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NMC(e- 8285090)
Government of India
National Medical Commission**

Sector-8, Dwarka
New Delhi-110075
Date: 12-02-2025

To,

The Principal/Dean,
All the Medical Colleges/Medical Institutions of India

Subject: Guidelines for competency-based postgraduate training programme for M.ch in Endocrine surgery.

Reference is cited to "Guidelines for competency-based postgraduate training programme for M.Ch in Endocrine surgery" of the Post Graduate Medical Education Board (PGMEB) as enclosed herewith. All concerned stakeholders are requested to take note of the same.

Encl.: As above

Digitally signed by
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[Prof. (Dr.) B. Srinivas]
Secretary

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NATIONAL MEDICAL COMMISSION
Postgraduate Medical Education Board

No.P-050(20)/16/2024-PGMEB-NMC

Date: -02-2025



GUIDELINES FOR COMPETENCY-BASED
POSTGRADUATE TRAINING PROGRAMME FOR
M.Ch. IN ENDOCRINE SURGERY

GUIDELINES FOR COMPETENCY-BASED POSTGRADUATE TRAINING PROGRAMME FOR M.Ch. IN ENDOCRINE SURGERY

Preamble:

Endocrine Surgery is a specialty dedicated to diagnosing and treating all Endocrine and Breast Surgical diseases, disorders, tumors and cancers. It encompasses a unique body of knowledge as defined by its scope of practice of Endocrine & Breast Surgery which includes the appropriate clinical, hormonal/ biochemical and imaging evaluation, diagnosis, treatment, and follow-up of patients requiring surgical and adjuvant treatment and care for various endocrine and breast surgical issues. Practice of Endocrine Surgery encompasses wide spectrum of clinical and operative skillsets required to ensure the management of patients with various endocrine and breast surgical conditions, by providing evidence based, judicious definitive care to the patients. This curriculum and syllabus aims to prepare a student pursuing M.Ch in Endocrine Surgery program to acquire the competencies pertaining to knowledge, skills, and attitude necessary to function independently and effectively under any circumstances. This will enable them to deliver high-quality endocrine and breast surgical care, and function effectively as educators, researchers, and administrators in Endocrine Surgery.

Program Outcomes:

Endocrine surgical diseases constitute a considerable disease burden in India, and many require specific expertise for appropriate and safe surgical management. The Himalayan foothills and northern part of Indian peninsula is endemic for iodine deficient goitres. Besides goitres, India has a huge burden of other endocrine disorders such as thyroid cancer – papillary and follicular thyroid cancers, symptomatic parathyroid diseases, syndromic diseases like MEN 1, 2A involving parathyroid, thyroid and adrenal, diabetes with complications of peripheral vascular disease and diabetic foot infection, and increasing incidence of early and late stage breast cancers in women of all ages and a very small proportion of men. Breast cancer is the commonest cancer affecting Indian women, and its incidence is increasing. With improving awareness, early stage breast cancers are being

diagnosed with increasing frequency, and need specific surgical expertise in breast surgery and oncoplastic breast surgery.

The program aims at training a surgeon in the specialty of endocrine surgery and breast surgery, encompassing the related knowledge, skills and attitudes so as to enable him/her to function as an independent consultant clinician/ surgeon and a teacher well acquainted with managing surgical procedures, research methods in endocrine surgery and breast surgery. Such a training will help to accomplish the regional, national, and local citizens' health care need for quality care of international standard.

A post graduate student pursuing M.Ch. (Endocrine Surgery) course will acquire adequate knowledge at least in the following aspects

- (a) Basic Sciences as applied to surgical endocrinology and breast surgery.
- (b) Clinical, surgical, experimental, comparative, investigative, and applied aspects of surgical endocrinology and breast surgery to serve their region, state, and country in a cost-effective manner as well as
- (c) Recent advances in this field for the progress of the specialty and practice up to dated skill and knowledge to serve the country.

Eligibility Requirements

Students who have completed MS/DNB in General Surgery are eligible for M.Ch. in Endocrine Surgery.

SUBJECT SPECIFIC LEARNING OBJECTIVES

During M.Ch Endocrine Surgery program, a student will acquire:

- a. Knowledge in the basic, clinical, and translational endocrine surgery, and breast surgery to understand the disease burden, distribution, determinants of illnesses relating these fields in the region and country.
- b. Clinical, diagnostic, critical thinking, problem solving, self-directed learning and surgical procedural skills required in care of endocrine surgical diseases, in particular those pertaining to thyroid, parathyroid, adrenal, and endocrine pancreas, and other common illness like endemic goiters; and benign and malignant breast conditions which are prevalent in the state or country and for

which surgery plays a major role in their treatment.

- c. Skills related to formulating research questions, initiating, conducting, and analyzing translational, clinical and epidemiologic research. The students shall focus on research oriented toward ease of access, lower the cost of treatment, novel treatment, and prevention of the common endocrine and breast surgical diseases such as thyroid disorders and breast cancer as they are common in the country and region. At the same time these illnesses are also of international concern.
- d. Team leadership and networking skills to train the surgical fraternity in the state, country, and region about the common endocrine and breast surgical diseases.
- e. Communication skills necessary for working with and educating patients and team members at local, national, regional, and internal fora.
- f. Attitudes and values that will allow him or her to provide compassionate, responsive, and respectful ethical care to the patient.

A. Theoretical Knowledge:

- The student will acquire knowledge in all aspects relevant to the practice of common endocrine & breast surgical diseases, including thyroid, parathyroid, adrenal, endocrine pancreas and breast cancer in the state, country, and region. This includes training and expertise in surgery capable of providing specialist care to our citizens, being a teacher and guiding researcher in surgical endocrinology, to promote the endocrine and breast research in the state, region and the country.
- She/ He will acquire and be able to impart necessary knowledge, skill, and attitudes to diagnose and manage in a cost-effective manner to solve various clinical problems commonly seen in the local community and at secondary and tertiary care centers of the region and country. Special emphasis should be placed on preventive Endocrine and breast surgery to reduce the disease burden in the region.

B. Teaching skill

The student will be able to teach relevant aspects of endocrine diseases to resident doctors, junior colleagues, nursing and para-medical staff to enhance the skilled work force at local level.

C. Research methodology

Student will be able to identify and investigate a search problem, prevailing in the local community or state or country, using appropriate methodology.

D. Group approach

Student will participate in multi-disciplinary meetings with experts in Radiology, Pathology, Oncology, Nuclear Medicine, and other allied clinical disciplines. This will help them to integrate acquired knowledge and apply them aptly.

SUBJECT SPECIFIC COMPETENCIES

At the end of the course, the M.Ch Endocrine Surgery student would have acquired the following competencies under the three domains:

A. Cognitive domain (Knowledge domain)

By the end of the course, the M.Ch student will be able to-

- i. Demonstrate that he/she is well versed with the past and current literature on relevant aspects of basic, preventive, investigative, clinical, and operative endocrine surgery and breast surgery.
- ii. Demonstrate a thorough knowledge of epidemiology of endocrine and breast surgical disorders which are prevalent at local, regional, state, and country level; natural history, pathological abnormalities, etiopathogenesis, clinical manifestations and principles of management of common endocrine and breast surgical disorders such as thyroid disorders and cancers, parathyroid disorders, adrenal diseases, endocrine pancreatic tumors, multiple endocrine neoplasia syndromes etc., breast cancers and benign breast conditions. How these diseases, their risk factors, and distribution differ in our country or region shall be known to them.
- iii. Plan appropriate investigations applicable for diagnosis and management in a cost-effective manner and correctly interpret the results of various routine and specialized investigations necessary for proper management of the patients with endocrine and breast surgical diseases. They shall be

able to judiciously prioritize their investigation and treatment to meet the resource limitations of the state or country.

- iv. Recognize and manage endocrine surgical emergencies, both rare and common, those which are prevalent in the local setting.
- v. Acquire adequate knowledge of application and interpretation of various endocrine and molecular / genetic laboratory techniques, especially, immune assays and other methods of hormonal assay and interpretation of laboratory values and a basic knowledge of molecular genetics, including cancer genetics. They shall be capable of thinking of new low-cost devices and assays to save the cost of treatment in the country.
- vi. Acquire knowledge of the functioning of various equipment in routine use in the operating rooms and in the Endocrinology / surgical labs to reduce their maintenance cost for the local authorities.
- vii. Be able to plan and conduct a research proposal in the specialty in accordance with guidelines of Ethics Committee and critically evaluate published literature in medical journal. Research shall be focused on local, regional, and national health priorities.
- viii. Acquire relevant knowledge of biostatistics to be able to critically read and judge new literature and interpret its application in the context of the country.
- ix. Recognize the value of ethical principles of patient care and research, particularly in context of Indian values and beliefs.
- x. Be able to take decisions regarding hospitalization or timely referral to other consultants of various specialties recognizing his/her limitations in these areas. This will help the country in efficient use of scarce health care resources.
- xi. Have a basic knowledge of data science as it applies to endocrine and breast surgery- including artificial intelligence machine learning devices and wearables.
- xii. **Optional:** They MAY be capable of managing common thymic pathologies like thymic hyperplasia and thymoma with or without myasthenia gravis.

B. Affective domain, i.e., attitudes including communication and professionalism (course outcome)

The M. Ch student should have/ will be able to:

- Empathy and compassion for patients and their family members.
- Discuss options, including advantages and disadvantages of each investigation and operation, anesthesia required and ICU care. She/He should be able to discuss medical and surgical issues with them in local, regional or national language using non-scientific terms.
- Perform safe operations with minimal complication rate at par with other institutions in the country and internationally.
- Become confident communicators and should be well accomplished professionals who could serve for the betterment of their country and advancement of science.
- Developed skills to debate, deliver scientific lecture, participate in panel discussions, and hold group discussions and be ready to deliver the knowledge received by him/her during the course. Such skill will elevate the status of the region or country on national or international forum.
- Function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion. They shall have attitude to share their knowledge and skill with surgical fraternity serving in resource limited setting of the country.
- Abide with the laws of the country, always adopt ethical principles and maintain proper etiquette in dealing with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
- Develop communication skills to write reports and give professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.

C. Psychomotor domain

At the end of the course, the student will have acquired following skills.

1. The student should / be able to perform independently the following procedures / steps in:

Thyroid Surgery:

- a. Be well acquainted with appropriate patient positioning for thyroid surgery
- b. Be able to access the thyroid from central, lateral and minimal access approaches
- c. Safely identify and ligate the superior pole vessels preserving the EBSLN
- d. Demonstrate safe use of an energy device or alternative for hemostatic ligation
- e. Operate or demonstrate use of a nerve monitoring system
- f. Accurately identify and dissect the recurrent laryngeal nerve
- g. Be familiar with approaches to repair nerve injury
- h. Recognize and preserve parathyroid tissue during thyroidectomy including:
 - i. Perform parathyroid auto-transplantation
 - i. Evaluate for presence of pyramidal lobe and ectopic thyroid rests to ensure removal of all thyroid tissue
 - j. Obtain and evaluate for adequate haemostasis
- k. Perform central lymph node dissection including nodes posterior to the recurrent nerve
- l. Perform a modified radical neck dissection
- m. Exposure to surgical technique for removal of thyroid gland via a minimally-invasive approach: 1) endoscopic – BABA / TOETVA 2) robotic – BABA / TOETVA approach

Parathyroid Surgery:

- a. Have a thorough knowledge of the familial syndromes associated with primary hyperparathyroidism, be able to formulate a plan for the identification and management of such patients, including indications to perform genetic testing
- b. Be able to compare the scope, indications, limitations, and sensitivity, for the following imaging modalities: ultrasound (surgeon vs. radiologist-performed), sestamibi +/- SPECT, MRI, 4D-CT
- c. Be able to identify and justify the indications for surgery and surgical options for patients with primary hyperparathyroidism, secondary hyperparathyroidism and tertiary hyperparathyroidism

- d. Describe the surgical approach for a patient with suspected parathyroid cancer including en-bloc resection
- e. Describe the indications, techniques, and pitfalls of intraoperative adjuncts that are available for parathyroidectomy (Intraoperative PTH, radio-guided surgery, auto-fluorescence)
- f. Describe and compare non-surgical management options for patients with primary, secondary, and tertiary hyperparathyroidism including close surveillance, bisphosphonates, calcimimetics, and ethanol ablation
- g. Describe and compare the limitations and appropriate utilization of both intra-operative frozen section and PTH aspiration of the parathyroid gland
- h. Define long-term cure of parathyroid disease and monitoring for recurrence.

Adrenal Surgery:

- a. Interpret diagnostic testing performed as part of an adrenal nodule workup, including plasma aldosterone concentration, aldosterone-renin ratio, urine cortisol, salivary cortisol, low-dose dexamethasone suppression test, ACTH, plasma metanephrines, urine metanephrines, DHEA-S
- b. Determine when patients should be referred for advanced diagnostic testing for functional adrenal disorders, including salt-loading test, high-dose dexamethasone suppression testing
- c. Determine which patients should undergo adrenal vein sampling and interpret the results
- d. Select and justify the optimal operative approach for adrenalectomy for each individual patient, accounting for factors such as patient history, physical characteristics, tumour characteristics, and underlying pathology
- e. Exposure to surgical technique for removal of the left or right adrenal gland via a minimally- invasive approach: 1) laparoscopic transabdominal, 2) laparoscopic retroperitoneal approach, or 3) robotic approach
- f. Demonstrate safe surgical technique for removal of the left or right adrenal gland via an open anterior approach
- g. Determine when advanced techniques in adrenalectomy should be employed, including bilateral adrenalectomy or cortical-sparing approaches

Gastro-entero-pancreatic Neuro-endocrine tumors (GEP – NET)

Have thorough knowledge of the pertinent operations:

- a. Know how to conduct each of the following key steps for exploration of a non-localized PNET – either minimally invasive or open
 - i. Kocher manoeuvre to mobilize second portion of duodenum and pancreas head
 - ii. Dividing gastrocolic ligament to approach lesser sac and pancreas body/tail
 - iii. Intraoperative ultrasound to assess for lesions and for proximity to duct
- b. Know on how to conduct each of the following key steps for pancreatoduodenectomy – either minimally invasive or open
 - i. Mobilizing the duodenum and pancreatic head, Isolating the SMV
 - ii. Mobilizing the stomach and duodenum to assess proximal extent of resection
 - iii. Skeletonizing the porta hepatis and lateral attachments to the spleen (unless spleen preserving)
 - iv. Transecting the pancreas and typically will reinforce the staple line
 - v. Drain placement
- c. Be able to proceed intraoperatively for each of the following PNETs:
 - i. Non-functional PNET
 1. Hereditary: resect if >2 cm and avoid resection of small stable tumours if out of range of planned extent of resection (e.g. parenchyma-sparing)
 2. Non-hereditary: Cholecystectomy and transecting the CHD
 - ii. Mobilizing and transect the proximal jejunum
 - iii. Transecting the pancreatic neck and divide the remaining structures to the specimen
 - iv. Reconstructing pancreatico jejunostomy, hepatico jejunostomy, and gastro jejunostomy
 - v. Drain placement
- d. Be able to perform each of the following key steps for distal pancreatectomy - either minimally invasive or open
 - i. Extent of resection

- ii. Dividing the gastrocolic ligament to approach lesser sac
- iii. Ligating and dividing the gastrosplenic ligament including the short gastrics (if spleen preserving, then preserve at least 50% of the short gastrics in case need to take splenic vein)
- iv. Mobilizing the inferior and superior borders of the pancreas. The splenic artery will be along the superior border
- v. Dissecting the splenic vein free posteriorly
- vi. Identifying the lesion in the pancreas and ensure adequate margin
- vii. Ligating the splenic artery/vein independently (unless spleen preserving)
 - Mobilizing the retroperitoneal
 - a. Enucleation, distal pancreatectomy or pancreatoduodenectomy if localized
 - b. If >2 cm, resection with lymphadenectomy
- ii. Gastrinoma
 1. Non-localized – usually in pancreas head - duodenotomy, IOUS, enucleation, periduodenal node dissection (see below)
 2. Localized - enucleation with periduodenal lymphadenectomy, pancreatoduodenectomy, or distal pancreatectomy / splenectomy / lymphadenectomy (see below)
- iii. Insulinoma
 1. Enucleation if localized
 2. Surgical options if not localized
 3. Discuss why octreotide should be avoided pre-operatively
- iv. Glucagonoma and VIPoma
 1. If in tail of pancreas
 2. If not in tail of pancreas

Multiple Endocrine Neoplasia syndromes, and other familial endocrinopathies needing surgical management:

- i. Multiple endocrine neoplasia syndrome type 1, and its various components, namely primary hyperparathyroidism, pancreatic endocrine neoplasms, pituitary tumors, thymic neuro-endocrine tumors and other components
- ii. Multiple endocrine neoplasia syndrome type 2A and type 2B, and their

various components, namely medullary thyroid carcinoma, adrenal pheochromocytoma and primary hyperparathyroidism (in MEN2A)

iii. Other MEN syndromes

Breast Surgery:

Will be able to perform:

- i. Comprehensive evaluation and management of benign, suspicious and malignant breast lumps/ lesions
- ii. Core needle biopsies (Both palpation guided and image guided)
- iii. Tumor Mapping and totally implantable venous access devices (TIVAD) implantation/removal
- iv. Evaluation, non-operative and operative management of benign breast diseases, Fibroadenoma excision, WLE of suspicious lesions
- v. Mastectomies – Simple, Palliative, modified radical mastectomy, skin sparing mastectomy
- vi. Sentinel Lymph node biopsy– SLNB (using dye, Radiocolloid material and/or ICG), Axillary sampling/ Low Axillary sampling
- vii. Axillary dissection
- viii. Breast Conservation surgeries- conventional and oncoplastic (OPS), at least level-1

Thymus (Optional)

- a. Transcervical and Trans-Sternal thymectomy
- b. Video-assisted thoracoscopic thymectomy

Salivary Glands (Optional)

- a. Management of benign and malignant parotid and submandibular gland tumors
- b. surgery for parotid and submandibular glands

2. Will be able to interpret:

1. Radiologic studies for diagnosis and treatment of endocrine and breast surgical diseases including:
 - i) Plain X-ray, ultrasonography, mammography, CTscan/MRI
 - ii) Radio nuclide imaging including PETscan.
 - iii) DXA for osteoporosis and body composition studies.
2. Ancillary tests: Fine needle aspiration cytology, core needle biopsies,

vacuum assisted biopsies, image guided biopsies, basic molecular genetic techniques and their interpretation and application.

B. The student will be able to observe or perform under supervision the following procedures

1. Desirable skills.

- a. Endoscopic thyroid, parathyroid, adrenal and endocrine pancreatic operations
- b. Robotic thyroid, parathyroid, adrenal, endocrine pancreas surgery
- c. Ultrasonography of Neck-thyroid, parathyroid, lymph nodes, and Breast
- d. Oncoplastic breast surgery- level- 1 and 2
- e. Breast reconstruction after mastectomy
- f. Aesthetic breast surgery- reduction and augmentation procedures

2. Optional skills:

- a. Advanced oncoplastic surgery, whole breast reconstruction using autologous tissue and free flaps
- b. Aesthetic breast surgery
- c. VATS and robotic thymectomy

Syllabus**Course contents:****I. Cognitive domain****A. Basic Science of Endocrine Surgery and Breast Surgery**

The students shall have acquired the following knowledge at the end of the course:

1. History of Endocrine surgery and Breast surgery
2. General principles of hormone synthesis, action, degradation, receptors, analogues and antagonists
3. Receptors, biorhythms
4. Surgical Anatomy, Embryology and Physiology – Thyroid, parathyroid, adrenal, endocrine pancreas
5. Pituitary- anatomy and physiology, including basic metabolism and function of anterior pituitary hormones without feedback loops (growth hormone and prolactin) and those with feedback loops (FSH, LH, TSH and ACTH).
6. Hypothalamic pituitary pathways and related releasing substance.
7. Corticotrophic releasing factor and its relationship to ACTH.
8. Surgical anatomy and embryology and applied anatomy of breast and axilla
9. Breast cancer Triple assessment: clinical examination, breast imaging and percutaneous needle biopsies
10. Endocrine Pharmacology and Pharmacokinetics
11. Endocrine Pathology and Cytology
12. Genetics including cytogenetics and applied genetics including principles of Sanger sequencing and the importance of next generation sequencing and applied inherited basis of disease
13. Genetic and molecular basis of endocrine surgical diseases, multiple endocrine neoplasia syndromes and breast cancer; interpretation of genetic information for risk-stratification, and preventive surgical and non-surgical strategies for endocrine and breast tumors/ cancers.
14. Principles and performance of biostatistics
15. Optional: Surgical anatomy of thymus; Pathophysiology of Myasthenia Gravis and the possible role played by thymus gland.

B. Clinical Endocrine Surgery Part I

The students shall have acquired the following knowledge / competence at the end of the course:

1. Thyroid

Compare the pathophysiology, risk factors, and clinical presentation for the following thyroid diseases:

- i. Thyroid follicular nodular diseases: Solitary thyroid nodule, Multinodular goiters
- ii. Hyperthyroidism/Thyrotoxicosis including toxic adenoma, Graves' disease, and Hashimoto's disease
- iii. Well-differentiated thyroid cancer (WDTC)
- iv. Rare thyroid malignancies - including poorly differentiated, medullary and anaplastic thyroid cancer, and lymphoma
- v. Familial/ syndromic thyroid cancers and multiple endocrine neoplasia syndromes.

The MCh Endocrine Surgery student shall be able to recommend, interpret, analyse, discuss and utilize for clinical and surgical practice-

1. Imaging in thyroid

Indications for thyroid ultrasound, elastography, axial imaging, and nuclear medicine imaging. Describe the TIRADS versus ATA classification system in relation to different types of thyroid nodules

2. Radiologic studies to appropriately distinguish between surgically resectable from unresectable thyroid lesion
3. Indications for fine needle aspiration (FNA) biopsy of different thyroid nodules and neck masses
4. The Bethesda classification for the cytologic interpretations of thyroid lesions
5. Molecular testing of thyroid FNA specimens when indicated.
6. Findings of molecular testing and their implications
7. Approaches to identify and preserve the recurrent and superior laryngeal nerve during thyroid surgery
8. Recognize (preoperatively or intraoperatively) when to consider resection of an involved recurrent laryngeal nerve
9. Approach to rehabilitation of a patient needing recurrent nerve resection or suffering from a nerve injury including:

- i. Primary repair
 - ii. Cable graft
 - iii. Ansa to distal nerve repair
 - iv. Secondary approaches to vocal fold paresis and paralysis
10. Extended thyroid surgery indications and situations that require tracheal resection, laryngectomy, or other extended operations
 11. Pathology report and recognize the classic histopathologic findings for papillary thyroid cancer, follicular thyroid cancer, medullary thyroid cancer, anaplastic thyroid cancer, and thyroid lymphoma
 12. Indications for adjuvant therapy following surgery for thyroid cancer based on staging, pathologic characteristics, operative findings, and post-surgical imaging (radioactive iodine scan) and recommend adjuvant treatments when appropriate, including these options:
 - i. RAI Treatment
 - ii. External beam radiation therapy
 - iii. Targeted therapy (BRAF inhibitors and TKI)
 13. Options for recurrent and metastatic disease including:
 - i. Additional surgery
 - ii. Additional RAI or external beam
 - iii. Systemic treatment
 14. Common complications of thyroid and lateral neck surgery. Formulate a plan to treat post-operative complications including:
 - i. Postoperative haemorrhage and surgical bed hematoma
 - ii. Hypocalcaemia
 - iii. Recurrent nerve injury
 - iv. Chyle leak
 - v. Surgical site infections
 15. Evidence-based surveillance program for thyroid cancer survivors based on established guidelines (such as NCCN, ATA)
 - a. Use appropriate tests in surveillance:
 - i. TSH, Thyroglobulin (Tg), anti-Tg antibodies
 - ii. Neck ultrasound

- iii. Select other imaging such as chest imaging and/or PET/CT in appropriate cases.
- b. Recognize the common signs and symptoms of recurrent disease and plan an appropriate work up plan

2. Parathyroid

1. Create differential diagnoses for hypercalcemia and describe how to differentiate among possible diagnoses
2. Compare the pathophysiology, clinical presentation, natural history, and indications for surgery in patients with primary, secondary and tertiary hyperparathyroidism as well as patients with parathyroid carcinoma
3. Explain and compare normocalcemic primary hyperparathyroidism and normohormonal primary hyperparathyroidism to classical primary hyperparathyroidism. Describe clinical manifestations and role of surgery for both of these variants
4. Describe the familial syndromes associated with primary hyperparathyroidism. Formulate a plan for the identification and management of such patients, including indications to perform genetic testing
5. Compare the scope, indications, limitations, and sensitivity, for the following imaging modalities: ultrasound (surgeon vs. radiologist-performed), sestamibi +/- SPECT, MRI, 4D-CT
6. Describe and justify the indications for surgery and surgical options for patients with primary hyperparathyroidism, secondary hyperparathyroidism and tertiary hyperparathyroidism
7. Describe the surgical approach for a patient with suspected parathyroid cancer including en-bloc resection
8. Describe the indications, techniques, and pitfalls of intraoperative adjuncts that are available for parathyroidectomy (Intraoperative PTH, radio-guided surgery, auto-fluorescence)
9. Describe and compare non-surgical management options for patients with primary, secondary, and tertiary hyperparathyroidism including close surveillance, bisphosphonates, calcimimetics, and ethanol ablation

10. Describe and compare the limitations and appropriate utilization of both intra-operative frozen section and PTH aspiration of the parathyroid gland
11. Define long-term cure of parathyroid disease and monitoring for recurrence.
3. Other Neck Pathology
 - a. Thyroglossal cyst
 - b. Familiarity with parotid and submandibular salivary gland disease
 - c. Branchial cysts
 - d. Causes and management of cervical lymphadenopathy.
4. Oncologic Endocrinology:
 - a. Understand the indications, efficacy and side effects of chemotherapeutic drugs, targeted agents like Tyrosine Kinase Inhibitors and newer therapies for cancer.
 - b. Familiarity with Radiation therapy protocols and effects on the wound and tissue.
5. Radiology and Radiation Therapy in Endocrine and breast surgery/ oncology
6. Management of Endocrine surgical disorders in children and pregnancy
7. Endocrine Hypertension

3. Clinical Breast Diseases

- a. Breast cancer: incidence, aetiology and risk factors
Assessment of breast cancer risk according to age and ethnicity and gender
- b. Knowledge about non-genetic factors that increase or decrease breast cancer risk.
- c. Genetic predisposition: breast cancer risk and risk of other malignancies
- d. Risk estimation models (Gail, Claus, Tyrer- Cuzick, BOADICCEA)
- e. Management of high and moderate risk women
- f. Breast Cancer Screening
- g. Breast cancer: biology, natural history and prognosis
- h. Breast cancer: Staging
- i. Management of borderline and high-risk lesions
- j. Localization of impalpable lesions (benign, borderline or malignant)
- k. The role of Multidisciplinary Team meeting in breast cancer
- l. Systemic therapy – neoadjuvant and adjuvant chemotherapy

- m. Other breast malignancies- incidence, diagnosis and treatment modalities
- n. Benign breast diseases: aberration of normal development and involution.
- o. Benign, borderline and high-risk breast lesions and tumors. Fibroadenoma, phylloides tumors
- p. Breast surgery for benign and malignant conditions: basic principles of breast biopsy, surgical procedures- radical and conservative
 - i. Forms of mastectomy: simple, radical, modified radical
 - ii. Conservative breast surgery
 - iii. Breast lump excision
 - iv. Aesthetic incisions on breast, and surgery

C. Clinical Endocrine Surgery Part II

The students shall have acquired the following knowledge/ competence at the end of the course:

1. Adrenal
 - a. Compare the scope, indications, limitations, and sensitivity for the following imaging modalities available for the adrenal gland (CT, MRI, PET, MIBG, Octreotide scan, Dotatate)
 - b. Describe the work up and management of an incidental adrenal mass
 - c. Describe the clinical presentation, requirements for biochemical diagnosis, perioperative testing, surgical treatment, and perioperative management for the following adrenal diseases:
 - i. Primary hyperaldosteronism
 - ii. Adrenal Cushing's syndrome
 - iii. Pheochromocytoma
 - iv. Virilizing adrenal tumour
 - d. List the key steps in performing a left and right adrenalectomy, using both open and minimally-invasive approaches
 - e. Describe the surgical approach for a patient with suspected or biopsy-proven adrenocortical cancer, including en-bloc resection of other organs, lymphadenectomy, and justification of operative approach
 - f. Describe the potential complications associated with open and laparoscopic adrenalectomy

- g. Describe non-surgical management options for patients with an adrenal nodule that does not meet criteria for resection, including repeat hormonal evaluation and surveillance imaging
- h. Discuss the inherited endocrinopathies that can be associated with adrenal pathology, and formulate a plan for the identification and management of such patients, including indications to perform genetic testing.
- i. Formulate a plan for post-operative management of functional adrenal tumours and malignancies, including medication regimens, biochemical surveillance, and repeat imaging
- j. Interpret diagnostic testing performed as part of an adrenal nodule workup, including plasma aldosterone concentration, aldosterone-renin ratio, urine cortisol, salivary cortisol, low-dose dexamethasone suppression test, ACTH, plasma metanephrines, urine metanephrines, DHEA-S
- k. Determine when patients should be referred for advanced diagnostic testing for functional adrenal disorders, including salt-loading test, high-dose dexamethasone suppression testing
- l. Determine which patients should undergo adrenal vein sampling and interpret the results
- m. Select and justify the optimal operative approach for adrenalectomy for each individual patient, accounting for factors such as patient history, physical characteristics, tumour characteristics, and underlying pathology
- n. Exposure to surgical technique for removal of the left or right adrenal gland via a minimally- invasive approach: 1) laparoscopic transabdominal, 2) laparoscopic retroperitoneal approach, or 3) robotic approach
- o. Demonstrate safe surgical technique for removal of the left or right adrenal gland via an open anterior approach
- p. Determine when advanced techniques in adrenalectomy should be employed, including bilateral adrenalectomy or cortical-sparing approaches

2. **Gastro entero pancreatic neuroendocrine tumours (GEP-NETs)**

- a. For each of the following GEP-NET, describe the symptoms, clinical manifestations, hormones, and effects of each GEP-NETs associated hypersecretory state:

- i. Pancreatic NET
- ii. Insulinoma
- iii. Gastrinoma
- iv. Glucagonoma
- v. Somatostatinoma
- vi. Vasoactive Intestinal Peptide (VIP)-oma
- vii. Pancreatic Polypeptide (PP)-oma
- viii. GI-NET
- ix. Gastric carcinoid - differentiate between the three sub-types based on aetiology, including plasma gastrin levels and gastric pH
- b. Review common drivers of NET-associated hereditary endocrinopathies MEN1, VHL, NF1, Tuberous sclerosis
- c. Differentiate the molecular targets and accuracy of functional imaging tests (eg. indium-111 pentetreotide versus 68-Ga DOTATATE PET-CT imaging)
- d. Discuss indications for observation vs. surgery, considering relevant factors such as tumour size and MEN1
- e. Describe initial medical management of functional tumours, including pharmacology
- f. Describe medical management of carcinoid syndrome and evaluation for carcinoid heart disease
- g. Identify medical agent for refractory carcinoid syndrome
- h. List pharmacological agents for carcinoid crisis
- i. In hereditary endocrinopathies with concomitant tumours, describe order of surgical resection
- j. Differentiate surgical approaches based on tumour location, functional subtype (e.g. insulinoma vs. gastrinoma), and degree of local invasion or metastatic burden.
- k. Recognize specific consideration for midgut NET: laparoscopic versus open; prophylactic cholecystectomy; extent of lymph node dissection; management of poorly- differentiated/high-grade tumours
- l. Discuss management options for NET liver metastases (NETLM) with unknown primary

- m. Intraoperative ultrasound to assess for lesions and for proximity to pancreatic duct

3. Thymus (Optional)

- a. Pathophysiology of Myasthenia Gravis and the possible role played by thymus gland.
- b. Knowledge on principles of different tests used for diagnosis and differentiating myasthenia gravis from similar neuromuscular pathology.
- c. Medical management of Myasthenia Gravis
- d. Principles and indications of plasmapheresis including immunosuppression therapy.
- e. Management of Myasthenic / cholinergic crisis
- f. Management of benign and malignant tumors of thymus
- g. Indications of thymectomy and operative approach to thymus gland: cervical and trans-sternal and thoracoscopic.

4. Ethics, economics and psychosocial aspects of management of endocrine diseases

E. Recent Advances in Endocrine Surgery and Breast Surgery

1. Molecular pathways in thyroid oncogenesis, targeted therapies
2. Recent advances in Clinical, Comparative, Experimental and Operative procedures in Endocrine & breast Surgery
3. Review of recent literature and trials in the field of Endocrine & breast surgery, and oncological breast surgery
4. Shall be well versed with the standard guidelines and recommendation

II. Psychomotor domain

The students shall have acquired the following knowledge/ competence at the end of the course/ will be able to:

1. Thyroid nodule:

- i. Explain the natural history of thyroid nodules to patients. Answer questions regarding incidence of cancer in thyroid nodules from patients and referring physicians and alleviate the anxiety of a new growth on imaging.
- ii. Educate patients and physicians about the prudence of observation for benign appearing nodules
- iii. Prepare patients for the possibility of indeterminate or non-diagnostic FNA results.
- iv. The endocrine surgeon should also be able to lead the patient through the decision making process if such a result is obtained and be able to discuss the risks and benefits of surgery vs observation.

2. Multinodular goitre:

- i. Discuss indications for surgery and be able to re-assure patients and referring physicians that goitres can be observed if they do not meet an indication for surgery
- ii. Discuss the probabilities that certain symptoms may or may not improve following surgery

3. Well-differentiated thyroid cancer:

- i. Reassure patients about the fact that papillary thyroid cancer generally has an excellent prognosis in younger patients. Also discuss the real-life socioeconomic implications of being diagnosed with a cancer, even if that cancer has a good prognosis
- ii. Discuss in detail the appropriate risks and benefits of observation for small papillary thyroid cancers
- iii. Explain the risks and benefits of thyroid lobectomy and total thyroidectomy. Be able to aid the patient in deciding on the option that is best for the patient
- iv. Discuss the risks of surgery including recurrent laryngeal nerve injury and hypoparathyroidism and what those injuries would mean of the patients health and lifestyle if they occur.
- v. Present a patient's story in a multi-disciplinary tumour board. Be able to proficiently communicate with other members of the treatment team before and after surgery and clearly delineate the follow up plan
- vi. Prepare the patient for potential adjuvant therapies such as radioactive iodine and TSH suppression
- vii. Discuss the implications of post thyroidectomy hypothyroidism

4. Medullary thyroid cancer:

i. Discuss the long term treatment for medullary thyroid cancer which may include recurrence and additional surgeries

Explain to a patient the potential implications regarding the potential to be diagnosed with other cancers. Also be able to discuss the implications of a familial syndrome on other members of the family and potentially in young children

ii. Guide the patient through the follow up period including explaining the significance of doubling times

iii. Counselling families of familial form of medullary thyroid cancer in context of MEN2A, MEN2B and familial MTC

5. Anaplastic thyroid cancer:

i. Conduct frank conversations with the patient and the family about end of life care and decision making

6. Parathyroid

i. Counsel patients regarding the possibility of surgical failure or need for reoperation in the future

ii. Describe the informed consent discussion for a patient with suspected familial primary hyperparathyroidism as compared to a patient with sporadic primary hyperparathyroidism.

iii. Counsel patients with secondary hyperparathyroidism regarding hungry bone syndrome

iv. Describe the multimodal management of parathyroid disease and establish working relationships with primary care providers, endocrinologist, and nephrologists

v. Counsel patients regarding parathyroid cancer

7. Adrenal

i. Working as part of a multi-disciplinary team, formulate a plan for management of patients with complex adrenal disorders, including hyperaldosteronism, hypercortisolism, pheochromocytoma, adrenal cortical carcinoma, adrenal metastasis, or genetic syndromes with adrenal nodules

ii. Counsel patients on the risks, benefits, indications, and alternatives to adrenalectomy for surgical indications to include: hyperaldosteronism, hypercortisolism, pheochromocytoma, large non-functional nodule, adrenocortical carcinoma, adrenal metastasis

- iii. Counsel patients on the implications and prognosis of their underlying adrenal disorder
- iv. Explain pathology results to patients in plain language
- v. Formulate a plan for long-term post-operative follow-up of patients with adrenal disorders, based on their underlying pathology
- vi. Counsel patients on any intra-operative complications and their potential longer-term implications

8. GEP- NET

- i. Counsel patients on the malignant potential and risk of the above syndromes
- ii. Determine which patients with GEP-NETs harbour hereditary endocrinopathy risk and appropriately determine consultation with genetics team
- iii. Collaborate with a multidisciplinary team for patients with recurrent or metastatic GEP-NET
- iv. Evaluate when and for which patients to consult with other surgical specialists (surgical oncology, hepatobiliary, etc.) for optimal surgical care

9. BREAST SURGERY

- i. Contemporary and emerging surgical methods and strategies in breast surgery:
 1. Breast conservation surgery and Oncoplastic breast surgery
 2. Surgical staging of axilla including Sentinel lymph node biopsy, targeted axillary dissection

3. Venous access in breast cancer patients for systemic and supportive treatment.

4. Reconstructive and aesthetic breast surgery- post mastectomy, and for developmental breast diseases.

- ii. Breast cancer: Psychosocial and follow-up care. 'Survivorship' issues
 - The need of psychological or social support in women with newly diagnosed breast cancer and during the entire course of disease

-The role of follow-up care in breast cancer survivors: detecting recurrences, influence on survival

- Methods in follow-up and the frequency of follow-up

- Conservative and surgical management of lymphoedema
- Chronic pain and sensory disorders after breast cancer treatment
- Endocrine issues in breast cancer survivors, like menopause symptoms and bone health
- Depression, anxiety and fear of recurrences
- Cognitive disorders
- Sexuality

iii. Knowledge and skills in allied subjects/ specialties, as applicable to practice of breast surgery, oncoplastic breast surgery and breast oncology:

1. Anesthesia and pain management

- Evaluate patient's eligibility for general anesthesia in collaboration with the anesthesiologist
- Evaluate patients eligibility for local or regional anesthesia
- Perform local anesthesia

2. Postoperative complications

- Evaluate patient risk regarding postoperative complications and conduct preventive procedures
- Counsel patients regarding their individual risk of surgical complications
- Conservative and surgical management of wound healing complications

Besides the above, post graduate students in MChEndocrine Surgery should be involved in patient care and management of Endocrine Emergencies apart from bedside and didactic teaching of undergraduate and postgraduates, as assigned to them.

TEACHING AND LEARNING METHODS

The principles and methods for training and assessment in super-specialty courses in surgical disciplines, as included in the PGMER-23 of the NMC shall be followed.

General principles

Acquisition of practical competencies being the keystone of post graduate medical education, PG training should be skills oriented. Learning in PG program should be essentially self-directed and primarily emanating from clinical and academic work. The formal sessions are merely meant to supplement this core effort.

Teaching Methodology

The methodology used is primarily participative, where the post graduate student gets opportunity to learn about the practical, clinical, operative aspects of endocrine and breast surgery by participating in care of patients under supervision of the faculty. They should be given the responsibility of managing and caring for patients in a gradual manner under supervision.

During the training program, patient safety is of paramount importance; therefore, skills are to be learnt initially by observation, later to be performed under supervision followed by performing independently.

Formal teaching sessions

This should include regular bed side case presentations and demonstrations, assisting surgical procedures in operation theaters (Annexure A), lectures, seminars, journal clubs, clinical meetings, and combined conferences with allied departments.

This will comprise of the following:

Recommended Academic Sessions

- Bedside rounds.
- Seminars
- Journal club
- Inter departmental case conferences (with Endocrinology, Nuclear Medicine, Radiotherapy, Radiology, Pathology, Genetics, as per need and availability)
- Mortality / Morbidity meeting

- Combined Grand rounds/
Clinical meetings/CPCs (at Institution level)
- Student project presentation.
- Student Log Book review
- Clinical Department Audit
- Clinical case discussion
- Outpatient Endocrine clinic
- Operation theatre.

Attendance

Attendance for all formal teaching sessions will be strictly marked by the faculty member in charge of the session on the prescribed department attendance sheet (Annexure B).

Didactic Lectures

Lectures covering recent advances in all aspects of endocrine surgical and breast surgical diseases should be taken by faculty. All post graduate students will be required to attend these lectures as well and short term basic and clinical courses on:

- Courses in Research methodology
 - Course in Ethics
 - Course in Cardiac Life Support Skills
 - Courses in experimental lab medicine relevant to endocrine & breast surgery
 - Biostatistics
 - Use of computers in medicine
 - Bioethics, ethical issues in endocrine practice including Diabetes care.
 - Teaching methodology,
 - Hospital waste management,
 - Health economics
- In addition, student should attend accredited scientific meetings (CME, symposia, and conferences) once or twice a year.
 - The post graduate students shall be required to participate in the teaching

and training program of undergraduate and post graduate students and nurses.

- **As provided in section 5.2(x) of PGMER-23**, A post-graduate student of a degree course in broad specialty/super specialty will do at least one of the following to make him/her eligible to appear in his/her final examination:
 - a. Poster presentation at a National / Zonal / State conference of his/her speciality;
 - b. Podium presentation at a National / Zonal / State conference of his/her speciality;
 - c. Have one research paper published/accepted for publication in journal of his/her speciality as first author.

e-LogBook: During the training period, the post graduate student should maintain a Log Book indicating the duration of the postings/work done in Endocrine Surgery and breast Surgery Wards, OPDs, OTs – minor and main, Emergencies. This should indicate the procedures assisted and performed, and the teaching sessions attended. The purpose of the Logbook is to:

- a) Help maintain a record of the work done during training,
- b) Enable Consultants to have direct information about the work; intervene, if necessary,
- c) Use it to assess the experience gained periodically.

The Log Book should be used to aid the internal evaluation of the student. Logbook needs to be updated on a weekly basis about the work being carried out by them and the training programme undergone during the period of training. Provided that M.Ch students shall mandatorily enter details of surgical procedures assisted or done independently.

It shall be the duty of the Post-graduate guide imparting the training to assess and authenticate monthly the record (e-Log) books.

The Department should encourage e-learning activities.

Postings for training of MCh students:

- a. **Clinical postings: Recommended schedule for three years training**

Each postgraduate student will undergo the following rotations in various clinical areas during the three years of training in M. Ch Endocrine Surgery

- i. **Ward/Indoor service:** minimum 42 weeks
 - ii. **Outpatient clinics / Consultations:** minimum 42 weeks
 - iii. **Operation theatre:** minimum 42 weeks
- b. Rotational posting to departments running Laboratories for biochemical and hormonal tests, and sister departments including radiotherapy, endocrinology, nuclear medicine, etc
- c. Provision for elective posting to reputed departments in other institutions in India or abroad would be available to gain experience in new areas.

Research

All M.Ch. students will do thesis related research and will write thesis. He/she will be required to submit a research plan within 6 months after joining the course.

ASSESSMENT

The evaluation of the students in the MCh Endocrine Surgery is a continuous and Comprehensive process, aimed at assessing their knowledge, skills, and attitudes. It shall be done **as per the guidelines prescribed by the National Medical Council, PGMER-2023**, and shall include following:

The Examination consists of theory and clinical/practical and viva voce.

a. **Theory:** The theory examination (both formative and summative) may be of descriptive answer of a question type, Multiple Choice Question (MCQ) type or mix of both types. Theory examination for summative examination shall be of four theory papers. The first and the fourth paper shall be on basic medical science and recent advances, respectively. The theory examination shall be held well in advance before the clinical and practical examination.

b. **Clinical/Practical and viva voce:**

i. Clinical examination for the subjects in clinical sciences shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a consultant/specialist/teacher, for which candidates shall be examined for one long case and two short cases.

- ii. Practical examination may consist of carrying out special investigative techniques for Diagnosis and Therapy. M.Ch. candidates shall also be examined in surgical procedures. Viva voce examination shall be comprehensive enough to test the candidate's overall knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the Speciality.
- iii. Clinical/practical examination shall include Objective Structured Clinical Examination (OSCE)

Valuation:

- a. All the teachers of the other colleges of the concerned University or other Universities, who are eligible to be post-graduate examiners, can perform the valuation of the answer scripts.
- b. All the answer scripts shall be subjected for two valuations by the concerned University. The average of the total marks awarded by the two valuers for the paper, which is rounded off to the nearest integer (whole number), shall be considered for computation of the results. All the answer scripts, where the difference between two valuations is 15% and more of the total marks prescribed for the paper, shall be subjected to third valuation. The average of the best two total marks, awarded by the three evaluators for the paper, rounded off to the nearest integer (whole number), shall be considered for final computation of the results.
- c. After the computation and declaration of the results, under no circumstances, revaluation is permitted.
- d. All the Health Universities/Institutions imparting post-graduate courses shall implement digital valuation.

FORMATIVE ASSESSMENT

Formative assessment would be continual and would assess medical and surgical knowledge and skills, patient care, procedural & academic skills, interpersonal skills, professionalism, self-directed learning and ability to practice in the system.

- Daily/ Weekly/ Monthly observations captured in the Logbook.
- End Semester/ year Internal assessment by theory and clinical and practical/ viva-voce exams

SUMMATIVE ASSESSMENT

Post graduate Examination shall be **as per the guidelines prescribed by the National Medical Commission, PGMER-23.**

The final examination consists of following parts:

- Thesis/ projects outcomes, Log-book of clinical, operative, academic and research activities
- Theory evaluation
- Practical/Clinical and Viva-Voce

CRITERIA FOR EVALUATION OF M.Ch. COURSE (as per the guidelines prescribed by the National Medical Council, PGMER-23):

1. THEORY

- a. No. of Theory Papers : 04
- b. Marks for each Theory Paper: 100
- c. Total marks for Theory Paper: 400
- d. Passing Minimum for Theory 200/400 (40% minimum in each paper)

2. PRACTICAL/CLINICAL: Total Marks 300

3. VIVA VOCE : Total marks 100

Passing minimum for Practical/Clinical including Viva voce 200/400

4. The candidate shall secure not less than 50% marks in each head of passing, which shall include

(1) Theory – aggregate 50% (In addition, in each Theory paper a candidate has to secure minimum of 40%)

(2) Practical/Clinical and Viva voce - aggregate 50%

(3) If any candidate fails even under one head, he/she has to re-appear for both Theory and Practical/Clinical and Viva voce examination.

(4) Five per cent of mark of total marks of Clinical/Practical and Viva Voce marks (20 marks) will be of dissertation/thesis and it will be part of clinical/practical examination marks.

External examiner outside the state will evaluate dissertation/ thesis and take viva voce on it and marks will be given on quality of dissertation/thesis and performance on its viva voce.

(5) No grace mark is permitted in post-graduate examination either for theory

or for practical.

1. Thesis/Dissertation or Projects; Log-Book

Every MCh student shall carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which shall be written up and submitted in the form of a Thesis. Work for writing the Thesis and research papers is aimed at contributing to the development of a spirit of enquiry, besides exposing the post graduate student to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature.

Every student shall maintain a log-book of the clinical, operative, academic and research activities undertaken during the three years of training. The log-book is expected to be comprehensive record of:

- Cases operated- observed, assisted, performed independently,
- Seminars, journal clubs, case presentations presented/ attended,
- Faculty lectures attended, inter-departmental case conferences presented
- Conferences/webinars attended, and presentations made.
- Research projects and courses attended
- Interesting illustrative cases

2. Theory Examination:

Theory examination consists of four papers of 3 hours each having 10 short-structured questions with 10marks for each question.

Paper I: Basic Sciences and General Principles relevant to Endocrine Surgery & Breast Surgery (Anatomy, Physiology, Biochemistry, Pathology, Molecular biology and Genetics relevant to endocrine and breast surgery, Research methodology and Statistics)

Paper II: Clinical and Operative Endocrine surgery and Breast surgery- Part-1: Thyroid, parathyroid, adrenal, endocrine pancreatic, multiple endocrine neoplasia syndromes, Benign breast conditions, breast malignancies.

Paper III: Clinical and Operative Endocrine surgery and Breast surgery- Part-2: Thyroid, parathyroid, adrenal, endocrine pancreatic, multiple endocrine neoplasia syndromes, Benign breast conditions, breast malignancies.

Paper IV: Recent Advances in Endocrine surgery and breast surgery- including recent advances in diagnostic, molecular and genetic advances, surgical technology and techniques, and research relevant to the subject.

3. Clinical / Practical Examination and Viva-voce

i) Clinical Cases: This would include one long case and two or three short cases related to Endocrine surgery and Breast surgery

Long case: Should assess the students' ability to diagnose a complex condition, order and interpret relevant investigations and plan the comprehensive management of patient.

Short cases: 2 or 3: Each case would assess clinical, operative and management capabilities.

Ward round: Over few cases presented to the examinees, the students' ability to assess and manage common peri-operative conditions and problems will be evaluated.

ii) Objective Structured Clinical examination and viva voce- to test the clinical and Operative Endocrine & Breast surgery skills and knowledge- including Imaging- X-rays, CT scans, MRI scans, Nuclear imaging, PET scans; Pathology- gross and microscopic, operative instruments, operative procedures/ techniques

iii) Thesis / Dissertation / Scientific papers Published and presented at conferences, and Log-book review. 20 marks will be of dissertation/thesis and it will be part of clinical/practical examination marks.

Annexure A:**Recommended Operative Experience**

Operative Procedure name	No. Performed	No. Assisted
Hemi/ Near-total/ Total Thyroidectomy	20	50
Thyro-glossal cyst/ fistula excision	01	02
Total Thyroidectomy for thyroid cancer	05	30
Recurrent Thyroid Operation	02	05
Central/lateral Compartmental LN dissection	05	10
Retrosternal/ Mediastinal Goiter/ LN resection	02	05
Para thyroidectomy for Hyperparathyroidism		
Conventional/ Bilateral neck exploration	02	20
Focused para thyroidectomy	05	30
Recurrent or Persistent HPT	00	04
Open Adrenalectomy	02	05
Para ganglioma excision	00	02
Endocrine Pancreatic Tumour	00	01
Endocrine Tumour of gut (Carcinoid)	00	01
Modified Radical Mastectomy	10	20
Conservative Breast Surgery	05	10
Sentinel lymph node biopsy	05	15
Axillary dissection (stand alone or with breast procedure)	05	15
Oncoplastic breast surgery (Optional)	02	10
Breast Reconstruction (Optional)	01	05
Breast lump excision- fibroadenoma etc	10	20
Minimal Invasive Endocrine Surgical Procedures (Adrenalectomy, Thyroidectomy, Parathyroidectomy, Insulinoma Enucleation, distal pancreatectomy, Oophorectomy)	05	15
Optional Procedures		
Cervical /trans-sternal/ VATS Thymectomy (Optional)	02	05
Parotid and Submandibular gland procedures (Optional)	02	05

Annexure B:

(Institute/ College/ University name)
Department of Endocrine Surgery

Performa Evaluation of Student's Academic Performance**CASE PRESENTATION: (To be filled by Moderator)**

Date: _____ Day: _____

Session: _____

Presenter: _____

Moderator: _____

Overall 20 marks	Quality of Presentation 15 marks	Case 15 marks	Question and Answer discussion 15 marks	Total 50 marks

Signature of Moderator

All other Academic Sessions (including Inter-departmental sessions)

(To be filled by Moderator – Only one or both)

Date: _____ Day: _____

Session: _____ Presenter: _____

Moderator1: _____ Moderator2: _____

Moderator	Overall 10 marks	Preparatio n 10 marks*	Preparation and PPT quality** 10 marks	Delivery of Presentati on 10 marks***	Q & A / 10 marks	Total 50 marks
Moderator- 1						
Moderator- 2						

Signature of Moderator- 1

Signature of Moderator – 2

*Timely discussion with moderator (2 weeks in advance), sharing preliminary PPT (7 days), and corrected PPT (2 days)**Quality of literature review, presentation and PPT*** Flow, clarity, keeping to time



GUIDELINES FOR COMPETENCY-BASED POSTGRADUATE TRAINING PROGRAMME FOR
MCh in Endocrine Surgery

(Institute/ College/ University name)
Department of Endocrine Surgery
Attendance Sheet in Academic Program

Date: _____ Day: _____

Session name: _____

Presenter: _____

Moderator: _____

Sr. No.	Name Faculty	Not essential to attend	Present	Absent	Late*	Remarks**
1.						
2.						
3.						
4.						
5.						
6.						
Senior Residents (M.Ch.)						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
Other academic/ non-academic staff						
Visitor(s)/ Observers						
1.						

*8:15 AM cut-off. Anyone reaching after that will be marked "Late"***e.g. pre-sanctioned leave

Signature of Moderator

Recommended Reading:**Books (latest edition)**

1. Textbook of Endocrine Surgery, Orlo Clark, Q-Y Duh, E Kebebew, JE Gosnell, WT Shen (ed), 3rd Edition Jaypee Brothers Medical Publishers, 2016.
2. Surgery of the Thyroid and Parathyroid Glands, 3rded. by GW. Randolph, 2021
3. The Thyroid - A Fundamental And Clinical Text Vol 1 and 2 Lewis E Braverman David S.Cooper, 11th edition, 2020.
4. Tumours Of Endocrine Organs Pathology & Genetics WHO Classification Of Tumours 2022
5. Difficult Decisions in Endocrine Surgery by Peter Angelos (Editor); Raymon H. Grogan (Editor), 2018
6. Endocrine Surgery: A Companion to Specialist Surgical Practice, Fifth ed. by Tom W. J. Lennard (Editor), 2014
7. Controversies in Thyroid Surgery by John B. Hanks (Editor); William B. Inabnet III (Editor), 2016
8. Breast, Endocrine and Surgical Oncology by Brendon J. Coventry (Editor), 2014
9. Head and Neck and Endocrine Surgery by Mahmoud Sakr (Editor), 2016
10. Minimally Invasive Therapies for Endocrine Neck Diseases by Celestino Pio Lombardi (Editor); Rocco Bellantone (Editor), 2016
11. Williams Textbook Of Endocrinology 14th Edition Henry, Kronenberg, Melmed 2020
12. Bailey And Love's Short Practice of Surgery 28th ed, 2022
13. Management of Neuroendocrine Tumors of the Pancreas and Digestive Tract by Eric S. Raymond, Sandrine Faivre, Philippe Ruszniewski (Editors), 2014
14. Atlas of Endocrine Pathology by Lori A. Erickson, 2014
15. Atlas of Endocrine Surgical Techniques by Quan-Yang Duh; Orlo H. Clark; Electron Kebebew, 2010
16. Atlas of Head and Neck Endocrine Disorders by Luca Giovanella (Editor); Giorgio Treglia (Editor); Roberto Valcavi (Editor), 2015
17. Atlas of Parathyroid Surgery by Alexander Shifrin (Editor), 2020
18. Color Atlas of Thyroid Surgery by Yeo-Kyu Youn; Kyu Eun Lee; June Young Choi, 2013
19. Tips And Tricks In Endocrine Surgery Juh C Watkinson
20. Clinical And Experimental Pheochromocytoma William Manger 2012
21. Supreme Triumph Of Surgeons Art A Narrative History Of Endocrine Surgery Martha Zeiger
22. Benign Disorders And Disease of The Breast 3rd Edition Hughes Mansel Saunders
23. **Oncoplastic Breast Surgery, 2Nd Edition by Florian, Fitzal and Peter Schrenk**
24. The Breast: Comprehensive Management of Benign and Malignant Diseases 5th Edition 2017 By Kirby I. Bland
25. IAES Textbook of Endocrine Surgery
26. "Endocrine Surgery- south Asian perspective::: published by Taylor and Francis

E- resources

- Endocrine Surgery | Videos | Access Surgery
- Endocrine Surgery | Videos | Clinical Key
- Thyroid Surgery | Videos | Clinical Key
- Access Surgery
- Cochrane Library Endocrine and Metabolic Topic
- EMBASE
- Scopus
- Up-To-Date
- Web of Science Core Collection
- NCCN guidelines
- ATA guidelines for well differentiated, medullary and anaplastic thyroid cancer
- NANETS guidelines
- ASES guidelines

Journals:

1. World Journal of Surgery
2. Indian Journal of Surgery
3. British Journal of Surgery
4. Archives of Surgery
5. Annals of surgical oncology
6. Surgery
7. Annals Of Surgery
8. Journal Of Clinical Endocrinology And Metabolism
9. World Journal of Endocrine Surgery
10. Indian Journal of Endocrine Surgery and Research
11. JAMA Network
12. Thyroid Journal of the American Thyroid Association
13. Thyroid Journal Program
14. Frontiers in Endocrinology | Thyroid Endocrinology
15. Thyroid Research and Practice
16. Thyroid Research - Springer
17. Journal of Endocrinology
18. European Thyroid Journal
19. Thyroid Science
20. Annals of Thyroid Research
21. Thyroid disease
22. Thyroid Disease and Diabetes
23. Thyroid and Parathyroid Disorders
24. Endocrine-Related Cancer
25. Journal of Biomedical Science
26. Hormones and Cancer
27. Journal of Endocrinology
28. Endocrine
29. Endocrine Practice
30. Frontiers of Hormone Research
31. BMC Endocrine Disorders
32. Hormone Research in Paediatrics
33. Paediatric Endocrinology Reviews
34. International Journal of Endocrinology and Metabolism

35. Clinical Endocrinology
36. Molecular Genetics and Metabolism
37. Pancreatology
38. Journal of Bone and Mineral Metabolism
39. Endocrine Development
40. Vitamins and Hormones
41. Frontiers of Hormone Research
42. Hormone and Metabolic Research
43. International Journal of Endocrinology
44. Endocrine Research
45. Endocrine Pathology
46. Journal of Endocrinological Investigation
47. Journal of Pediatric Endocrinology and Metabolism
48. Endocrine Reviews
49. JCEM
50. Journal of the Endocrine Society.

