Syllabus for M.Ch Endocrine Surgery
at
The Tamilnadu Dr.M.G.R.Medical University

Resubmitted to

The Board of Studies in Superspecialities

The Tamilnadu Dr.M.G.R.Medical University

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by

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Points which were considered before deciding the Syllabus for M.Ch Endocrine Surgery, a Superspeciality course at **The Tamilnadu Dr.MGR Medical University**

1. By definition an Endocrine Surgeon is the one who operates on Endocrine Glands.

2. Target organs of the Hormones are eliminated from the purview of the Endocrine Surgeons since all tissues in the body comes under the action of various Hormones.

3. Breast which is not an endocrine gland is not included in the syllabus for M.Ch Endocrine Surgery for the above mentioned reason.

4. Diabetic foot is also not included for the same reason.

5. Trans Nasal Trans sphenoidal Hypophysectomy is included in the syllabus since it is the surgery on the master Endocrine gland. Currently this procedure is done by a few ENT surgeons and a few Neurosurgeons.

6. Endocrine glands which are included are as follows:

Pituitary,Thyroid, Parathyroid, Adrenal, Pancreas and the Neuroendocrine Tumors of the gut and Pancreas.

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Physiology of specific glands

Thyroid: The role of iodine in the normal function of the thyroid including pathways of iodine metabolism. The physiology of TSH and Thyrotropin releasing factor. The functions of T3 and T4. Role of thyroglobulin in thyroid physiology. Thyroid hormone release. The principles underlying the functioning of the pituitary thyroid axis. Tests of thyroid function including the use of isotope uptake tests. Thyroid antibodies and their significance. An understanding of the physiological impact of Graves' disease on normal bodily functions. Mechanisms of ophthalmic manifestations of Graves' disease. Physiology of thyroid crisis. Effects of calcitonin.

Parathyroid glands: An understanding of the metabolism of minerals especially calcium, magnesium and of phosphate. The activity of PTH on kidney, gut and bone. D Vitamins and their function. The measurement of PTH and an appreciation of the different terminal Components. Reabsorbtion of phosphate. The functions of nephrogenic cyclic AMP in parathyroid physiology.

The pituitary: Structure, Cells of origin, the basic metabolism and function of anterior pituitary hormones with no feedback loops (growth hormone and prolactin) and those with feed back loops (LH, TSH and ACTH). Hypothalamic pituitary pathways and related releasing substances. Corticotrophin releasing factor and its relationship to ACTH. Physiology of ACTH and TSH including diurnal variation. ACTH changes in response to stress, illness and trauma. Knowledge of the function and significance of ADH, Growth Hormone and Oxytocin.

Adrenal cortex: The biosynthesis of glucocorticoids. Physiology of glucocorticoids including their relevance to immunological mechanisms and would healing. Metabolism of cortisol and knowledge of those metabolites which are measured in clinical practice. The physiology of adrenal androgens and the effects of pathological overproduction. The mineralocorticoids. The biochemistry and precursors of aldosterone. An understanding of the renal angiotensin mechanisms. The action on aldosterone on distal tubule function. Aldosterone response to alterations in electrolyte levels. Knowledge of tests of adrenal cortical function test of adrenal responsiveness, the dexamethasone test. The ACTH stimulation test.

Adrenal Medulla: Metabolic pathways of adrenaline and nor adrenaline production. The assessment of adrenal medullary activity. An understanding of the effects of excess catecholamine on cardiovascular and intestinal function and on carbohydrate metabolism.

Endocrine gastroenteropancreatic system: An appreciation of the physiology of gastrin. Insulin, glucagons, pancreatic polypeptide, VIP, secretin and somatostatin.The identification of cells of origin of gut hormones by immunocytochemistry. The pathophysiology and regulation of overproduction of insulin, gastrin. pancreatic polypeptide, serotonin and gut kinases.

For specific conditions:

Knowledge of pathophysiology and pathology
Outline of medical investigations
Details of imaging
Methods of biopsy
Interpretation of histological and cytological specimens
Treatment options. Surgical vs. other.
Preoperative preparation
Anesthetic and pharmacological peculiarities
Operative techniques and strategies
Postoperative care including substitution therapies
Additional and adjuvant treatment
Prognosis and strategies for follow up
Counseling and screening in familial diseases.

Specific topics:

Pituitary	Tumors of Pituitary (Cushing's disease, Acromegaly, prolactinoma) Clinical presentation Investigations to confirm the diagnosis Medical and surgical management Trans sphenoidal Hypophysectomy Management of complications of surgery
Thyroid	Management of various thyroid disorders Thyrotoxicosis Including Etiology Medical and radioisotope therapy Management of eye disease Surgical strategies Organization of follow up Monitoring of replacement therapy Thyrotoxicosis in Pregnancy Thyrotoxicosis in Childhood Ectopic thyroid Lingual thyroid Dyshormonogenic Goiter Thyroiditis Solitary nodule Multinodular Goiter Retrostemal Goiter Thyroid malignancy of all types Medullary carcinon a and MEN type1&2 Technique of thyroidectomy Techniques of block dissections of neck Complications of thyroidectomy Management of RLN palsy suppressive thyroxin therapy

Parathyroid	Primary, secondary and tertiary Hyperparathyroidism Investigation of hypercalcaemia Management of acute hypercalcaemia Strategies in parathyroidectomy Technique of parathyroidectomy Management of HPT in renal patients Management of HPT in MEN patients Management of recurrent and persistent HPT Parathyroid auto transplantation Parathyroid carcinoma Management of Hypocalcaemia
Adrenal	Cushing's disease and syndrome Investigations Indications for adrenalectomy Nelson's syndrome Conn's Syndrome Virilising Adrenal Tumours Incidentalomas Phaeochromocytoma Pharmacological and anesthetic management of phaeochromocytoma Surgical management of phaeochromocytoma MEN type2 Other adrenal endocrine tumors paraganglioma Adrenal malignancy Strategies and routes for adrenalectomy Replacement therapy Management of Adrenal Tumours

Neuroendocrine tumors of the gut and pancreas

Insulinomas
Gastrinomas and ZE Syndrome
Glucagonomas
VIPomas
MEN1 and other familial endocrine tumors
Carcinoids/neuroendocrine tumors of
Foregut,midgut and hindgut
Carcinoid syndrome
Surgical management of Neuroendocrine tumors of the gut and pancreas

Special postings at the discretion of the HOD:

In allied specialities like Nuclear Medicine, Oto Rhino Laryngology, Neuro Surgery & Medical Endocrinology for a period of **two months**.

In a sister department within the country or outside the country for a period of **one month** without any financial commitment to the Government.

M.Ch Endocrine Surgery Question Paper

M.Ch Endocrine surgery will also follow the same pattern of other M.Ch Degree examinations.

This will also have four papers.

Each paper is for 100 marks and the time allotted is **Three hours**.

Every paper shall have Two sections.

Section one is for Essays which will have **two questions**, each carrying 20 marks(**total 40**)
and
Section Two is for short notes which will have **ten questions**, each carrying 6 marks(**total 60**)

The focus in each paper will be as follows.

Paper I : Basic Sciences As Applied to Endocrine Surgery.
(Applied Anatomy,Physiology,Biochemistry,Pharmacology and Pathology)

Paper II: Endocrine Surgery -General

Paper III: Endocrine Surgery - Focussed to Thyroid & Thyroid related diseases.

Paper IV: Endocrine Surgery – Recent Advances in Endocrine Surgery and Investigations for Endocrine Diseases