Preamble

Introduction

Orthodontics is the branch of dentistry concerned with prevention, interception and correction of malocclusion and other abnormalities of dentofacial region. It also includes study of growth and development of jaws and face and also the study of action and reaction internal and external influences on the development and the correction of arrested and perverted development.

Eligibility for admission:

The candidates applying for fellowship should have successfully completed.

MDS in Orthodontics in DCI approved programme.

Duration of the program:

13 months

Maximum period for completion of the program:

24 months

Aim of the Program

To establish a comprehensive training program for orthodontics in the management of surgical and cleft lip and palate orthodontics.

Objectives/Outcomes of the program (Knowledge/Skill/Attitude/Communication)

Knowledge:

The trainee should acquire detailed knowledge pertaining to the cases of Cleft Lip and Palate, preventive measure if any, diagnosis and appropriate investigation to support the diagnoses at different stages in the development and growth of the child with cleft lip and palate anomaly or other developmental craniofacial deformity. Complete knowledge of all aspects of the management of this complex deformity including the concept of team management with interaction between other associated specialities like Orthodontics, Paediatric dentistry, Speech therapy, ENT etc.

Training in Orthodontics:

Will include diagnosis, treatment planning, arriving at surgical treatment objectives, pre-surgical orthodontics (including expansion, extraction, decompensation), fabrication of surgical splints, and post-surgical orthodontics.

Skills and Attitudes:

The trainee should, at the end of one year, be able to provide seamless care in all ortho aspects of cleft lip and palate from birth till adulthood.

This will include

- Fabrication of Obturators
- Lip taping
- Fabrication of nasal elevator
- Naso Alveolar moulding
- Fabrication of expansion devices and face mask placement
- fixed mechanotherapy required for cleft orthodontics
- Fabrication of splint
- Fabrication of AMD device for distraction

The trainee should develop a compassionate attitude towards dealing with both the cleft children and the parents and relatives.

Skill Sets required Surgical Orthodontics:

Will include

- Diagnosis
- Computerised cephalometrics
- Surgical Treatment objectives
- Carrying out mock surgeries
- Reverse Orthodontics
- Decompensation
- Fabrication and use of various expansion and extra oral appliances
- Fabrication of distraction device
- Communicating with the oral surgeon the intended treatment plan. Fabrication of Surgical splints
- Post surgical orthodontics.

Communication abilities:

It is essential to develop skills required to maintain a harmonious working relationship with all the specialists involved such that the principles of good team management can be established.

Program Outcomes

(K = Knowledge, S = Skill, A = Attitude)

PO 1:

The trainee should acquire detailed knowledge pertaining to the cases of cleft lip and palate, preventive measures if any, diagnosis at different stages in the development and growth of the child, cleft lip and palate anomaly, or other developmental craniofacial deformities. *(K, S)*

PO 2:

To acquire knowledge and skills in the management of surgical and cleft lip and palate orthodontics. *(K, S)*

PO 3:

The trainee should, at the end of one year, be able to provide seamless care in all orthodontic aspects of cleft lip and palate from birth till adulthood. (K, S)

PO 4:

The trainee should develop a compassionate attitude towards dealing with both cleft children and their parents and relatives. (S, A)

PO 5:

To develop skills required to maintain a harmonious working relationship with all the specialists involved such that the principles of good team management can be established. (S, A)

Program structure

	Broad category of course	Hours/Credits	Course (Title + Course Code)
1.	**Discipline-Specific Courses**		
a)	Theory	**100 hrs**	
b)	Practical (SEC)*	**100 hrs**	
c)	Clinical (SEC)*	**One to one clinical training through out the year**	
d)	Simulation-based (SEC)*		
2.	**Curriculum Enrichment Courses**		
a)	Field Visit / Industry / Clinical Internship	**1-month GSR ICFS,Hyderabad 1 month Dr.Puneet Batra cleft centre, New Delhi**	
b)	Community Posting	**2 CFCA camps**	
c)	Research Project	**1 short study 1 systematic review/ meta-analysis**	

d)	Publications	**4 accepted craniofacial related publications**	
3.	**Electives**		
a)	Discipline-Specific Electives		
b)	Interdisciplinary Courses		
c)	Ability Enhancement Courses	**Young voices (program on public speaking)**	
d)	Value Added Courses	**Research Integrity and Publication Ethics (RIPE): April (7-day sessions)** **Gender, Health, and Human Rights (GHHR): May (6-day sessions)** **Clinical Ethics and Medical Humanities (CEMH): July (7-day sessions)** **Bioethics and Environmental Ethics (BEEE): November (7-day sessions)**	
	Total		

SEC: Skill Enhancement Course

1. Attendance

80% attendance is mandatory.

2. Syllabus / Course contents

The Fellowship in Cleft Orthodontics is designed to equip orthodontists with advanced knowledge and clinical skills required to manage cleft lip and palate patients from infancy

through adulthood. The course emphasizes interdisciplinary coordination, evidence-based protocols, hands-on appliance fabrication, nasoalveolar moulding (NAM), growth assessment, and pre- and post-surgical orthodontics.

1: Foundations of Cleft Anomalies

1. Embryology of Orofacial Development
2. Etiology & Genetic Factors
3. Types & Classifications (LAHSHAL, Veau, Kernahan)
4. Pathophysiology of Cleft Lip & Palate
5. Impact on Feeding, Speech, Growth & Psychosocial Health
6. Overview of Cleft Treatment Protocols Across the Globe

2: Multidisciplinary Cleft Team Dynamics

1. Roles of Surgeons, Orthodontists, Speech Pathologists, Pediatricians, ENT, Prosthodontists & Psychologists
2. Treatment Timing & Coordination
3. Cleft Team Case Conferences
4. Communication & Patient Counselling

3: Diagnostic Protocols in Cleft Orthodontics

1. Extraoral & Intraoral Examination
2. Photographic & Radiographic Records
   • OPG, CEPH, CBCT, 3D Facial Scanning
3. Dental Cast Analysis & Virtual Models
4. Growth Assessment in Cleft Patients
5. Functional Evaluation: Speech, Mastication, Nasal Airway
6. Cephalometric Standards for Cleft Patients

4: Infant Orthopedics & Nasoalveolar Molding (NAM)

1. Principles of Pre-Surgical Infant Orthopedics
2. Timing of NAM & Appointment Protocols
3. Fabrication of NAM Plates
4. Nasal Stents & Alar Molding Techniques
5. Clinical Handling, Hygiene Protocols & Parent Education
6. Case Documentation & Monitoring
7. 3D Printed NAM Systems (Digital NAM)

5: Early Childhood Orthodontics (2–6 years)

1. Post-lip and palate repair dentofacial changes
2. Management of crossbites, collapsed maxilla
3. Use of expansion appliances
4. Space management
5. Continuity with speech therapy & ENT care

6: Mixed Dentition Orthodontics (6–12 years)

1. Timing for Alveolar Bone Grafting (ABG)
2. Pre-graft Orthodontics
   • Maxillary expansion
   • Alignment
   • Canine eruption guidance
3. Post-graft Orthodontic Strategies
4. Evaluation of Bone Graft Success
5. Managing midface deficiency early

7: Comprehensive Orthodontics in Permanent Dentition

1. Fixed appliance therapy considerations in cleft patients
2. Arch coordination challenges

3. Managing dental anomalies: missing laterals, rotations, supernumeraries
4. Canine substitution, implants, prosthetic coordination
5. Retention protocols for cleft cases

8: Surgical Orthodontics for Cleft Patients

1. Indications for Secondary & Tertiary Surgeries
2. Orthodontic preparation for:
   • Maxillary advancement (Le Fort surgeries)
   • Mandibular surgeries
   • Distraction Osteogenesis
3. Virtual Surgical Planning (VSP)
4. Post-surgical orthodontic management

9: Speech-Related Orthodontic Considerations

1. Velopharyngeal Insufficiency (VPI)
2. Speech appliance design
3. Collaboration with speech pathologists
4. Orthodontic modifications affecting speech

10: Digital Technologies in Cleft Orthodontics

1. Digital impressions & 3D modelling
2. Software for treatment simulation
3. Use of aligners in cleft patients
4. 3D printing of appliances (NAM, retainers, surgical splints)

11: Research & Evidence-Based Practice

1. Outcomes assessment in cleft orthodontics
2. Clinical audit & quality improvement
3. Designing research in cleft care

4. Writing case reports & publications
5. Ethical considerations & consent in cleft patients

Course Outcomes

Introduction to Cleft Orthodontics

CO 1:

To know the importance of orthodontics in cleft patients

CO 2:

To be able to apply GOSLON index for clefts and practice on the study model

Growth and Development

CO 1:

To know the role of lip repair and palate repair on growth and development

CO 2:

To apply genetics and psychology in cleft patients

CO 3:

To know the etiology and classification of clefts

Presurgical Naso-Alveolar Molding (PNAM)

CO 1:

Introduction, history, importance of pediatric evaluation and various impression procedures

CO 2:

To acquire the skill in fabrication of the appliance by Grayson technique, Taiwan technique and modified technique of the department

CO 3:

To know the treatment outcome of UCLP on Goslon analysis, complications and controversies in PNAM, long-term evaluation of the 3D nasal symmetry after PNAM

Alveolar Bone Grafting

CO 1:

Radiographic assessment of cleft defect and bone graft

CO 2:

Surgical technique and autogenous bone graft, allogenic materials

CO 3:

Orthodontic preparation for alveolar bone grafting in BCLP cases.
How to evaluate graft success, expansion before or after grafting, how soon to initiate orthodontic treatment, nasal symmetry with bone graft

Orthopedic Treatment in Cleft Cases

CO 1:

Facemask therapy for cleft deformity

CO 2:

Orthodontic treatment for a patient with a unilateral cleft lip and palate and congenitally missing maxillary lateral incisors and left second premolar

CO 3:

Retention and relapse with respect to cleft patients

Orthognathic Surgeries

CO 1:

Pre-surgical and post-surgical orthodontics in cleft patients

CO 2:

Conventional orthognathic surgery vs distraction osteogenesis

CO 3:

Overview of orthognathic and segmental distraction

CO 4:

Acquire the skill of surgical lip repair on patient

Prosthetic Rehabilitation

CO 1:

MDT clinics

Speech in Cleft Patients

CO 1:

To be able to train cleft patients with speech

3. Teaching

Teaching - Learning method	Courses
Experiential learning	
Integrated/Inter-disciplinary learning	
Participatory learning	✓
Problem-solving methodologies	
Self-directed learning	
Patient-centric and Evidence-based learning	✓
The Humanities	
Project-based learning	
Role-play	
Team-work	✓
Reflective writing	✓
Any other	

4. Scheme of Examination

- **Internal Assessment**

There shall be 2 internal examinations. Each theory paper of three hours duration carrying 100 marks. These 2 examinations will be conducted every 4-5 months. 1st internal examination will be conducted 4 months from the date of joining. 2nd internal 4-5 month after 1st internal examination. After 4-5 month that is End of 13 months, there will be an University examination.

- **University Examination**

There shall be one theory paper of three hours duration carrying 100 marks. Clinical examination would also be for 100 marks and viva voce would be for 50 marks. Candidate has to score a minimum of 50% for passing the examination.

- **Scheme of Examination:**

a) Written: One clinical paper covering cleft lip and palate management and surgical orthodontics.

b) Clinical examination: 2 case presentations with discussion on diagnosis, treatment plan and management.

c) Viva-voce: 1 viva of 1 hour duration can be held to complement the written and clinical examination.

Examiners: 3 – One internal, Two externals. Appointed by the University.

- **Departmental examination**

Monitoring of Teaching / Learning activities:

a. Direct consultant-to-trainee interaction.
b. Maintenance of log book.
c. Library Dissertation
d. Formal quarterly review of Performance.
e. Regular checks of log book/ record/ diary book

5. Eligibility to appear for University Examination

- Systematic review or meta- analysis-1
- Short study -1
- Publication-4 (Scopus/PubMed indexed journals-2, UGC or others-2)
- Seminar presentation-4
- Journal club presentation-4
- Total number of case -20
- Filed visit- 2
- CDE -3, workshop-1

- National presentation-2, International-1 (optional)
- Other posting- Surgery (Centre for Craniofacial Surgery)
  -Speech Therapy

6. Criteria for passing

50% of marks in both theory and practical in university examination.

7. Grading and Classification

50%- pass

50-60%-2nd class

60-75%- 1st class

Above 75%-distinction

8. Declaration of Class

The classification of results shall be declared as Pass for candidates securing 50% and above, Second Class for those securing 50% to less than 60%, First Class for those securing 60% to less than 75%, and Distinction for candidates securing 75% and above.

9. Logbook/Portfolio (if applicable)

Log book should be maintained.

10. Recommended books (In Vancouver style)

i. Multidisciplinary Management of Cleft Lip and Palate – Bardach and Morris.
ii. Atlas of Cleft and Craniofacial Surgery – Salyer and Bardach.
iii. Plastic Surgery – McCarthy.
iv. Cleft Lip and Palate – Berkowitz.

11. Journals (In Vancouver style)

i. Cleft Palate & Craniofacial Journal.
ii. Plastic Reconstructive Surgery Journal.
iii. Journal of Craniomaxillofacial Surgery.
iv. Journal of Clinical Orthodontics.
v. American Journal of Orthodontics and Dentofacial Orthopaedics.