

Fourth Year

1. Oral Medicine & Radiology

AIMS :

- (1) To train the students to diagnose the common disorders of Orofacial region by clinical examination and with the help of such investigations as may be required and medical management of oro-facial disorders with drugs and physical agents.
- (2) To train the students about the importance, role, use and technics of radiographs and other imaging methods in diagnosis.
- (3) The principles of the clinical and radiographic aspects of Forensic Odontology

The syllabus in ORAL MEDICINE & RADIOLOGY is divided into two main parts. (I) Diagnosis, Diagnostic methods and Oral Medicine (II) Oral Radiology. Again the part ONE is subdivided into three sections. (A) Diagnostic methods (B) Diagnosis and differential diagnosis (C) Oral Medicine & Therapeutics.

COURSE CONTENT

- (1) Emphasis should be laid on oral manifestations of systemic diseases and ill-effects of oral sepsis on general health.
- (2) To avoid confusion regarding which lesion and to what extent the student should learn and know, this elaborate syllabus is prepared. As certain lesions come under more than one group, there is repetition.

Part-I ORAL MEDICINE AND DIAGNOSTIC AIDS

SECTION (A) – DIAGNOSTIC METHODS.

- (1) Definition and importance of Diagnosis and various types of diagnosis.
- (2) Method of clinical examinations.
 - (a) General Physical examination by inspection.
 - (b) Oro-facial region by inspection, palpation and other means
 - (c) To train the students about the importance, role, use of saliva and techniques of diagnosis of saliva as part of oral disease

- (d) Examination of lesions like swellings, ulcers, erosions, sinus, fistula, growths, pigmented lesions, white and red patches
- (e) Examination of lymph nodes
- (f) Forensic examination – Procedures for post-mortem dental examination; maintaining dental records and their use in dental practice and post-mortem identification; jurisprudence and ethics.

(3) Investigations

- (a) Biopsy and exfoliative cytology.
- (b) Hematological, Microbiological and other tests and investigations necessary for diagnosis and prognosis

SECTION (B) – DIAGNOSIS, DIFFERENTIAL DIAGNOSIS

While learning the following chapters, emphasis shall be given only on diagnostic aspects including differential diagnosis

- (1) Teeth: Developmental abnormalities, causes of destruction of teeth and their sequelae and discoloration of teeth
- (2) Diseases of bone and Osteodystrophies: Development disorders: Anomalies, Exostosis and tori, infantile cortical hyperostosis, osteogenesis imperfecta, Marfans syndrome, osteopetrosis. Inflammation – Injury, infection and spread of infection, fascial space infections, osteoradionecrosis.

Metabolic disorders – Histiocytosis

Endocrine – Acro-megaly and hyperparathyroidism

Miscellaneous – Paget's disease, Mono and polyostotic fibrous dysplasia, Cherubism.

- (3) Temporomandibular joint: Developmental abnormalities of the condyle. Rheumatoid arthritis, Osteoarthritis, Sub-luxation and luxation.
- (4) Common cysts and Tumors:

CYSTS: Cysts of soft tissue: Mucocele and Ranula

Cysts of bone: Odontogenic and nonodontogenic.

TUMORS:

Soft Tissue:

Epithelial: Papilloma, Carcinoma, Melanoma

Connective tissue: Fibroma, Lipoma, Fibrosarcoma

Vascular: Haemangioma, Lymphangioma

Nerve Tissue: Neurofibroma, Traumatic Neuroma, Neurofibromatosis

Salivary Glands: Pleomorphic adenoma, Adenocarcinoma, Warthin's Tumor, Adenoid cystic, carcinoma.

Hard Tissue:

Odontogenic: Enameloma, Ameloblastoma, Calcifying Epithelial Odontogenic tumor, Adenomatoid Odontogenic tumor, Periapical cemental dysplasia and odontomas

- (5) Periodontal diseases: Gingival hyperplasia, gingivitis, periodontitis, pyogenic granuloma
- (6) Granulomatous diseases: Tuberculosis, Sarcoidosis, Midline lethal granuloma, Crohn's Disease and Histiocytosis X
- (7) Miscellaneous Disorders: Burkitt lymphoma, sturge – Weber syndrome, CREST syndrome, rendu-osler-weber disease

SECTION (C): ORAL MEDICINE AND THERAPEUTICS.

The following chapters shall be studied in detail including the etiology, pathogenesis, clinical features, investigations, differential diagnosis, management and prevention

- (1) Infections of oral and paraoral structures:

Bacterial: Streptococcal, tuberculosis, syphilis, vincent's, leprosy, actinomycosis, diphtheria and tetanus

Fungal: Candida albicans

Virus: Herpes simplex, herpes zoster, ramsay hunt syndrome, measles, herpangina, mumps, infectious mononucleosis, AIDS and hepatitis-B.

(2) Important common mucosal lesions:

White lesions: Chemical burns, leukodema, leukoplakia, fordyce spots, stomatitis nicotina palatinus, white sponge nevus, candidiasis, lichenplanus, discoid lupus erythematosus

Veiculo-bullous lesions: Herpes simplex, herpes zoster, herpangina, bullous lichen planus, pemphigus, cicatricial pemphigoid erythema multiforme.

Ulcers: Acute and chronic ulcers

Pigmented lesions: Exogenous and endogenous

Red lesions: Erythroplakia, stomatitis venenata and medicamentosa, erosive lesions and denture sore mouth.

(3) Cervico-facial lymphadenopathy

(4) Facial pain:

(i) Organic pain: Pain arising from the diseases of orofacial tissues like teeth, pulp, gingival, periodontal tissue, mucosa, tongue, muscles, blood vessels, lymph tissue, bone, paranasal sinus, salivary glands etc.

(ii) Pain arising due to C.N.S. diseases:

(a) Pain due to intracranial and extracranial involvement of cranial nerves. (Multiple sclerosis, cerebrovascular diseases, trotter's syndrome etc.)

(b) Neuralgic pain due to unknown causes: Trigeminal neuralgia, glossopharyngeal neuralgia, sphenopalatine ganglion neuralgia, periodic migrainous neuralgia and atypical facial pain

(iii) Referred pain: Pain arising from distant tissues like heart, spine etc

(5) Altered sensations: Cacogeusia, halitosis

(6) Tongue in local and systemic disorders: (Aglossia, ankyloglossia, bifid tongue, fissured tongue, scrotal tongue, macroglossia, microglossia, geographic tongue, median rhomboid glossitis, depapillation of tongue, hairy tongue, atrophic tongue, reactive lymphoid hyperplasia, glossodynia, glossopyrosis, ulcers, white and red patches etc.)

(7) Oral manifestations of:

(i) Metabolic disorders:

- (a) porphyria
- (b) Haemochromatosis
- (c) Histocytosis X diseases

(ii) Endocrine disorders:

- (a) Pituitary: Gigantism, acromegaly, hypopituitarism
- (b) Adrenal cortex: Addison's disease (Hypofunction)

Cushing's syndrome (Hyperfunction)

- (c) Parathyroid glands: Hyperparathyroidism.
- (d) Thyroid gland: (Hypothyroidism) Cretinism, myxedema.
- (e) Pancreas: Diabetes

(iii) Nutritional deficiency: Vitamins: riboflavin, nicotinic acid, folic acid Vitamin B12, Vitamin C (Scurvy)

(iv) Blood disorders:

Red blood cell diseases

(a) Deficiency anemias: (Iron deficiency, plummer – vinson syndrome, pernicious anemia)

Haemolytic anemias: (Thalassemia, sickle cell anemia, erythroblastosis fetalis)

Aplastic anemia

Polycythemia

(b) White Blood cell diseases :

Neutropenia, cyclic neutropenia, agranulocytosis, infectious mononucleosis and leukemias

(c) Haemorrhagic disorders:

Thrombocytopenia, purpura, hemophilia, Christmas disease and von Willebrand's disease

- (8) Disease of salivary glands:
- (i) Development disturbances: Aplasia, atresia and aberration
 - (ii) Functional disturbances: Xerostomia, ptyalism
 - (iii) Inflammatory conditions: Nonspecific sialadenitis, mumps, sarcoidosis, Heerfort's syndrome (Uveoparotid fever), Necrotising sialometaplasia
 - (iv) Cysts and tumors: Mucocele, ranula, pleomorphic adenoma, mucoepidermoid carcinoma
 - (v) Miscellaneous: Sialolithiasis, Sjogren's syndrome, Mikulicz's disease and sialosis
- (9) Dermatological diseases with oral manifestations:
- (a) Ectodermal dysplasia
 - (b) Hyperkeratosis palmarplantaris with periodontopathy
 - (c) Scleroderma
 - (d) Lichen planus including Gianotti's syndrome
 - (e) Lupus erythematosus
 - (f) Pemphigus
 - (g) Erythema multiforme
 - (h) Psoriasis
- (10) Immunological diseases with oral manifestations
- (a) Leukemia
 - (b) Lymphomas
 - (c) Multiple myeloma
 - (d) AIDS clinical manifestations, opportunistic infections, neoplasms
 - (e) Thrombocytopenia
 - (f) Lupus erythematosus
 - (g) Scleroderma
 - (h) dermatomyositis
 - (i) Submucous fibrosis
 - (j) Rheumatoid arthritis
 - (k) Recurrent oral ulcerations including Behcet's syndrome and Reiter's syndrome
- (11) Allergy: Local allergic reactions, anaphylaxis, serum sickness (local and systemic allergic manifestations to food, drugs and chemicals)
- (12) Foci of oral infection and their ill effects on general health
- (13) Management of dental problems in medically compromised persons:

- (i) Physiological changes: Puberty, pregnancy and menopause
 - (ii) The patients suffering with cardiac, respiratory, liver, kidney and bleeding disorders, hypertension, diabetes and AIDS. Post-irradiated patients
- (14) Precancerous lesions and conditions
- (15) Nerve and muscle diseases:
- (i) Nerves:
 - (a) Neuropraxia.
 - (b) Neurotmesis
 - (c) Neuritis
 - (d) Facial nerve paralysis including Bell's palsy, Heerfordt's syndrome, Melkerson Rosenthal syndrome and Ramsay Hunt syndrome
 - (e) Neuroma
 - (f) Neurofibromatosis
 - (g) Frey's syndrome
 - (ii) Muscles:
 - (a) Myositis ossificans
 - (b) Myofascial pain dysfunction syndrome
 - (c) Trismus
- (16) **Forensic odontology:**
- (a) Medicolegal aspects of orofacial injuries
 - (b) Identification of bite marks
 - (c) Determination of age and sex
 - (d) Identification of cadavers by dental appliances, Restorations and tissue remnants
- (17) Therapeutics: General therapeutic measures – drugs commonly used in oral medicine viz., antibiotics, chemotherapeutic agents, anti-inflammatory and analgesic drugs, astringents, mouth washes, styptics, demulcents, local surface anaesthetic, sialogogues, antisialogogues and drugs used in the treatment of malignancy

PART – II BEHAVIOURAL SCIENCES AND ETHICS.

PART – III -ORAL RADIOLOGY

(1) Scope of the subject and history of origin

(2) Physics of radiation:

- (a) Nature and types of radiations
- (b) Source of radiations
- (c) Production of X-rays
- (d) Properties of X-rays
- (e) Compton effect
- (f) Photoelectric effect
- (g) Radiation measuring units

(3) Biological effects of radiation

(4) Radiation safety and protection measures

(5) Principles of image production

(6) Radiographic techniques:

(h) Intra-Oral:

- (a) Periapical radiographs (Bisecting and parallel technics)
- (b) Bite wing radiographs
- (c) Occlusal radiographs

(ii) Extra-oral:

- (a) Lateral projections of skull and jaw bones and paranasal sinuses
- (b) Cephalograms
- (c) Orthopantomograph
- (d) Projections of temporomandibular joint and condyle of mandible
- (e) Projections for Zygomatic arches

(iii) Specialised techniques:

- (a) Sialography
- (b) Xeroradiography
- (c) Tomography

(7) Factors in production of good radiographs:

- (a) K.V.P. and mA. of X-ray machine

- (b) Filters
 - (c) Collimations
 - (d) Intensifying screens
 - (e) Grids
 - (f) X-ray films
 - (g) Exposure time
 - (h) Techniques
 - (i) Dark room
 - (j) Developer and fixer solutions
 - (k) Film processing
- (8)** Radiographic normal anatomical landmarks
 - (9)** Faculty radiographs and artefacts in radiographs
 - (10)** Interpretation of radiographs in various abnormalities of teeth, bones and other orofacial tissues
 - (11)** Principles of radiotherapy of oro-facial malignancies and complications of radiotherapy
 - (12)** Contrast radiography and basic knowledge of radio-active isotopes
 - (13)** Radiography in Forensic Odontology - Radiographic age estimation and post-mortem radiographic methods

PRACTICALS / CLINICALS:

1. Student is trained to arrive at proper diagnosis by following a scientific and systematic procedure of history taking and examination of the orofacial region. Training is also imparted in management wherever possible. Training also shall be imparted on saliva diagnostic procedures. Training also shall be imparted in various radiographic procedures and interpretation of radiographs.
2. In view of the above each student shall maintain a record of work done, which shall be evaluated for marks at the time of university examination.
3. The following is the minimum of prescribed work for recording
 - (a) Recording of detailed case histories of interesting cases
10
 - (b) Intra-oral radiographs (Periapical, bitewing, occlusal)
25
 - (c) Saliva diagnostic check as routine procedure

BOOKS RECOMMENDED:

a) Oral Diagnosis, Oral Medicine & Oral Pathology

1. Burkit – Oral Medicine – J.B. Lippincott Company
2. Coleman – Principles of Oral Diagnosis – Mosby Year Book
3. Jones – Oral Manifestations of Systemic Diseases – W.B. Saunders company
4. Mitchell – Oral Diagnosis & Oral Medicine
5. Kerr – Oral Diagnosis
6. Miller – Oral Diagnosis & Treatment
7. Hutchinson – clinical Methods
8. Oral Pathology – Shafers
9. Sonis.S.T., Fazio.R.C. and Fang.L - Principles and practice of Oral Medicine

b) Oral Radiology

1. White & Goaz – Oral Radiology – Mosby year Book
2. Weahrman – Dental Radiology – C.V. Mosby Company
3. Stafne – Oral Roentgenographic Diagnosis – W.B.Saunders Co.

c) Forensic Odontology

1. Derek H.Clark – Practical Forensic Odontology - Butterworth-Heinemann (1992)
2. C Michael Bowers, Gary Bell – Manual of Forensic Odontology - Forensic Pr (1995)

1. Paediatric & Preventive Dentistry

THEORY:

1. INTRODUCTION TO PEDODONTICS & PREVENTIVE DENTISTRY.

- Definition, Scope, Objectives and Importance.

2. GROWTH & DEVELOPMENT:

- Importance of study of growth and development in Pedodontics.

- Prenatal and Postnatal factors in growth & development

- Theories of growth & development.
- Development of maxilla and mandible and related age changes.

3. DEVELOPMENT OF OCCLUSION FROM BIRTH THROUGH ADOLESCENCE.

- Study of variations and abnormalities.

4. DENTAL ANATOMY AND HISTOLOGY:

- Development of teeth and associated structures.
- Eruption and shedding of teeth.
- Teething disorders and their management.
- Chronology of eruption of teeth.
- Differences between deciduous and permanent teeth.
- Development of dentition from birth to adolescence.
- Importance of first permanent molar.

5. DENTAL RADIOLOGY RELATED TO PEDODONTICS.

6. ORAL SURGICAL PROCEDURES IN CHILDREN.

- Indications and contraindications of extractions of primary and permanent teeth in children.
- Knowledge of Local and General Anesthesia.
- Minor surgical procedures in children.

7. DENTAL CARIES:

- Historical background.
- Definition, aetiology & pathogenesis.
- Caries pattern in primary, young permanent and permanent teeth in children.

- Rampant caries, early childhood caries and extensive caries: Definition, aetiology, Pathogenesis, Clinical features, Complications & Management

- Role of diet and nutrition in Dental Caries.

- Dietary modifications & Diet counseling.

- Caries activity, tests, caries prediction, caries susceptibility & their clinical application.

8. GINGIVAL & PERIODONTAL DISEASES IN CHILDREN.

- Normal gingiva & periodontium in children.

- Definition, aetiology & Pathogenesis.

- Prevention & Management of gingival & Periodontal diseases.

9. CHILD PSYCHOLOGY:

- Definition.

- Theories of child psychology.

- Psychological development of children with age.

- Principles of psychological growth & development while managing child patient.

- Dental fear and its management.

- Factors affecting child's reaction to dental treatment

10. BEHAVIOUR MANAGEMENT:

- Definitions.

- Types of behaviour encountered in the dental clinic.

- Non-pharmacological & pharmacological methods of Behaviour Management.

11. PEDIATRIC OPERATIVE DENTISTRY:

- Principles of Pediatric Operative Dentistry.
- Modifications required for cavity preparation in primary and young permanent teeth.
- Various Isolation Techniques.
- Restorations of decayed primary, young permanent and permanent teeth in children using various restorative materials like Glass Ionomer, Composites & Silver Amalgam. Stainless steel, Polycarbonate & Resin Crowns.

12. PEDIATRIC ENDODONTICS

- Principles & Diagnosis.
- Definition, Classification, Clinical features & Management
- Classification of Pulpal Pathology in primary, young permanent & permanent teeth.
- Management of Pulpally involved primary, young permanent & permanent teeth.
 - Pulp capping – direct & indirect.
 - Pulpotomy
 - Pulpectomy
 - Apexogenesis
 - Apexification
- Obturation Techniques & material used for primary, young permanent & Permanent teeth in children.

13. TRAUMATIC INJURIES IN CHILDREN:

- Classifications & Importance.
- Sequelae & reaction of teeth to trauma.
- Management of Traumatized teeth.

14. PREVENTIVE & INTERCEPTIVE ORTHODONTICS:

- Definitions.
- Problems encountered during primary and mixed dentition phases & their management.
- Serial extractions.
- Space management.

15. ORAL HABITS IN CHILDREN:

- Definition, Aetiology & Classification.
- Clinical features of digit sucking, tongue thrusting, mouth breathing & various other secondary habits.
- Management of oral habits in children.

16. DENTAL CARE OF CHILDREN WITH SPECIAL NEEDS:

- Definition, Aetiology, Classification, Behavioural and Clinical features & Management of children with:
 - Physically handicapping conditions.
 - Mentally compromising conditions.
 - Medically compromising conditions.
 - Genetic disorders.

17. CONGENITAL ABNORMALITIES IN CHILDREN:

18. DENTAL EMERGENCIES IN CHILDREN & THEIR MANAGEMENT.

19. DENTAL MATERIALS USED IN PEDIATRIC DENTISTRY.

20. PREVENTIVE DENTISTRY:

- Definition.
- Principles & Scope.

- Types of prevention.
- Different preventive measures used in Pediatric Dentistry including pit and fissure sealants and caries vaccine.

21. DENTAL HEALTH EDUCATION & SCHOOL DENTAL HEALTH PROGRAMMES.

22. FLUORIDES:

- Historical background.
- Systemic & Topical fluorides.
- Mechanism of action.
- Toxicity & Management.
- Defluoridation techniques.

23. CASE HISTORY RECORDING:

- Outline of principles of examination, diagnosis & treatment planning.

24. SETTING UP OF PEDODONTIC CLINIC.

25. ETHICS

PRACTICALS:

1. Restorations – Class I & II only : 45
2. Preventive measures e.g. Oral Prophylaxis – 20
3. Fluoride applications – 10
4. Extractions – 25
5. Case History Recording & Treatment Planning – 10
6. Education & motivation of the patients using disclosing agents.
Educating patients about oral hygiene measures like tooth brushing, flossing etc.

BOOKS RECOMMENDED & REFERENCE:

1. Pediatric Dentistry (Infancy through Adolescence) – Pinkham.
2. Kennedy's Pediatric Operative Dentistry – Kennedy & Curzon.

3. Occlusal guidance in Pediatric Dentistry – Stephen H. Wei.
4. Clinical Use of Fluorides – Stephen H. Wei.
5. Pediatric Oral & Maxillofacial Surgery – Kaban.
6. Pediatric Medical Emergencies – P. S. Whatt.
7. Understanding of Dental Caries – Niki Foruk.
8. An Atlas of Glass Ionomer cements – G. J. Mount.
9. Clinical Pedodontics – Finn.
10. Textbook of Pediatric Dentistry – Braham Morris.
11. Primary Preventive Dentistry – Norman O. Harris.
12. Handbook of Clinical Pedodontics – Kenneth. D.
13. Preventive Dentistry – Forrester.
14. The Metabolism and Toxicity of Fluoride – Garry M. Whitford.
15. Dentistry for the Child and Adolescence – Mc. Donald.
16. Pediatric Dentistry – Damle S. G
17. Behaviour Management – Wright
18. Pediatric Dentistry – Mathewson.
19. Traumatic Injuries – andreason.
20. Occlusal guidance in Pediatric Dentistry – Nakata
21. Pediatric Drug Therapy – Tomare
22. Contemporary Orthodontics – Profitt.
23. Preventive Dentistry – Depaola.
24. Metabolism & Toxicity of Fluoride – whitford. G. M.
25. Endodontic Practice – Grossman.
26. Principles of Endodontics – Munford.
27. Endodontics – Ingle.
28. Pathways of Pulp – Cohen.
29. Management of Traumatized anterior Teeth – Hargreaves

3. Orthodontics & Dentofacial Orthopaedics

COURSE OBJECTIVE

Undergraduate programme in Orthodontics is designed to enable the qualifying dental surgeon to diagnose, analyse and treat common orthodontic problems by preventive, interceptive and corrective orthodontic procedures. The following basic instructional procedures will be adapted to achieve the above objectives.

1. **Introduction, Definition, Historical Background, Aims And Objectives Of Orthodontics And Need For Orthodontics Care.**
2. **Growth And Development: In General**
 - a. Definition

- b.** Growth spurts and Differential growth
- c.** Factors influencing growth and Development
- d.** Methods of measuring growth
- e.** Growth theories (Genetic, Sicher's, Scott's, Moss's, Petrovics, Multifactorial)
- f.** Genetic and epigenetic factors in growth
- g.** Cephalocaudal gradient in growth.

3. Morphologic Development Of Craniofacial Structures

- a.** Methods of bone growth
- b.** Prenatal growth of craniofacial structures
- c.** Postnatal growth and development of: cranial base, maxilla, mandible, dental arches and occlusion.

4. Functional Development Of Dental Arches And Occlusion

- a.** Factors influencing functional development of dental arches and occlusion.
- b.** Forces of occlusion
- c.** Wolfe's law of transformation of bone
- d.** Trajectories of forces

5. Clinical Application Of Growth And Development

6. Malocclusion - In General

- a.** Concept of normal occlusion
- b.** Definition of malocclusion
- c.** Description of different types of dental, skeletal and functional malocclusion.

7. Classification Of Malocclusion Principle, description, advantages and disadvantages of classification of malocclusion by Angle's, Simon's, Lischer's and Ackerman and Proffitt's.

8. Normal And Abnormal Function Of Stomatognathic System

9. Etiology Of Malocclusion

- a.** Definition, importance, classification, local and general etiological factors.
- b.** Etiology of following different types of malocclusion:
 - 1) Midline diastema
 - 2) Spacing
 - 3) Crowding
 - 4) Cross-Bite: Anterior/Posterior
 - 5) Class III Malocclusion

- 6) Class II Malocclusion
- 7) Deep Bite
- 8) Open bite

10. Diagnosis And Diagnostic Aids

- a. Definition, Importance and classification of diagnostic aids
- b. Importance of case history and clinical examination in orthodontics
- c. Study Models: - Importance and uses - Preparation and preservation of study models
- d. Importance of intraoral X-rays in orthodontics
- e. Panoramic radiographs: - Principles, Advantages, disadvantages and uses
- f. Cephalometrics: Its advantages, disadvantages
 - 1. Definition
 - 2. Description and use of cephalostat
 - 3. Description and uses of anatomical landmarks lines and angles used in cephalometric analysis
 - 4. Analysis- Steiner's, Down's, Tweed's, Ricket's-E- line
- g. Electromyography and its uses in orthodontics
- h. Wrist X-rays and its importance in orthodontics

11. General Principles In Orthodontic Treatment Planning Of Dental And Skeletal Malocclusions

12. Anchorage In Orthodontics - Definition, Classification, Types and Stability Of Anchorage

13. Biomechanical Principles In Orthodontic Tooth Movement

- a. Different types of tooth movements
- b. Tissue response to orthodontic force application
- c. Age factor in orthodontic tooth movement

14. Preventive Orthodontics

- a. Definition
- b. Different procedures undertaken in preventive orthodontics and their limitations.

15. Interceptive Orthodontics

- a. Definition
- b. Different procedures undertaken in interceptive orthodontics
- c. Serial extractions: Definition, indications, contra-indication, technique, advantages and disadvantages.
- d. Role of muscle exercises as an interceptive procedure

16. Corrective Orthodontics

- a. Definition, factors to be considered during treatment planning

- b. Model analysis: Pont's, Ashley Howe's, Bolton, Careys, Moyer's Mixed Dentition Analysis
- c. Methods of gaining space in the arch:- Indications, relative merits and demerits of proximal stripping, arch expansion and extractions
- d. Extractions in Orthodontics - indications and selection of teeth for extraction.

17. Orthodontic Appliances: General

- a. Requisites for orthodontic appliances
- b. Classification, indications of Removable and Functional Appliances
- c. Methods of force application
- d. Materials used in construction of various orthodontic appliances - uses of stainless steel, technical considerations in curing of acrylic, Principles of welding and soldering, fluxes and antiluxes.
- e. Preliminary knowledge of acid etching and direct bonding

REMOVABLE ORTHODONTIC APPLIANCES

- 1. Components of removable appliances
- 2. Different types of clasps and their uses
- 3. Different types of labial bows and their uses
- 4. Different types of springs and their uses
- 5. Expansion appliances in orthodontics:
 - i. Principles
 - ii. Indications for arch expansion
 - iii. Description of expansion appliances and different types of expansion devices and their uses.
 - iv. Rapid maxillary expansion

FIXED ORTHODONTIC APPLIANCES

- 1. Definition, Indications & Contraindications
- 2. Component parts and their uses
- 3. Basic principles of different techniques: Edgewise, Begg's, straight wire.

EXTRAORAL APPLIANCES

- 1. Headgears
- 2. chin cup
- 3. reverse pull headgears

MYOFUNCTIONAL APPLIANCES

1. Definition and principles
2. Muscle exercises and their uses in orthodontics
3. Functional appliances:

i. Activator, Oral screens, Frankels function regulator, bionator twin blocks, lip bumper

ii. Inclined planes - upper and lower

18. Orthodontic Management Of Cleft Lip And Palate

19. Principles Of Surgical Orthodontics

Brief knowledge of correction of:

- a. Mandibular Prognathism and Retrognathism
- b. Maxillary Prognathism and Retrognathism
- c. Anterior open bite and deep bite
- d. Cross bite

20. Principle, Differential Diagnosis & Methods Of Treatment Of: 0.6mm

1. Midline diastema
2. Cross bite.
3. Open bite
4. Deep bite
5. Spacing
6. Crowding
7. Class II - Division 1, Division 2
8. Class III Malocclusion - True and Psuedo Class III

21. Retention And Relapse

Definition, Need for retention, Causes of relapse, Methods of retention, Different types of retention devices, Duration of retention, Theories of retention.

22. ETHICS

CLINICALS AND PRACTICALS IN ORTHODONTICS PRACTICAL TRAINING DURING II YEAR B.D.S.

I. Basic wire bending exercises Gauge 22 or 0.7mm

1. Straightening of wires (4 Nos.)
2. Bending of an equilateral triangle
3. Bending of a rectangle
4. Bending of a square
5. Bending of a circle
6. Bending of U.V.

II. Construction of Clasps (Both sides upper/lower) Gauge 22 or 0.7mm

1. 3/4 Clasp (C-Clasp)
2. Full Clasp (Jackson's Crib)
3. Adam's Clasp
4. Triangular Clasp

III. Construction of Springs (on upper both sides) Gauge 24 or 0.5mm

1. Finger Spring
2. Single Cantilever Spring
3. Double Cantilever Spring (Z-Spring)
4. T-Springs on premolars

IV. Construction of Canine retractors Gauge 23 or

1. U - Loop canine retractor (Both sides on upper & lower)
2. Helical canine retractor (Both sides on upper & lower)
3. Buccal canine retractor: - Self supported buccal canine retractor with a) Sleeve - 5mm wire or 24 gauge b) Sleeve - 19 gauge needle on any one side.
4. Palatal canine retractor on upper both sides Gauge 23 or 0.6mm
5. Labial Bow Gauge 22 or 0.7mm One on both upper and lower

CLINICAL TRAINING DURING III YEAR B.D.S.

No.	EXERCISE
01	Making upper Alginate impression

- 02** Making lower Alginate impression
- 03** Study Model preparation
- 04** Model Analysis
 - a.** Pont's Analysis
 - b.** Ashley Howe's Analysis
 - c.** Carey's Analysis
 - d.** Bolton's Analysis
 - e.** Moyer's Mixed Dentition Analysis

CLINICAL TRAINING DURING FINAL YEAR B.D.S.

- | No. | EXERCISE |
|------------|--|
| 01 | Case History taking |
| 02 | Case discussion |
| 03 | Discussion on the given topic |
| 04 | Cephalometric tracings <ul style="list-style-type: none"> a. Down's Analysis b. Steiner's Analysis c. Tweed's Analysis |

PRACTICAL TRAINING DURING FINAL YEAR B.D.S.

1. Adam's Clasp on Anterior teeth Gauge 0.7mm
2. Modified Adam's Clasp on upper arch Gauge 0.7mm
3. Modified Adam's Clasp on upper arch Gauge 0.7mm (Gauge of Labial bow - 0.9mm, Apron spring - 0.3mm)
4. Coffin spring on upper arch Gauge 1mm Appliance Construction in Acrylic
 1. Upper & Lower Hawley's Appliance
 2. Upper Hawley's with Anterior bite plane
 3. Upper Habit breaking Appliance
 4. Upper Hawley's with Posterior bite plane with `Z' Spring
 5. Construction of Activator
 6. Lower inclined plane/Catalan's Appliance
 7. Upper Expansion plate with Expansion Screw

RECOMMENDED AND REFERENCE BOOKS

1. CONTEMPORARY ORTHODONTICS WILLIAM R. PROFFIT
2. ORTHODONTICS FOR DENTAL STUDENTS WHITE and GARDINER
3. HANDBOOK OF ORTHODONTICS MOYERS

4. ORTHODONTICS - PRINCIPLES AND PRACTICE GRABER
5. DESIGN, CONSTRUCTION AND USE OF REMOVABLE
6. ORTHODONTIC APPLIANCES C. PHILIP ADAMS
7. CLINICAL ORTHODONTICS: VOL1 & 2 SALZMANN

4. Periodontology

OBJECTIVES:

The student shall acquire the skill to perform dental scaling ,diagnostic tests of periodontal diseases; to use the instruments for periodontal therapy and maintenance of the same.

The student shall develop attitude to impart the preventive measures namely, the prevention of periodontal diseases and prevention of the progress of the disease. The student shall also develop an attitude to perform the treatment with full aseptic precautions; shall develop an attitude to prevent iatrogenic diseases; to conserve the tooth to the maximum possible time by maintaining periodontal health and to refer the patients who require specialist's care.

1. Introduction: Definition of Periodontology, Periodontics, Periodontia, Brief historical background, Scope of Periodontics
2. Development of perio-dontal tissues, micro-structural anatomy and biology of periodontal tissues in detail Gingiva. Junctional epithelium in detail, Epithelial-Mesenchymal interaction,Periodontal, ligament Cementum, Alveolar bone.
3. Defensive mechanisms in the oral cavity: Role of -Epithelium,Gingival fluid, Saliva and other defensive mechanisms in the oral environment.
4. Age changes in periodontal structures and their significance in Geriatric dentistry - Age changes in teeth and periodontal structures and their association with periodontal diseases
5. Classification of periodontal diseases -
 - Need for classification, Scientific basis of classification
 - Classification of gingival and periodontal diseases as described in World Workshop1989
 - Gingivitis:** Plaque associated, ANUG, steroid hormone influenced, Medication influenced, Desquamative gingivitis, other forms of gingivitis as in nutritional deficiency, bacterial and viral infections etc.

Periodontitis: Adult periodontitis, Rapidly progressive periodontitis A&B, Juvenile periodontitis (localized, generalized, and post-juvenile), Prepubertal periodontitis, Refractory periodontitis

6. Gingival diseases -

Localized and generalized gingivitis, Papillary, marginal and diffuse gingivitis
Etiology, pathogenesis, clinical signs, symptoms and management of

- i) Plaque associated gingivitis
- ii) Systemically aggravated gingivitis (sex hormones, drugs and systemic diseases)
- iii) ANUG
- iv) Desquamative gingivitis-Gingivitis associated with lichen planus, pemphigoid, pemphigus, and other vesiculobullous lesions
- v) Allergic gingivitis
- vi) Infective gingivitis-Herpetic, bacterial and candidial
- vii) Pericoronitis

viii) Gingival enlargement (classification and differential diagnosis)

7. Epidemiology of periodontal diseases -

Definition of index, incidence, prevalence, epidemiology, endemic, epidemic, and Pandemic
-Classification of indices (Irreversible and reversible)
-Deficiencies of earlier indices used in Periodontics
-Detailed understanding of Silness & Loe Plaque Index, Loe & Silness Gingival Index, CPITN & CPI.
-Prevalence of periodontal diseases in India and other countries.

-Public health significance (All these topics are covered at length under community dentistry. Hence, the topics may be discussed briefly. However, questions may be asked from the topics for examination)

8. Extension of inflammation from gingival -

Mechanism of spread of inflammation from gingival area to deeper periodontal structures

Factors that modify the spread

9. Pocket -

Definition, signs and symptoms, classification, pathogenesis, histopathology, root surface changes and contents of the pocket

10. Etiology -

Dental Plaque (Biofilm)

- Definition, New concept of biofilm
- Types , composition, bacterial colonization, growth, maturation & disclosing agents
- Role of dental plaque in periodontal diseases
- Plaque microorganisms in detail and bacteria associated with periodontal diseases
- Plaque retentive factors

Materia alba

- Food debris

Calculus

- Definition
- Types, composition, attachment, theories of formation
- Role of calculus in disease

Food Impaction

- Definition
- Types, Etiology
- Hirschfelds' classification
- Signs , symptoms & sequelae of treatment

Trauma from occlusion

- Definition, Types
- Histopathological changes
- Role in periodontal disease
- Measures of management in brief

Habits

- Their periodontal significance
- Bruxism & parafunctional habits, tongue thrusting , lip biting, occupational habits

IATROGENIC FACTORS

Conservative Dentistry

- Restorations
- Contact point, marginal ridge, surface roughness, overhanging restorations, interface between restoration and teeth

Prosthodontics

- Interrelationship

-Bridges and other prosthesis, pontics(types) ,surface contour, relationships of margins to the periodontium, Gingival protection theory, muscle action theory& theory of access to oral hygiene.

Orthodontics

-Interrelationship, removable appliances &fixed appliances

-Retention of plaque, bacterial changes

Systemic diseases

-Diabetes, sex hormones, nutrition (Vit.C &proteins)

-AIDS & periodontium

-Hemorrhagic diseases, Leukemia, clotting factor disorders, PMN disorders

11. Risk factors -

Definition. Risk factors for periodontal diseases

12. Host response -

-Mechanism of initiation and progression of periodontal diseases

-Basic concepts about cells, Mast cells, neutrophils, macrophages, lymphocytes, immunoglobulins, complement system, immune mechanisms & cytokines in brief

-Stages in gingivitis-Initial, early, established & advanced

-Periodontal disease activity, continuous paradigm, random burst & asynchronous multiple

burst hypothesis

1. Periodontitis -

-Etiology ,histopathology ,clinical signs & symptoms, diagnosis and treatment of adult periodontitis

-Periodontal abscess; definition, classification, pathogenesis, differential diagnosis and treatment

- Furcation involvement, Glickmans' classification, prognosis and management
- Rapidly progressive periodontitis
- Juvenile periodontitis: Localized and generalized
- Post-juvenile periodontitis
- Periodontitis associated with systemic diseases
- Refractory periodontitis

14. Diagnosis -

- Routine procedures, methods of probing, types of probes,(According to case history)
- Halitosis: Etiology and treatment. Mention advanced diagnostic aids and their role in brief.

15. Prognosis -

- Definition, types, purpose and factors to be taken into consideration

16. Treatment plan

- Factors to be considered

17. Periodontal therapy -

- A. General principles of periodontal therapy. Phase I, II, III, IV therapy. Definition of periodontal regeneration, repair, new attachment and reattachment.
- B. Plaque control
 - i. Mechanical tooth brushes, interdental cleaning aids, dentifrices
 - ii. Chemical; classification and mechanism of action of each & pocket irrigation

18. Pocket eradication procedures -

- Scaling and root planing:
- Indications
- Aims & objectives

- Healing following root planning
- Hand instruments, sonic, ultrasonic & piezo-electric scalers
- Curettage & present concepts
- Definition
- Indications
- Aims & objectives
- Procedures & healing response
- Flap surgery Definition
- Types of flaps, Design of flaps, papilla preservation
- Indications & contraindications
- Armamentarium
- Surgical procedure & healing response

19. Osseous Surgery -

- Osseous defects in periodontal disease
- Definition
- Classification
- Surgery: resective, additive osseous surgery (osseous grafts with classification of grafts)
- Healing responses
- Other regenerative procedures; root conditioning
- Guided tissue regeneration

20. Mucogingival surgery & periodontal plastic surgeries -

Definition

Mucogingival problems: etiology, classification of gingival recession (P.D. Miller Jr. and Sullivan and Atkins)

Indications & objectives

Gingival extension procedures: lateral pedicle graft, frenectomy, frenotomy

Crown lengthening procedures

Periodontal microsurgery in brief

1. Splints

- Periodontal splints
- Purpose & classification
- Principles of splinting

Hypersensitivity

2. Causes, Theories & management
3. Implants :

Definition, types, scope & biomaterials used.

4. Periodontal considerations: such as implant-bone interface, implant-gingiva interface, implant failure, peri-implantitis & management
5. Maintenance phase (SPT) :
 - Aims, objectives, and principles
 - Importance
 - Procedures
 - Maintenance of implants
25. Pharmaco-therapy :
 - Periodontal dressings
 - Antibiotics & anti-inflammatory drugs
 - Local drug delivery systemsPeriodontal
26. management of medically compromised patients : Topics concerning periodontal management of medically compromised patients
27. Inter-disciplinary care:
 - Pulpo-periodontal involvement
 - Routes of spread of infection
 - Simons' classification
 - Management
28. Systemic effects of periodontal diseases in brief : Cardiovascular diseases, Low birth weight babies etc.
29. Infection control protocol : Sterilization and various aseptic procedures
30. Ethics

TUTORIALS DURING CLINICAL POSTING;

1. Infection control
2. Periodontal instruments
3. Chair position and principles of instrumentation
4. Maintenance of instruments (sharpening)
5. Ultrasonic, Piezoelectric and sonic scaling – demonstration of technique
6. Diagnosis of periodontal disease and determination of prognosis
7. Radiographic interpretation and lab investigations
8. Motivation of patients- oral hygiene instructions Students should be able to record a detailed periodontal case history, determine diagnosis, prognosis and plan treatment. Student should perform scaling ,root planning local drug delivery and SPT. Shall be given demonstration of all periodontal surgical procedures

DEMONSTRATIONS:

1. History taking and clinical examination of the patients
2. Recording different indices
3. Methods of using various scaling and surgical instruments

4. Polishing the teeth
5. Bacterial smear taking
6. Follow up procedures, post operative care and supervision
7. Surgical procedures- gingivectomy, gingivoplasty, and flap operations
8. Demonstration to patients about different oral hygiene aids

REQUIREMENTS:

1. Diagnosis, treatment planning, and discussion and total periodontal treatment- 25 cases
2. Dental scaling, oral hygiene instructions- 50 complete cases/ equivalent
3. Assistance in periodontal surgery- 5 cases
4. A work record should be maintained by all the students and should be submitted at the time of examination after due certification from the head of the department. Students should have to complete the work prescribed by the concerned department from time to time and submit a certified record for evaluation.

PRESCRIBED BOOK:

1. Glickman's Clinical Periodontology—Carranza

REFERENCE BOOKS

1. Essentials of Periodontology and periodontics- Torquil MacPhee
2. Contemporary periodontics- Cohen
3. Periodontal therapy- Goldman
4. Orbans' periodontics- Orban
5. Oral Health Survey- W.H.O.
6. Preventive Periodontics- Young and Stiffler
7. Public Health Dentistry- Slack
8. Advanced Periodontal Disease- John Prichard
9. Preventive Dentistry- Forrest
10. Clinical Periodontology- Jan Lindhe
11. Periodontics- Baer & Morris.