SGD</u> Thyroid function Tests Team-2 <u>Wrap-up</u> Dr. Zahid & Team	<u>LGIS</u> Hyperthyroidism Dr. Fauzia	Islamiat Prof. Ghuncha	<u>LGIS</u> Thyrotoxicosis Dr. Javed Rathore
11:30-12:30 pm		<u>LGIS</u> Hypothyroidism Dr. Fauzia	Skill Lab History & Examination of Patient with Goiter Dr. Naheed, Farzana & Masood Kant	Pakistan Studies/Arabic Prof. Ayub	<u>LGIS</u> Imaging modalities of thyroid Dr. Shaukat Dar
12:30-1:30 pm	<u>LGIS</u> Iodine uptake and synthesis of thyroid hormones Prof. Alam Khan			DSL Sources of calcium in Diet,	
12:30-1:00	Lunch & Prayer Break				
1:30-3 pm	<u>LGIS</u> Thyroid, Functions and abnormalities Dr. Fauzia	<u>LGIS</u> Topographic anatomy of thyroid & parathyroid Prof. Ghuncha	<u>LGIS</u> Prevention of Iodine Deficiency Goiter Prof. Brig.® Ahmed Khan	<u>PBL-3B</u> Dr. Zahid & Team-2	<u>SDL</u> Prevention of Thyroid Disease
3-4 pm	<u>DSL</u> Endemic Goiter	<u>PBL-3A</u> Dr. Zahid & Team	<u>DSL</u> Graves Disease		

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EMR Module (2nd Year)

Week 4					
Date					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
8-10am	<u>SGD</u> Bone Mineral homeostasis Team-2 <u>Wrap-Up</u> Dr. Zahid Azeem	<u>PBL 4-A</u> (Cushing's) <u>Dr. Ijaz and Team-2</u>	<u>LGIS</u> Synthesis of Mineralocorticoids <u>Dr. Zahid Azeem</u>	<u>LGIS</u> Development of Male Reproductive system Prof. Ghuncha	Islamiyat <u>Prof. Rafiq A Ghuncha</u>
			<u>LGIS</u> Functions of Mineralocorticoids <u>Dr. Ijaz Anwar</u>	Simple Arabic Language <u>Prof. Anwar ul Haq</u>	<u>LGIS</u> Biosynthesis & mechanism of action of Male reproductive hormones <u>Prof. Alam Khan</u>
10 - 10:30	Tea Break				
10:30-11:30	<u>LGIS</u> Development of Adrenals <u>Dr. Asad Bilal</u>	<u>LGIS</u> Chemistry of Glucocorticoids <u>Dr. Zahid Azeem</u>	<u>LGIS</u> Disorders of Adrenal Cortex <u>Dr. Khalid Awan</u>	<u>PBL-4-B</u> Prof. Ayub & Team 2	Dissection Videos Team-1
11:30-12:30	<u>Practical</u> Histology of Adrenal Cortex & Medulla <u>Dr. Asad Bilal and Team-1</u>	<u>LGIS</u> Functions of Glucocorticoids <u>Dr. Ijaz Anwar</u>	<u>SGD</u> Adrenal Medullary Hormones <u>Team-2</u>		
12:30-1:30		<u>SDL</u>	<u>LGIS</u> Pheochromocytoma <u>Prof. Nizamuddin</u>		
1:30-2:00	Lunch & Prayer Break				
2:00-3:00 pm	<u>LGIS</u> Functions and actions of ACTH <u>Dr. Ijaz Anwar</u>	<u>SGD</u> Cushing's Syndrome Addison's Disease <u>Team-2</u>	<u>DSL</u> Suprarenal Pathologies	<u>LGIS</u> Pituitary-Gonadal Axis <u>Dr. Ijaz Anwar</u>	<u>DSL</u> Puberty
3-4 pm	<u>DSL</u> Hormones of Adrenal Cortex			<u>DSL</u> Male sex hormones	

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EMR Module (2nd Year)

Week 5					
Date →					
↓ Time	Monday	Tuesday	Wednesday	Thursday	Friday
8-10am	<u>SGD</u> Clinical Anatomy of Breast <u>Team-1</u> <u>Prof. Nizam ud Din</u>	<u>LGIS</u> Chemistry of Female Sex Hormones Dr. Zahid	<u>LGIS</u> Morphology and Development of Female Reproductive system Prof. Ghuncha	<u>PBL - 5A</u> Dr. Shafaq Dr. Mohsina	Pak. Studies
		<u>LGIS</u> Ovarian Cycle Dr. Fauzia		<u>SGD</u> Dr. Zahid & Team-2	Islamiyat/Arabic
10 -10:30	Tea Break				
10:30-11:30 pm	<u>Dissection</u> Pelvis and perineum-1 Team-1	<u>SGD</u> Development Anomalies Team-1	<u>PBL-4B</u> Prof. Ayub & Team-2	<u>Dissection</u> Pelvis & perineum-2 Dr. Asad & Team - 1	<u>Dissection</u> Pelvis and perineum-3 Team-1
11:30-12:30 pm		<u>LGIS</u> Endometrial Cycle Dr. Ijaz Anwar	<u>LGIS</u> Functions of Placenta Dr. Ijaz Anwar	<u>LGIS</u> Hormones acting on Breast Dr. Zahid Azeem	
12:30 to 1:30					
1:30-2:00	Lunch & Prayer Break				
2:00-3:00 pm	<u>PBL 4-A</u> Prof. Ayub & Team-2	<u>SGD</u> Changes during pregnancy <u>Team 2</u>	<u>Skill Lab</u> Counselling on Infertility <u>Dr. Fauzia/Dr. Mohsina</u>	<u>LGIS</u> Physiology of lactation Prof. Ayub	<u>DSL</u> <u>Infertility</u>
3:00-4:00 pm				<u>DSL</u> Food Supplement for lactating woman	

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EMR Module 2nd Year MBBS

Week 6					
Date					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00-9:00	<u>LGIS</u> Clinical Anatomy of Uterus including ligaments & positions Dr. Shafaq	<u>LGIS</u> Demographic cycle & trends Dr. Murtaza	<u>Practical</u> Breast Histo-lab 1-50 Patho-lab 51-100 Team-1	<u>LGIS</u> Clinical Anatomy of Breast Dr. Adnan Mehraj	<u>LGIS</u> Imaging of Breast/ Mamography Dr Shaukat Dar
9:00-10:00	<u>LGIS</u> Anatomy of Prostate Dr. Asad Bilal	<u>LGIS</u> Androgens synthesis transport & regulation Prof. Alam Khan	<u>LGIS</u> Synthesis, functions and regulation of female reproductive hormones Dr. Zahid Azeem	<u>LGIS</u> Indicators of maternal & child health care <u>Dr. Irum Gilani</u>	
Break 10:00 – 10:15					
10:15-11:15	<u>Practical</u> Microscopic anatomy of male reproductive system Histo-lab 1-50 Patho-lab 51-100 Team-1	<u>Skill lab</u> History & Breast Examination (Breast Self-Examination) Drs. Nosheena, Aleena, Zarnab, Sumaira, Hina, Komal, Amna	<u>SGD</u> Bio synthesis & actions of prolactin Team-2	<u>Practical</u> Histology of Gonads Histo-lab 1-50 Patho-lab 51-100 Team-1	<u>SGD</u> Prevention & management of STI & HIV/AIDs Prof. Ahmed Khan & Team-4
11:15-12:15					
12:15-1:00	<u>SGD</u> Pelvic diaphragm Team-1	<u>Practical</u> Histology of Female genital tract-1 Team-1	<u>Practical</u> Histology of Female genital tract-2 Team-1	<u>LGIS</u> Triple assessment of breast & counselling Prof. Nizamuddin	<u>JUMA PRAYERS</u>
1:00-1:30	Prayer Break				
1:30-4:00	<u>DSL</u> Pelvic peritoneum including rectovesical & recto uterine pouches	<u>DSL</u> Breast Cancer	<u>DSL</u> Contraception in females	<u>DSL</u> Contraception in males	<u>DSL</u> Intersex



Inquires and troubleshooting:

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