King George Medical University, U.P.,

Department of Plastic & Reconstructive Surgery

Lucknow - 226 003

Ph. 91-0522-2257446, Fax No.0522-2258318

website : www.kgmuplasticsurgery.edu.in, Email : kgmuplasticsurgery@gmail.com

दिनांकः 16 / 12 / 2021

Dispatch No. 1276
Date 17/12/2021
Department of Plastic Surgery
K.G.Medical University, Lucknow

सेवा में,
प्रो0 उमा सिंह,
अधिष्ठाता–एकेडमिक्स,
किंग जॉर्ज चिकित्सा विश्वविद्यालय, उ0प्र0,
लखनऊ।

OFFICE THE DEAN
Ref. No. 11397
Dt. 17/12/21
K.G. Medical University, U.P. Lucknow

महोदय,

कृपया अपने कार्यालय पत्र संख्या Dean-Academics/KGMU/2021/3765 दिनांक 21.10.2021 का संदर्भ ग्रहण करें। जिसमें की नैक के तहत विभाग में संचालित पी0जी0 पाठ्यक्रम एम0डी0 / एम0एस0 / डी0एम0 / एम0सी0एच0 पाठ्यक्रम के Curriculum प्रेषित किये जाने का अनुरोध किया गया था।

उक्त विषय के संबंध में प्लास्टिक सर्जरी विभाग का Curriculum आपके समक्ष आग्रिम कार्यवाही हेतु प्रेषित है।

भवदीय

(डॉ0 बृजेश मिश्रा)
प्रोफेसर एवं विभागाध्यक्ष
प्लास्टिक सर्जरी विभाग
के0जी0एम0यू0
लखनऊ।

Head
Department of Plastic Surgery
K.G. Medical University, U.P.

संलग्नक– उपरोक्तानुसार

CURRICULUM

SUBJECT SPECIFIC LEARNING OBJECTIVES

1. To acquire the competencies pertaining to all areas of plastic surgery that is required to be practiced in the community and at all levels of health care system.

2. To train in 10 essential Core areas of plastic surgery. The training should provide sufficient scientific knowledge and skills. They include :

    1. **Basic principles and advances in plastic surgery**
    2. **Aesthetic surgery & medicine**
    3. **Burns and post burn deformity**
    4. **Hand Surgery**
    5. **Maxillofacial surgery, trauma & reconstruction.**
    6. **Craniofacial Surgery including Cleft surgery**
    7. **Microvascular & Peripheral vascular surgery**
    8. **Brachial plexus & Peripheral nerve surgery**
    9. **Reconstructive surgery of trunk & breast**
    10. **Urogenital surgery, External genitalia & Intersex**

3. The training of essential core areas may be obtained, in addition to the parent unit, from different units by rotation. This is subject to the discretion of the Head of the Department within the regulations of the institution. The rotation period shall not exceed 03 months.
4. To acquire skills in effective communication with different specialities and provide inter-speciality services.
5. To acquire skills in effective communication with patients, family and the community;
6. To acquire skills in educating medical and paramedical professionals.
7. To be updated on contemporary advances and developments in plastic surgery
8. To be able to understand research methodology, ethics, critical analysis, statistical methods and be able to conduct independent research.
9. To acquire skills of writing a scientific manuscript for peer reviewed publications and analyse evidence based literature.
10. To be updated with record keeping, medico legal knowledge, consumer protection law, consent and other contentious issues of rights of patients and consumer.

SUBJECT SPECIFIC COMPETENCIES

At the end of the course the student should be able to acquire the following competencies under the three domains:

A. Cognitive domain (Knowledge domain)

1. Theoretical knowledge- The syllabus

B. Affective domain (Attitudes including Communication and Professionalism)

1. Academic activities: Activities of learning.
2. Research methodology, Thesis, Medical ethics and Medico-legal aspects.
3. Teaching skills : Class room teaching , Bed side teaching, Practical teaching while performing surgery ,Teaching using IT resources, Teaching using videos, Plagiarism in teaching
4. Personal attributes: Professionalism, Attitude & Effective communication- Communication skill , Doctor patient relationship, Counselling - aesthetic surgery and reconstructive surgery, Informing the status and prognosis of patient to near and dear, Disclosing bad news etc.

C. Psychomotor domain (Skills)

The students are trained to acquire skills in clinical evaluation and operative procedures.

Clinical Skills

1. History, examination and documentation
2. Detailed physical examination should include general and systemic evaluation
3. Skills in writing up notes, maintaining problem oriented records, progress notes, and presentation of cases during ward rounds, planning investigations and making a treatment plan .
4. The resident should able to analyze history and correlate it with clinical findings.

5. General, Physical and specific examinations of Maxillofacial & Hand, aesthetic face etc.
6. Be able to clinically analyze the patient & decide for pertinent Investigations required for specific patient.
7. Should be well versed with all radiological investigations like CT Angio, CTFace with 3D Reconstruction, MRI, DSA and plain radiographs.
8. Able to understand the maintain dental models, facial moulage, 3-D models, image guided 3-D templates of defects & models for planning and reconstruction.
9. Evaluation of the defect, three dimensional description of the defect.
10. Evaluation of multiple options for the treatment.
11. Discussion on the pros/cons of each.
12. Concept of reconstructive triangle
13. Planning in reverse of flap cover.

Able to evaluate and manage critical patients of trauma, burns and develop management skills, fluid balance, and choice of drugs

Operative skills

Operative skills in the various core specialities are developed by observing, assisting seniors, performing under supervision and performing procedures independently.

At the end of the training, candidates should be able to learn various surgical procedures, the planning and principles elaborated in the syllabus and perform independently the basic techniques encompassing below mentioned procedures:

The student should be able to perform independently the following procedures:

1. Dressing techniques.
2. Debridement, Fasciotomy, wound preparation for coverage.
3. Burn wound excisions
4. Repair of Skin and soft tissue injury.
5. Skin grafting-Partial and full thickness- Harvesting, application, meshing,
6. Local flaps-V-Y advancement flaps, Rotation, Transposition, Limberg flaps etc. and its applications
7. Z- Plasty, W plasty etc. and its applications

8. Pedicled/ fasciocutaneous flap
9. Local flaps for hand , Fingertip defect coverage with flaps, Hand fracture reduction & fixation- Closed, percutaneous pin and open techniqes

10.Tendon repair: Volar/ dorsal region tendon repair techniques 11.Contracture release

12.Nerve injury repair- Peripheral nerves. 13.Vascular injury repair.

14. Arch bar fixation& intermaxillary fixation.

15. Osteosynthesis techniques such as K-wire insertion and plating. 16.Closed reduction of Nasal bone, zygoma fractures

17.Mandible fracture open reduction & fixation 18.Midface/zygoma Open reduction & fracture fixation,

19.Harvest of autologous grafts such as bone, cartilage, tendon, fascia, fat etc.

20.Repair of Eyelid, ear injuries, ptosis correction.

21. Non-surgical aesthetic procedures, fillers

22. Scar revision, excision of benign lesions, dimple creation, face lift 23.Cleft Lip repair, Cleft palate repair, alveolar bone grafting 24.Reconstruction of minor Oncological /resection defects 25.Correction of gynecomastia

26.Liposuction.

<u>The student should be able to perform under supervision the following procedures:</u>

1. Pedicled/ fasciocutaneous flap/ free flaps: Flap planning, designing, harvesting and transfer.
2. Micro skin grafting techniques
3. Microvascular Replantation, repairs and peripheral vascular injuries.
4. Reconstruction of various defects of ear, Microtia and ear anomalies correction.
5. Rhinoplasty: Cleft and aesthetic
6. Wide Excision of tumours, lesions, vascular malformations.
7. Hair transplant harvest and implantation techniques.
8. Liposuction- planning, different techniques of liposuction.

9. Body contouring procedures, Abdominoplasty , brachioplasty & lipectomy procedures of various body regions.
10. Various fat grafting procedures,
11. Use of implants for augmentation, and tissue expander insertions.
12. Planning and harvest of free flaps of various regions.
13. Micro-anastomosis and microneural repairs.
14. Hypospadias repair, Repair of genital injuries and anomalies. 15. Techniques of vaginoplasty, cliteroplasty , sex reassignment, penile reconstruction.
16. Aesthetic breast augmentation and reduction planning and techniques.
17. Surgical Face lifts.
18. Post mastectomy breast reconstruction 19. Reconstruction of Oncological resection defects.
20. Reconstruction of traumatic defects of limb, soft tissue, and skeletal loss.
21. Head and neck reconstruction, planning, various loco regional flaps and free flaps.
22. Reconstruction of scalp and calverial defects.
23. Reconstruction techniques for congenital hand anomalies, traumatic defects
24. Panfacial Fracture fixation including mandible condyles
25. Osteotomy techniques for orthognathic surgery. 26. Thumb reconstruction
27. Tendon transfers. 28. Hypospadias correction 29. Vaginoplasty
30. Brachial plexus exploration and nerve transfer techniques.

Syllabus

(M.Ch. in Plastic & Reconstructive Surgery)

Course contents:

At the end of the training the candidates demonstrate in-depth knowledge of basic science and principles, and various regional and essential core areas of plastic, reconstructive and aesthetic surgery.

General Principles, basic sciences.

- History of Plastic Surgery , History and development of plastic surgery in India and across the world
- The scope of plastic surgery
- Research methodology and Research in plastic surgery
- Medico legal issues in plastic surgery practice, Liability issues in plastic surgery, legal& insurance perspective.
- Documentation, Record keeping and consent.
- Patient safety issues in plastic surgery
- Psychological aspect of plastic surgery
- Ethics
- Photography in plastic surgery
- Training modules for Plastic surgery trainees

Technology applications:

- Technological innovations
- Laser and energy device applications
- Tissue expansion- principles and application
- Distraction Histogenesis
- Endoscopy in Plastic Surgery
- Robotics and simulations
- Navigation Surgery
- Telemedicine
- 3-D printing technology & applications
- Implants and Biomaterials

- Transplantation
- Regenerative medicine, Tissue engineering, cell therapy &stem cells
- Foetal surgery
- Information Technology for Plastic surgeon
- Teaching tools, methods & innovations in plastic surgery residency training

Basic principles and techniques:

- Wound : Definition, classification and implications.;Wound healing-normal and abnormal.; Wound management, - Mechanical and pharmacological; dressing techniques.
- Scar biology and management; Keloid, hypertrophic scars- prevention and management ;Unstable scar and scar contracture.
- Anatomy and functions of skin. Blood supply to skin, cutaneous circulation and basis of flaps.
- Skin grafts-Types of graft, harvesting, application, various indications
- FLAPS: Classification of flaps; Local skin flaps.;Pedicled skin flaps.; Muscle flaps, osseous flaps, free flaps ;Cutaneous flaps- perforator flaps, free style perforator flaps, Keystone flaps, chimeric flaps, flow-through flaps etc. General indications, principles and technique of flap planning, designing and application.
- Grafts – fat, fascia, tendon, nerve, cartilage, bone.
- Infective conditions of skin.
- Hospital infections.
- Suture materials. Surgical instruments.
- Principles of genetics and general approach to the management of congenital malformations.
- Local anaesthesia, nerve blocks, regional anaesthesia. Principles of anaesthesia for infants, adults, hypothermia, hypotensive anaesthesia. Pain management
- Transplant Biology

Craniofacial Surgery

General

- Embryology and anatomy of craniofacial complex. Growth and development changes in face, anatomy of facial skeleton. Structure and development of teeth and Dentofacial anomalies.

Craniofacial Anomalies

- Principles of craniofacial surgery, Craniofacial clefts. Tessier's clefts classification.
- Craniosynostosis-: syndromic and non syndromic.Hypertelorism,
- Craniofacial microsomia. ,Hemifacial atrophy, Treacher-Collins Syndrome,Pierre Robin sequence. Other craniofacial syndromes, e.g.- Binders syndrome etc.
- Craniofacial distraction.

Cleft Lip and Palate

- Embryology of head and neck. Embryogenesis of cleft lip and palate, History and evolution of techniques in Cleft surgery.
- Classification of Clefts, Unilateral Cleft lip, Bilateral Cleft lip, Cleft Palate, Alveolar Clefts
- Secondary deformity correction in clefts, , Flaps in clefts- Abbe flap, Tongue flap, buccal flaps, free flaps etc. Cleft nose correction
- Midface skeletal evaluation and corrections, Orthognathic surgery/ distraction in Clefts.
- Management of palatal fistula , Velopharyngeal incompetence.
- Orthodontics, speech therapy in cleft lip and palate.

Maxillofacial Surgery:

Maxillofacial Trauma

- Dentofacial anatomy, occlusions, various terminologies.
- Evaluation of injuries, imaging, principles of treatment. Management of Airway and acute care
- ATLS protocols.
- Principles of facial soft tissue injury repair. Soft tissue injuries and management- Repair of various specific areas: Eyelids, lacrimal injury, ear, nose, lips etc. Facial nerve injuries and management. Restoration of anatomical subunits of face.
- Access to maxillofacial fractures, various incisions, posterior approach with coronal/bicoronal flaps. Access osteotomies to the skull base.
- Skeletal Fractures –Principles and management. Fracture Mandible and condyle fractures. Midface fractures: maxilla, nasal bone, NOE complex. Naso-Orbito-Ethmoid injuries. Nasal bone fractures. Frontal bone fractures.

Zygomatic complex fractures, Management of Panfacial injuries, Management of dento-alveolar injuries

- Fracture reduction and different modalities of skeletal stabilization; AO principles. Osteosynthesis, Plate fixation principles and techniques, Maxillo-mandibular fixation techniques: Arch bar , dental wiring, cranio maxillary fixations
- Primary and secondary bone grafting, donor sites, techniques.
- Avulsion injuries of face, Gunshot injuries of face.
- Paediatric Facial fractures, Management of facial fractures in elderly, Eduntulous and atrophic jaw fractures.
- Head injury assessment and principles of management.
- Treatment of Secondary deformities.

Orthognathic surgery:

- Dentofacial anomalies and occlusal disturbances
- Evaluation-OPG, Cephalograms, CT imaging
- Planning of treatment –preparation of splints, models, mock surgery
- Pre and post-surgical orthodontics- principles
- Mandibular osteotomies- Sagittal split osteotomies, BSSO, Genioplasty etc.
- Maxillary osteotomies- Le Fort , segmental maxillary osteotomy etc.
- Bi maxillary (double jaw procedures) osteotomies.
- Access osteotomies to skull base surgery.

Maxillofacial disorders

- Temporo Mandibular joint: Anatomy . Ankylosis, Hypermobility, Temporomandibular joint pain, dysfunctions. T. M Joint Reconstruction.
- Obstructive sleep apnea – Evaluation, planning and management, Obstructive sleep apnea – Surgical treatment: Genioglossus advancement, hyoid suspension, Maxillo mandibular advancements etc.
- Head and neck infections, space infections. Ludwig's Angina management
- Distraction osteogenesis- maxilla, mandibular deficiencies. Principles of osteointegration and Implantology,
- Craniofacial and Maxillofacial Prosthetics, Craniofacial Implants and retained prosthesis

Tumours of Head and Neck

- Vasoformative lesions of the skin and adenexa. Malignant and benign tumours of head and neck. Malignancy of oral cavity, oropharynx and Mandible. Jaw tumors, lesions and cyst.
- Cancer of upper Aerodigestive system- Principles of management for reconstruction
- Goals and principles in oral cancer reconstruction, reconstruction of head and neck defects. Resection of tumour and Reconstruction of mandible, maxilla and facial hard and soft tissue.
- Tumours of skin-benign and malignant; resection and reconstructions, Paediatric head and neck tumors

Head and Neck Reconstruction:

Includes various congenital deformities, traumatic defects, post oncological resection defects etc.

- Reconstruction of Scalp and the face: Reconstruction of the Nose defects, deformities. Reconstruction of external ear. (Congenital, Post-traumatic, as well as Aesthetic Otoplasty or ear reshaping). Reconstruction of the Lip and commissure. Cheek reconstruction
- Mid face, maxilla defect classification, reconstruction options including free flaps
- Oral cavity, tongue reconstruction
- Reconstruction of pharynx and oesophagus.
- Mandibular reconstruction.
- Congenital deformities of face and jaw bone, Fibrous dysplasia, Romberg's disease, hemifacial atrophy, microsomia etc.
- Flaps for facial reconstruction
- Facial paralysis and various reconstructive procedures
- Leprosy deformities of face and corrections.
- Corrective Rhinoplasty.
- Skull Base Surgery- principles
- Management of vascular malformations of head and neck

Oculoplastic Surgery

- Reconstruction of eyelids, upper , lower, total. Ptosis evaluation and correction, Reconstruction of orbital socket, Prosthetic rehabilitation

Aesthetic Surgery and Medicine

- Safety in cosmetic surgery and patient evaluation. Managing cosmetic surgery patient. Anatomy of ageing skin
- Non-surgical procedures: Cutaneous resurfacing-Chemical peeling, dermabrasion & Laser resurfacing. Facial rejuvenation techniques. Soft tissue fillers. Botulinum toxin
- Management of scars of face and other regions
- Surgical Procedures -Blepharoplasty. Face lift- non surgical and various surgical techniques. Forehead lift surgical/endoscopic
- Laser therapy- and various applications.
- Aesthetic and functional Rhinoplasty- open, closed.
- Facial augmentation with implants and autologous tissue: e.g.- chin, angle, midface etc. Osseous Genioplasty, Structural fat grafting
- Liposuction, lipostructuring and various modalities like PAL, LASER, Ultrasonic etc.
- Abdominoplasty, Lipoabdomenoplasty. Body contouring procedures. Axillary contouring and axillary breast management. Post Bariatric reconstruction. Body lifts, limb contouring procedures. Management of high BMI patients and large volume liposuction
- Buttock augmentation, Calf augmentation, Pectoral augmentation
- Upper limb contouring
- Aesthetic genital surgery-male and female.
- Aesthetic Jewellery piercing
- Dimple creation for cheek, minor aesthetic procedures.

Hair Restoration

- Scalp Anatomy , Biology of the hair follicle from the surgical perspective , Scalp pathology
- Medical restoration, various techniques of restoration, including strip harvest (FUT), FUE, Body hair transplant (Non scalp donor harvest), Setting up a hair restoration practice.

Dermatological conditions & surgery

- Management of common clinical conditions like acne vulgaris.
- Management of skin lesions (benign and malignant), Superficial soft tissue tumors (benign and malignant) and cyst

- Management of hyperpigmentation, Management of Leucoderma, Surgical Management of vitiligo , hypopigmentation conditions

Breast:

- Breast cancer and overview of management. Approach to breast reconstruction- options.
- Breast reconstruction- Different surgical techniques, free flaps and prosthetic reconstruction. Reconstruction of nipple and areola complex
- Congenital anomalies of breast and correction, Poland's syndrome
- Reduction mammoplasty- various techniques, Mastopexy.
- Augmentation mammoplasty& breast implants. Detailed knowledge about various breast implants, prosthesis
- Revision surgeries in breast. Fat grafting and contouring.
- Corrections of gynecomastia.

Lower Extremity

- Functional anatomy of lower extremity
- Lower extremity trauma management. Principles and techniques of fracture management of lower limb &Skeletal fixation .
- Post traumatic soft tissue defect reconstruction. Reconstruction of skeletal defects
- Reconstruction of bone and soft tissue sarcoma and excisional defects.
- Reconstruction of foot defects and management of foot fracture.
- Diabetic and neuropathic ulcer foot management and reconstruction
- Non traumatic deformity lower extremity. Acquired deformities of the foot and corrections. Various post burn deformities. Congenital foot deformity
- Lymphedema (detailed in Lymphology)
- Leprosy deformities of leg and foot.
- Revascularisation of ischemic foot. Nerve entrapment in lower extremity

Trunk/ chest

- Thoracic reconstruction
- Sternal reconstruction
- Abdominal wall reconstruction
- Management of incisional hernia.
- Pressure (decubitus) ulcers

Genito-urinary, external genitalia, intersex & perineum

- Embryology and anatomy of the male and female external genitalia and perineum
- Reconstruction of perineum, External Genitalia , Oncological defects traumatic defects,
- Congenital anomalies including chordee, Hypospadias, Epispadias and ectopic vesica.
- Reconstruction of Male external genitalia.
- Reconstruction of female genital tract, Vaginal atresia, malformations. Vaginoplasty techniques, Reduction Labioplasty, Clitoroplasty
- Aesthetic external genital procedures, Penile implant techniques, Female genital aesthetic surgery, hymenoplasty
- Transsexualism , Intersex , Gender reassignment procedures.
- Infective condition and management, Fournier's gangrene.

Hand and upper extremity:

- Embryology of upper extremity. Functional anatomy of hand. Examination of hand. General principles of hand surgery.

Congenital Hand

- Embryology and classification
- Congenital anomalies of hand, finger and thumb. Various surgical/ corrective procedures for congenital hand deformities.
- Anomalies of forearm, upper limb: e.g. radial club hand, ulnar club hand, radioulnar synostosis
- Thumb reconstruction- Various techniques, Pollicisation, toe transfers, orthoplastic techniques
- Flaps for hand reconstruction, Innervated flaps.
- Toe to hand transfers

Hand Trauma

- Evaluation and Treatment of acute hand injuries. Fingertip injuries. Flexor tendon injuries. Extensor tendon injuries.
- Fractures and dislocation of hand – metacarpal, phalanges and wrist. Treatment principles, options, technique for hand fractures, Principles of reconstruction in mutilating hand injuries. Soft tissue cover for hand, fingers,

thumbs. Nail injuries, grafting. Vascular injuries and repairs. Nerve injuries and repairs

- Replantation of amputations/disarticulations of upper limb, proximal, distal and digits.
- Reconstruction of thumb loss. Tendon transfers, Burn Hand
- Anaesthesia and blocks for hand surgery

Non traumatic Hand conditions:

- Vascular anomalies of upper extremity. Lymphedema in upper extremity. Ischaemic conditions of upper extremity. Vasospastic disorders of hands. Nerve compression syndromes. Evaluation and Surgery for spastic and tetraplegic hand. Problems of small joints. Dupuytren's disease. Principles and treatment of old and neglected hand deformities. Rheumatoid arthritis of hand. (Reconstructive procedures). Benign and malignant tumours of hand. Hand infections.

Physiotherapy & Rehabilitation

- Basic principles of physical therapies, techniques.
- Manual and assisted therapy, electro therapy , ultrasonic, Laser and other modalities
- Hand functional outcome evaluation
- Rehabilitation of hand, prosthesis.

Allogeneic Transplantation:

- Basic principles, immunology, transplant biology, Hand Transplantation, Face transplantation

Brachial plexus and Peripheral nerve surgery

- Anatomy of Brachial Plexus. Patho-physiology and classification of nerve injuries. Principles of nerve repair, Peripheral nerve reconstructions. Nerve grafts, donor sites.
- Electrodiagnostic tests, Imaging and interpretations
- Brachial plexus injury(BPI): Principles of management of partial and total palsy. Examination, Investigation & planning, Exploration of brachial plexus, Choice of reapirs, neurotisation,Nerve grafting, distal nerve transfers in BPI. Contralateral C7 transfers, including direct repairs.

- Secondary surgeries in BPI, Free functioning muscle transfer, Rehabilitation
- Obstetrical Brachial Plexus Injuries Primary management and secondary procedures.
- Distal nerve transfers in nerve injuries. Tendon transfers for nerve injury.
- Nerve entrapments, e.g- carpal tunnel syndrome, etc.
- Leprosy deformity of hand and corrections.
- Assessment of nerve recovery, functional results.

Microvascular surgery

- Principles of microsurgery and its applications in plastic surgery. Basic techniques; instrumentation; operative microscopes, Anticoagulants, Monitoring of perfusion.
- Basic techniques of Vascular anastomosis, repair of injured vessel.
- Replantation of upper limb, lower limb and other body parts. Revascularisation surgery in extremity vascular injury
- Microvascular (free) tissue transfers. Free Functioning muscle transfer
- Micro neural repair, Tubal recanalization.
- Other applications of magnification

Vascular surgery

- Repair and reconstruction of vascular injuries of extremity and other parts. Reconstruction of ischaemic limb, Reconstruction of Femoral, axillary vessels. Various grafts, synthetic, prosthetic grafts. Vascular access (Artero venous fistula) to Chronic renal diseases , Varicose vein management, Peripheral vascular aneurysms

Burns and post burn sequele

- Types and degree of burns, Thermal burns, Electrical burns, Chemical burns, Radiation burns, Cold induced injuries, frost bite
- Pathophysiology of burns, burn shock and edema, Fluid therapy in burns and acute management. Management of airway and inhalation burns,
- Burns of special areas: Facial, genital, hand burns, Burns in paediatric and geriatric age groups and management. Multidisciplinary teams in burn