



UEMS EBSQ ENDOCRINE SURGERY

SYLLABUS

SYLLABUS DEFINITION

This is an academic document that communicates course information and defines expectations and responsibilities in preparation for the UEMS EBSQ Examination in Endocrine Surgery, leading to conferment of the FEBS Endocrine Surgery.

WHY IS IT NECESSARY?

Because of the necessity to maintain standards. This need is a consequence of:

- Free movement of healthcare professionals in Europe
- Movement of patients and medical tourism
- The improving understanding of disease
- New technologies
- The evolution of disease
- The introduction of patient electronic record and establishment of benchmarks
- An aging and more complex population
- New requirements to remain in practice
- Shorter working hours and shorter period of training
- To ensure patient safety

WHAT IS ASSESSED?

- Knowledge
- Clinical and technical skills
- Attitudes
- Relating to patients
- Communication and interpersonal skills
- Teamwork and collaboration
- Management including self-management

In other words, all that leads to an enhanced quality of patient care and patient safety.

OBJECTIVES OF THIS SYLLABUS:

- To communicate information and define expectations and responsibilities for potential candidates, in their preparation for the UEMS EBSQ Examination in Endocrine Surgery, leading to conferment of the FEBS Endocrine Surgery.
- To help the designers of the assessments and examiners, leading to transparency, fairness, equity, maintenance of standards, Quality Assurance and Improvement and ultimately, patient safety.
- Setting the course towards convergence of Exit Examinations in Europe and beyond so as to approach a real Extra-European Higher Education Area which includes Medicine.

The objectives, knowledge, clinical skills and technical skills required are listed by chapters with reference to each main item.

Requirements for Board Certification of the Division of Endocrine Surgery (DES) in Endocrine Surgery

This curriculum is aimed to form the basis for accreditation to a high level of competence in Endocrine Surgery.

Candidates for accreditation in Endocrine Surgery must have in addition to a proper knowledge and experience of the principles and practice as defined by General Surgery (Appendix A):

- 1) a firm grounding in the basic and clinical science aspects of the organs and diseases with they should be familiar (Appendix B),
- 2) a training in an endocrine surgical unit for a minimum of 2 years. For the calculation of this time, the residence period has to be excluded (Appendix C),
- 3) an appreciation of relevant current research and clinical developments gleaned from attendance of at least 4 specialist meetings or postgraduate courses (Appendix D),
- 4) a defined minimum of operative experience endocrine surgery (Appendix E),
- 5) at least two indexed publications (with impact factor) or published abstracts.

APPENDIX A – COPY OF PART 7 (ENDOCRINE) OF THE SYLLABUS FOR THE EBSQ GENERAL SURGERY EXAMINATION

7.1 NECK SWELLINGS

OBJECTIVE: Assessment and management of neck swellings.

KNOWLEDGE: Anatomy of triangles of neck: submental, submandibular, anterior, posterior. Causes of enlargement of salivary glands / thyroid gland. Thyroglossal cyst, lymph nodes. Skin and soft tissue including branchial cyst.

Investigation of neck swellings: diagnostic imaging, ENT assessment, pathology and biochemistry.

CLINICAL SKILLS: History and examination of neck swellings. Investigation. Diagnostic imaging. ENT assessment. Pathology. Biochemistry.

TECHNICAL SKILLS: Biopsy – FNA. Cervical lymph node biopsy.

7.2 THYROID GLAND

OBJECTIVE: Investigation and perioperative management of thyroid swellings and thyrotoxicosis. Preop assessment: diagnosis and assessment of thyroid swellings and thyrotoxicosis.

Operative management: operative management of thyroid swellings (benign and malignant) and thyrotoxicosis.

Postoperative management: postoperative care after thyroid surgery.

KNOWLEDGE: Anatomy of the neck, in particular the thyroid and parathyroid glands. Pathophysiology of thyroid swellings: generalised/solitary; functioning/non-functioning.

Benign disorders of thyroid growth. Diffuse enlargement, nodular disease. Disorders of thyroid function. Causes, Treatment options. Medical treatment of thyrotoxicosis.

Thyroid malignancy. Differentiated, medullary, anaplastic, lymphoma.

Genetic implications of thyroid malignancy.

Principles of operation for thyroid swellings and thyrotoxicosis.

Complications of thyroid surgery.

Thyroid replacement therapy in benign disease.

Follow up and non-surgical management / treatment of thyroid malignancy.

CLINICAL SKILLS: History and examination.

Investigations: thyroid function tests, autoantibodies, FNA, Ultrasound, Isotope scan.

Indications for surgery. Thyrotoxicosis, benign nodular disease, malignancy. Decisions for operative or non-operative management. Choice of operation.

Postoperative management. Postop bleeding, airway problems, hypercalcaemia.

Diagnosis and management of recurrent thyroid disease benign / malignant, MDT discussions.

TECHNICAL SKILLS: Thyroid lobectomy. Subtotal thyroidectomy. Total thyroidectomy. Thyroidectomy - toxic goitre. Thyroidectomy - total + cervical node dissection - central and lateral compartments. Thyroid surgery – reoperation. Cervical approach to retrosternal goitre. Sternotomy for retrosternal goitre.

7.3 PARATHYROID GLANDS and THYMUS

OBJECTIVE: Assessment and treatment of disorders of parathyroid function
Diagnosis /Assessment: Diagnosis and assessment of disorders of parathyroid function.

Operative Management: Understanding of the principles of surgery for disorders of parathyroid function including re-exploration of the neck.

Postoperative management: postoperative management after parathyroid surgery

KNOWLEDGE: Anatomy / embryology / pathophysiology. Genetic implication of parathyroid disease. Hypercalcaemia Causes. Investigation. Medical management. Hypocalcaemia Causes. Investigation. Medical management. Causes of hyperparathyroidism Primary, renal, MEN, persistent or recurrent carcinoma. Diagnosis and assessment. Indications for and types of imaging.

Indications for surgery in renal parathyroid disease. Surgical strategies for hyperparathyroidism. Intraoperative management frozen section, PTH assay.

Complications of parathyroid surgery. Options for and organisation of follow-up.

CLINICAL SKILLS: History and examination. Investigations - biochemical, radiological. Selection for surgery. Options for four-gland exploration, single gland exploration. Subtotal resection, transcervical thymectomy. Focussed approach to parathyroid surgery. Indications for mediastinal exploration.

Postop complications: Bleeding, airway problems, hypocalcaemia.

TECHNICAL SKILLS: Parathyroidectomy. Parathyroid surgery – reoperation. Thymectomy – transcervical.

7.4 ADRENAL GLAND

OBJECTIVE: Assessment and management of enlarged adrenal gland including operation. Diagnosis and assessment of adrenal swellings. Operative management: principles of operative management of adrenal swellings.

Postoperative management: basic postoperative management of patients who have had adrenalectomy.

KNOWLEDGE: Anatomy and physiology of adrenal. Genetic implications of adrenal disease. Causes of adrenal mass. Disorders of adrenal function. Hyperadrenalism. Hypoadrenalism. Indications for surgery. Effect of hormone producing tumours in perioperative period. Open or laparoscopic surgery. Different approaches to adrenal: anterior, posterior, laparoscopic. Complications of adrenalectomy.

CLINICAL SKILLS: History and examination. Investigations - Biochemical, radiological. Selection for surgery. Preoperative preparation for hormone secreting tumours Endocrinologist, Anaesthetist consultation. Postop management of acute adrenal insufficiency. Postoperative management of patients with hormone secreting tumours. Management of postop bleeding and infection. Appropriate follow-up.

TECHNICAL SKILLS: Adrenalectomy.

7.5 ENDOCRINE PANCREAS

OBJECTIVE: Diagnosis, assessment and management of pancreatic endocrine tumours (level of involvement in diagnosis and operation may vary between HPB and endocrine units).

Diagnosis: Diagnosis and assessment of possible pancreatic endocrine tumours, often in consultation with other specialists.

Management: Management of pancreatic endocrine tumours, level of operative skill expected dependent on local arrangements.

Post-operative care: Management of both immediate and long-term care after surgery for pancreatic endocrine tumour

KNOWLEDGE: Presentation of neuroendocrine tumours Insulinoma, gastrinoma, MEN1, glucagonoma, VIPoma, nonfunctioning tumour. Investigation. Treatment options. Complications: bleeding, fistulae, diabetes.

CLINICAL SKILLS: History and examination. Investigations Biochemical, radiological, preop and intraop, ERCP, EUS. Treatment options (laparoscopic or open) and preop preparation.

Pancreatic resection, enucleation, biliary bypass, hepatic resection, ablation of tumour. Metastatic disease management. Postop complications: indication for re-operation, pancreatic leak / fistula, nutrition.

TECHNICAL SKILLS: Reoperation. Pancreas enucleation. Distal pancreatectomy. Pancreatico-duodenectomy. Biliary bypass. Left hepatectomy. Right hepatectomy. Ablation of hepatic tumour.

7.6 MULTIPLE ENDOCRINE NEOPLASIA (MEN)

OBJECTIVE: Management of patients and families with proven or suspected MEN syndromes including MEN1, MEN2 and familial medullary thyroid cancer. A knowledge of the genetics and various presentations of patients with MEN diagnosis and management of MEN Disorders. Ability to diagnose and assess patients with MEN syndromes.

Operative Management. Postoperative management: Postoperative care, follow up.

KNOWLEDGE: MEN1, MEN2, familial medullary thyroid cancer. Genetics and screening. Pathophysiology. Clinical presentation. Subclinical disease. Natural history.

Diagnosis and management of medullary thyroid cancer, hyperparathyroidism, pheochromocytoma, pancreatic neuroendocrine disease. Indications and timing for surgery Recurrent MTC, parathyroid disease. Complications of organ related operation. Recurrent disease.

CLINICAL SKILLS: History and examination. Investigations Biochemistry, radiology, cytology/histology, genetic.

Management of at-risk patients / families counselling, endocrinologist and genetics consultation. Choice of appropriate operation. Postoperative management relevant to specific operation. Multidisciplinary team attitude.

TECHNICAL SKILLS: Appropriate endocrine operation. Liaison with appropriate specialist eg pancreatic surgeon. Thyroid lobectomy. Total thyroidectomy. Thyroidectomy - retrosternal goitre. Total thyroidectomy + cervical node dissection. Thyroid surgery – reoperation. Transcervical thymectomy. Parathyroidectomy. Parathyroid surgery – reoperation. Adrenalectomy.

APPENDIX B - Basic and Clinical Science - Endocrine Surgery

Basic science

- Understanding of the development of the endocrine glands and a detailed knowledge of their anatomy including variations in position.
- Endocrine physiology as outlined below and pathogenesis of endocrine tumours.
- Possibilities and limitations of detection devices used clinically and in research including knowledge in molecular biology and assay methods.

Clinical science

- Understanding of the principles of endocrine investigation (including history, clinical examination and biochemical, radiological, isotopic, cytological and histological investigations and its limitations).
- Knowledge in interpretation of cervical ultrasound findings.
- Strategies for minimizing intervention and costs.
- Knowledge of actual controversies in indication and extent of endocrine procedures.

1. Thyroid

1.1. Physiology and pathophysiology

Role of iodine in the normal function of the thyroid including pathways of iodine metabolism. Physiology of TSH and Thyrotropin releasing factor. Function of T3 and T4. Role of thyroglobulin in thyroid physiology. Thyroid hormone release. 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.

1.2. Embryology, pathology, cytology, classifications, genetics

Embryological development of the thyroid gland; histology of benign thyroid disorders, classification of thyroid tumours, FNA, classification of FNA; limitations of FNA; TNM-Staging; genetics of hereditary thyroid malignancies (PTC, MTC).

1.3. Clinical presentation and clinical workup

Solitary thyroid nodule, goiter, hyperthyroidism (Plummer's disease, Graves' disease), thyroiditis (Hashimoto, De Quervain, Riedel), well differentiated thyroid cancer, MTC, UTC; thyroglossal cyst; ultrasound; radionuclide-imaging.

1.4. Perioperative management

Preoperative medical therapy of hyperthyroidism, thyroxine-replacement therapy, laryngoscopy.

1.5. Indications, operative techniques, management of complications

Alternative medical or radioisotope therapies, thyroidectomy, lymphadenectomy (central/lateral), techniques for preservation of the recurrent laryngeal nerve/external branch of the superior laryngeal nerve and parathyroid function, management of complications (recurrent nerve palsy, postoperative hypoparathyroidism, postoperative haemorrhage), retrosternal goitre, minimally invasive and remote access techniques and their controversies, operative strategies of recurrent disease.

2. Parathyroids

2.1. Physiology and pathophysiology

Understanding of the metabolism of calcium, magnesium and of phosphate. Activity of PTH on kidney, gut and bone. D Vitamins and its function. Measurement of PTH and an appreciation of the different terminal components. Functions of nephrogenic cyclic AMP in parathyroid physiology.

2.2. Embryology, anatomy, pathology, genetics

Embryological development and migration of parathyroid glands; typical, atypical and ectopic localisations; Histopathological morphology of pHPT/sHPT, genetics of familial forms of pHPT.

2.3. Clinical presentation and clinical workup

Clinical presentation of pHPT/sHPT/tHPT; lithium-induced HPT; bone mineral density; ultrasound; Sestamibi-scan.

2.4. Perioperative management

Management of hypercalcemic crisis, management of preoperative vitamin D insufficiency; postoperative supplementation medication, workup of recurrent HPT.

2.5. Indications, operative techniques, management of complications

Controversies and indication in asymptomatic pHPT; principles of IOPTH-monitoring and interpretations of its results, role of frozen section, bilateral neck exploration, focused parathyroidectomy; operative strategies in sHPT and familial-/lithium-induced HPT; management of parathyroid carcinoma, indication and management of recurrent HPT.

3. Adrenals

3.1. Physiology and pathophysiology

Adrenal cortex: Biosynthesis of glucocorticoids. Physiology of glucocorticoids including their relevance to immunological mechanisms and wound healing. Metabolism of cortisol and knowledge of those metabolites which are measured in clinical practice. Physiology of adrenal androgens and the effects of pathological overproduction. Biochemistry and precursors of aldosterone. Understanding of the renal angiotensin mechanisms. Action on aldosterone on distal tubule function. Aldosterone response to alterations in electrolyte levels.

Adrenal medulla: Metabolic pathways of adrenaline and noradrenaline production. Assessment of adrenal medullary activity. An understanding of the effects of excess catecholamines on cardiovascular and intestinal function and on carbohydrate metabolism.

3.2. Pathology, classifications, genetics

Classification of adrenal tumors; histopathological morphology of hyperaldosteronism, hypercortisolism; classification of adrenocortical carcinoma; genetics of familial adrenal disease (e.g., MEN1, MEN2; VHL; NF1; SDHB; SDHD).

3.3. Clinical presentation and clinical workup

Workup and management of incidentalomas; knowledge of tests of adrenal cortical function and adrenal responsiveness (dexamethasone suppression / ACTH stimulation test); diagnostic imaging (CT/MRI); specific radionuclide imaging; adrenal venous sampling.

3.4. Perioperative management

Preoperative medical treatment (hyperaldosteronism, pheochromocytoma/paraganglioma); perioperative steroid management in patients with hypercortisolism.

3.5. Indications, operative techniques, management for complications

Surgical approaches (conventional/endoscopic); concepts of subtotal adrenalectomy, bilateral adrenalectomy; adrenalectomy for metastasis, Addisonian crisis.

4. Pituitary

4.1. Physiology and pathophysiology

Structure, cells of origin, the basic metabolism and function of anterior pituitary hormones with no feedback loops (growth hormone and prolactin) and those with feedback 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.

4.2. Clinical presentation and clinical workup

Cushing's syndrome, hyperprolactinemia, acromegaly.

4.3. Therapy

Principals of therapy in Cushing's syndrome, hyperprolactinemia, acromegaly.

5. Diffuse neuroendocrine system of the gastro-entero-pancreatic tract

5.1. Physiology and pathophysiology

Appreciation of the physiology and pathophysiology of the secretion of serotonin, histamine, gastrin, insulin, glucagon, pancreatic polypeptide, VIP, secretin and somatostatin. The identification of cells of origin of gut hormones by immunocytochemistry.

5.2. Embryology, pathogenesis, pathology, classifications, genetics

Origin and particularities of the different endocrine cell-types of the gastro-entero-pancreatic tract; TNM-staging; WHO-classification; proliferation indexes; genetics of MEN1.

5.3. Clinical presentation and clinical workup

Clinical presentation of histamine- and serotonin-induced carcinoid syndrome, carcinoid tumours of the gut, ECL-omas of the stomach, hypergastrinemia, hyperinsulinism. Cross-sectional imaging and specific radionuclide-imaging.

5.4. Perioperative medical management

Somatostatin analogs; PPI.

5.5. Indications, operative techniques

For neuroendocrine tumours of the gut, for sporadic or MEN1-associated hypergastrinemia, for hyperinsulinism.

5.6. Palliative concepts in the management of neuroendocrine tumours

Biotherapy; chemotherapy, principals in the management of metastatic liver disease (surgery, radiofrequency ablation, chemoembolization), peptide receptor radionuclide therapy.

APPENDIX C - Requirements for an endocrine surgical unit

- under the responsibility of a specialized endocrine surgeon (preferably certified by the European Board of Surgery Qualification)
- at least 150 endocrine surgical procedures per year
- in house endocrinologist or endocrine department
- multidisciplinary board or clinic at least monthly
- access to:
 - scintigraphic investigations (sestamibi, MIBG, SRS)
 - radiological investigations (US, CT, MRI)
 - fine needle aspiration and cytology
 - hormone assays and genetic investigations

APPENDIX D - Required attendance of at least 4 specialist meetings or postgraduate courses in endocrine surgery

- ESES biennial Congresses or Conferences
- Annual/biennial meetings of national or international societies of endocrine surgeons (for example: AFCE, CAEK, BAETS, AAES, AsAES, IAES)
- Postgraduate courses in endocrine surgery (for example: IAES-courses, ESES postgraduate camp in Endocrine Surgery)

APPENDIX E - Recommended minimal operative experience

Endocrine Surgery	Performed	Assisted
Operations		
Thyroid resections	50	50
Recurrent thyroid operation	2	5
Central/lateral compartmental lymph node clearance	10	10
Parathyroidectomy in HPT	15*	20*
Adrenalectomy	5	10
Resection for NET of the GI tract	5	5

*) at least 5 bilateral explorations demanded