



AMRITA

VISHWA VIDYAPEETHAM

A Multi Campus University with 'A' Grade Accreditation by NAAC

AMRITA SCHOOL OF MEDICINE

Amrita Centre for Allied Health Sciences

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PROGRAM

MSc Deglutology and Swallowing Disorders

(Revised with effect from 2015-2016 onwards)



A Super Specialty Tertiary Care Hospital Accredited by ISO 9001-2008, NABL & NABH

Our Chancellor



SPIRITUAL PRINCIPLES IN EDUCATION

“In the gurukulas of ancient rishis, when the master spoke it was love that spoke; and at the receiving end disciple absorbed of nothing but love. Because of their love for their Master, the disciples’ hearts were like a fertile field, ready to receive the knowledge imparted by the Master. Love given and love received. Love made them open to each other. True giving and receiving take place where love is present. Real listening and ‘sraddha’ is possible only where there is love, otherwise the listener will be closed. If you are closed you will be easily dominated by anger and resentment, and nothing can enter into you”.

“Satguru Mata Amritanandamayi Devi”

Introducing AIMS

India is the second most populous nation on earth. This means that India's health problems are the world's health problems. And by the numbers, these problems are staggering 41 million cases of diabetes, nearly half the world's blind population, and 60% of the world's incidences of heart disease. But behind the numbers are human beings, and we believe that every human being has a right to high-quality healthcare.

Since opening its doors in 1998, AIMS, our 1,200 bed tertiary care hospital in Kochi, Kerala, has provided more than 4 billion rupees worth of charitable medical care; more than 3 million patients received completely free treatment. AIMS offers sophisticated and compassionate care in a serene and beautiful atmosphere, and is recognized as one of the premier hospitals in South Asia. Our commitment to serving the poor has attracted a dedicated team of highly qualified medical professionals from around the world.

The Amrita Institute of Medical Sciences is the adjunct to the term "New Universalism" coined by the World Health Organization. This massive healthcare infrastructure with over 3,330,000 sq. ft. of built-up area spread over 125 acres of land, supports a daily patient volume of about 3000 outpatients with 95 percent inpatient occupancy. Annual patient turnover touches an incredible figure of almost 800,000 outpatients and nearly 50,000 inpatients. There are 12 super specialty departments, 45 other departments, 4500 support staff and 670 faculty members.

With extensive facilities comprising 28 modern operating theatres, 230 equipped intensive-care beds, a fully computerized and networked Hospital Information System (HIS), a fully digital radiology department, 17 NABL accredited clinical laboratories and a 24/7 telemedicine service, AIMS offers a total and comprehensive healthcare solution comparable to the best hospitals in the world. The AIMS team comprises physicians, surgeons and other healthcare professionals of the highest caliber and experience.

AIMS features one of the most advanced hospital computer networks in India. The network supports more than 2000 computers and has computerized nearly every aspect of patient care including all patient information, lab testing and radiological imaging. A PET (Positron Emitting Tomography) CT scanner, the first of its kind in the state of Kerala and which is extremely useful for early detection of cancer, has been installed in AIMS and was inaugurated in July 2009 by Dr. A. P. J. Abdul Kalam, former President of India. The most recent addition is a 3 Tesla Silent MRI.

The educational institutions of Amrita Vishwa Vidya Peetham, a University established under section 3 of UGC Act 1956, has at its Health Sciences Campus in Kochi, the Amrita School of Medicine, the Amrita Centre for Nanosciences, the Amrita School of Dentistry, the Amrita College of Nursing, and the Amrita School of Pharmacy, committed to being centres of excellence providing value-based medical education, where the highest human qualities of compassion, dedication, purity and service are instilled in the youth. Amrita School of Ayurveda is located at Amritapuri, in the district of Kollam. Amrita University strives to help all students attain the competence and character to humbly serve humanity in accordance with the highest principles and standards of the healthcare profession.

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Part I

Rules and Regulations

I. Post Graduate Programmes (Master of Sciences)

1. Details of Post Graduate Courses :			
Sl. No.	Course	Duration	Conditions of Eligibility for admission to the course
1	Medical Laboratory Technology (MLT)	2 years	Pass in B.Sc MLT (4 year regular courses only)
2	Neuro-Electro Physiology	3years + 6 months Internship	First Class in B.Sc with Physics as main subsidiary subject (OR) B.Sc Allied health sciences
3	Swallowing Disorders and Therapy	2 years	BASLP
4	Clinical Research		MBBS.BDS/BAMS/BHMS/B.Pharm/B.Sc Allied Health Sciences/B.Sc Biotechnology/B.Sc Nursing/B.Sc in any Life Sciences
5	Biostatistics		Graduates in Statistics/Mathematics with paper in Statistics
6	Respiratory Therapy		B.Sc Respiratory Therapy

I.2. Medium of Instruction:

English shall be the medium of instruction for all subjects of study and for examinations.

II.3. Eligibility:

Essential qualifications for eligibility are mentioned under clause No. I.

II. General Rules:

Admissions to the courses will be governed by the conditions laid down by the University from time to time and as published in the Regulations for admissions each year.

I.1. Duration of the Course

Duration details are mentioned under clause No.I of this booklet.

Duration of the course : Mentioned under clause No. I

Weeks available per year : 52 weeks

Vacation / holidays	: 5 weeks (2 weeks vacation + 3 weeks calendar holidays)
Examination (including preparatory)	: 6 weeks
Extra curricular activities	: 2 weeks
Weeks available	: 39 weeks
Hours per week	: 40 hours
Hours available per academic year	: 1560 (39 weeks x 40 hours)

Internship wherever specified are integral part of the course and needs to be done in Amrita Institute of Medical Sciences, Centre for Allied Health Sciences, Kochi itself.

II.2. Discontinuation of studies

Rules for discontinuation of studies during the course period will be those decided by the Chairman /Admissions, Centre for Allied Health Sciences, and Published in the "Terms and Conditions" every year.

II.3. Educational Methodology

Learning occurs by attending didactic lectures, as part of regular work, from co-workers and senior faculty, through training offered in the workplace, through reading or other forms of self-study, using materials available through work, using materials obtained through a professional association or union, using materials obtained on students own initiative, during working hours at no cost to the student.

II.4. Academic Calendar

Annual Scheme

FIRST YEAR

Commencement of classes	– August
First sessional exam	– 20 October - 30 October
Second sessional exam	– 20 January - 30 January
Model Exam (with practical)	– 15 May - 15 June (includes 10 days study leave)
University exam (with practical)	– 15 June - 15 July (includes 10 days study leave)
Annual Vacation	– After the exam

SECOND YEAR

Commencement of classes	– August
First sessional exam	– 20 October - 30 October
Second sessional exam	– 20 January - 30 January
Annual Vacation	– At the end of the academic year

THIRD YEAR

Commencement of classes	– August
First sessional exam	– 20 October - 30 October
Second sessional exam	– 20 January - 30 January
Model Exam (with practical)	– 01 May - 30 May (includes 10 days study leave)
University exam (with practical)	– 01 June - 30 June (includes 10 days study leave)
Annual Vacation	– 15 days after the theory and practical exam.

INTERNSHIP

Commencement of internship	– 01 August
Completion of internship	– 31 January

III. Examination Regulations:

III.1. Attendance: 80% of attendance (physical presence) is mandatory. Medical leave or other types of sanctioned leaves will not be counted as physical presence. For those who possess a minimum of 75% attendance, deficiency up to 5% may be condoned on medical or other genuine grounds by the Principal at his sole discretion and as per the recommendation of the Heads of Departments concerned. Students are allowed such condonation only once for entire course of study. Condonation fee as decided by the Principal has to be paid. Attendance will be counted from the date of commencement of the session to the last day of the final examination in each subject.

III.2. Internal Assessment:

- 1.** Regular periodic assessment shall be conducted throughout the course. At least two sessional examinations in theory and preferably two practical examinations should be conducted in each subject. The model examination should be of the same pattern of the University Examination. Average of the two examinations and the marks obtained in assignments / oral / viva / practicals also shall be taken to calculate the internal assessment.
- 2.** A candidate should secure a minimum of 35% marks in the internal assessment in each subject (separately in theory and practical) to be eligible to appear for the University examination.
- 3.** The internal assessment will be done by the department twice during the course period in a gap of not more than six months and final model exam which will be the same pattern of university examination as third sessional examination.
- 4.** Each student should maintain a logbook and record the procedures they do and the work patterns they are undergoing. It shall be based on periodical assessment, evaluation of student assignment, preparation for seminar, clinical case presentation, assessment of candidate's performance in the sessional examinations, routine clinical works, logbook and record keeping etc.
- 5.** Day to day assessment will be given importance during internal assessment, Weightage for internal assessment shall be 20% of the total marks in each subject.
- 6.** Sessional examination as mentioned above and the marks will be conducted and secured by the students along with their attendance details shall be forwarded to the Principal Third sessional examinations (model exam) shall be held three to four weeks prior to the University Examination and the report shall be made available to the Principal ten days prior to the commencement of the university examination.

III.3. University Examinations:

- University Examination shall be conducted at the end of every academic year.
- A candidate who satisfies the requirement of attendance, internal assessment marks, as stipulated by the University shall be eligible to appear for the University Examination.
- One academic year will be twelve months including the days of the University Examination. Year will be counted from the date of commencement of classes which will include the inauguration day.
- The minimum pass for internal assessment is 35% and for the University Examination is 45%. However the student should score a total of 50% (adding the internal and external examination) to pass in each subject (separately for theory and practical)
- If a candidate fails in either theory or practical paper, he/she has to re-appear for both the papers (theory and practical)
- Maximum number of attempts permitted for each paper is five (5) including the first attempt.
- The maximum period to complete the course shall not exceed 6 years.
- All practical examinations will be conducted in the respective clinical areas.
- Number of candidates for practical examination should be maximum 12 to 15 per day
- One internal and external examiner should jointly conduct the theory evaluation and practical examination for each student during the final year.

III.4. Eligibility to appear university Examination:

A student who has secured 35% marks for Internal Assessment is qualified to appear for University Examination provided he/she satisfies percentage of attendance requirement as already mentioned at the III (1) of the clause.

III.5. Valuation of Theory – Revaluation Papers:

1. Valuation work will be undertaken by the examiners in the premises of the Examination Control Division in the Health Sciences Campus.
2. There will be **Re-Valuation** for all the University examinations. Fees for re-valuation will be decided by the Principal from time to time.
3. Application for revaluation should be submitted within 5 days from date of result of examination declared and it should be submitted to the office with payment of fees as decided by the Principal.

III.6. Supplementary Examinations:

Every main University examination will be followed by a supplementary examination which will normally be held within four to six months from the date of completion of the main examination.

As stipulated under clause No. 2 under Internal Assessment, HOD will hold an internal examination three to four weeks prior to the date of the University Examination. Marks secured in the said examination or the ones secured in the internal examination held prior to the earlier University Examination whichever is more only will be taken for the purpose of internal assessment. HODs will send such details to the Principal ten days prior to the date of commencement of University examination.

Students who have not passed / cleared all or any subjects in the first University examination will be permitted to attend the second year classes and also eligible to appear for second year university examination along with first year supplementary examination. However, he / she can appear for the third (final) year university examination, only if he / she clear all the subjects in the first as well as in the second year examinations.

Same attendance and internal marks of the main examination will be considered for the supplementary examination, unless the HOD furnishes fresh internal marks and attendance after conducting fresh examination.

Students of supplementary batches are expected to prepare themselves for the University Examinations. No extra coaching is expected to be provided by the Institu-

tion. In case at any time the Institution has to provide extra coaching, students will be required to pay fees as fixed by the Principal for the said coaching.

III.7. Rules regarding carryover subjects:

A candidate will be permitted to continue the second and third year respectively of the course even if he/she has failed in the first or second year university examinations.

A candidate must have passed in all subjects to become eligible to undergo compulsory internship of one year, for the candidates who have not passed all the subjects the duration of the third year shall be extended until they become eligible to undergo compulsory internship.

IV. Criteria for Pass in University Examination - Regulations:

IV.1. Eligibility criteria for pass in University Examination:

In each of the subjects, a candidate must obtain 50% in aggregate for a pass and the details are as follows:

- A separate minimum of 35% for Internal Assessment
- 45% in Theory & 35% in Oral / Viva
- A separate minimum of 50% in aggregate for Practicals / Clinics (University Examinations)
- Overall 50% is the minimum pass in subject aggregate (University Theory + Viva / Oral + Practicals + Internal Assessment)

IV.2. Evaluation and Grade:

1. Minimum mark for pass shall be 50% in each of the theory and practical papers separately (including internal assessment) in all subjects.
2. A candidate who passes the examination in all subjects within aggregate of 50% marks and above and less than 65% shall be declared to have passed the examination in the second class.
3. A candidate who passes the examination in all subjects in the first attempt obtaining not less than 65% of the aggregate marks for all the

three years shall be declared to have passed the examination with First Class.

4. A candidate who secures an aggregate of 75% or above marks is awarded distinction. A candidate who secures not less than 75% marks in any subject will be deemed to have passed the subject with distinction in that subject provided he / she passes the whole examination in the first attempt.
5. A candidate who takes more than one attempt in any subject and pass subsequently shall be ranked only in pass class.
6. A Candidate passing the entire course is placed in Second class / First class / Distinction based on the cumulative percentage of the aggregate marks of all the subjects in the I, II and III (Final) university examinations
7. Rank in the examination: - Aggregate marks of all three year regular examinations will be considered for awarding rank for the B.Sc Graduate Examination. For the courses where the number of students are more than 15 rank will be calculated as under :
 - Topmost score will be declared as First Rank
 - Second to the topmost will be declared as Second Rank
 - Third to the topmost will be declared as Third Rank

V. Internship:

V.1. Eligibility for Internship - Regulations:

Wherever internship is a part of the curriculum (in clause No. I), students will have to do the internship in Amrita Institute of Medical Sciences itself. A candidate must have passed in all subjects to become eligible to undergo compulsory internship of six months. For the candidates who have not passed all the subjects the duration of the third/final year shall be extended until they become eligible to undergo compulsory internship.

“Internship has to be done continuously for a period provided in the syllabus except in extra ordinary circumstances where subject to the approval of the Principal

the same may be done in not more than two parts with an interruption not exceeding six months. In any case Internship shall be completed within 18 months from the date of acquiring eligibility to the internship.

V.2. Attendance and leave details during Internship:

For 30 days of duty an intern will be eligible for one casual leave and one weekly off. A Student will become eligible to receive his/her degree only after completion of internship to the complete satisfaction of the Principal.

VI. General considerations and teaching / learning approach:

There must be enough experience to be provided for self learning. The methods and techniques that would ensure this must become a part of teaching-learning process. Proper records of the work should be maintained which will form the basis for the students' assessment and should be available to any agency that is required to do statutory inspection of the school of the course.

Part II Syllabus

Introduction

Program Outcomes (PO)

1. PO1: Through knowledge on the subject.
2. PO2: Effective communication skills.
3. PO3: Knowledge in professional ethics.
4. P04: Leadership qualities and team work.
5. PO5: Problem Analysis and solving skills.
6. PO6: Detailed knowledge on research methodology.
7. PO7: Higher Technical skills and competencies.
8. PO8: Specilization in the subject
9. PO9: Employability in various sectors.
10. PO10: Employability in higher positions

Program Specific Outcomes (PSO)

1. PSO1: through knowledge on anatomy, the basics of dietary principles of radiation and radiotherapy, structural and neurological conditions related to swallowing
2. POS2: applications of research methods and techniques to the field of dysphagia management
3. PSO3: to diagnose and manage all dysphagia cases and offer therapeutic intervention for all dysphagic patients
4. PSO4: counseling families and patients regarding diagnosis and treatment planning
5. PSO5: implementation of dysphagi programs and active participation multidisciplinary interaction

ELECTIVE COURSE AND COURSE OUTCOMES

MSDT 40 Soft Skills

- CO1: Attitude to continue lifelong learning.
- CO2: Knowledge of gender issues and the attitude to handle such issues.
- CO3: Knowledge of environmental issues and the attitude to work towards a sustainable future.
- CO4: Competency to take decisions applying ethical values and knowledge of proper etiquette.
- CO5: Competency to conduct research.
- CO6: Communication skills including teaching skills.

PROGRAM INTRODUCTION

Dysphagia and swallowing problems are one of the common clinical problems met in clinical practice. The swallowing disorders are caused by diseases affecting many systems of the body. Neurological or structural damages in the upper aero digestive tract are the common causes of swallowing disorders. The other common cause is cancers affecting the head and neck region and sequelae of its treatment. Swallowing disorders are also common in advanced ages. It can also occur in paediatric age group due to genetic as well as developmental reasons. The swallowing disorders can be due to structural anomalies, disorders of motility or due to combined reasons. All these can be evaluated, their cause determined and appropriate treatment can be initiated giving satisfactory outcomes. The evaluation involves

detailed clinical examination and use of methods like videofluoroscopy and endoscopic evaluation of swallowing. The management of the swallowing disorders is mainly by training the patient special maneuvers as well as surgical intervention. The management of swallowing disorders needs a team work and team consists of clinicians from head and neck surgery, neurology and gastroenterology but lead by a qualified swallowing therapist. The need for swallowing therapy is immense in country considering the huge population but unfortunately the number of swallowing therapists available is handful. The most important reason for this lacuna is the lack of availability of suitable training. Even though the speech and audiology training curriculum has a small section devoted to swallowing disorders, this is grossly inadequate to equip the trainee to work as a team leader in the swallowing therapy services. Moreover, the time needed for such training is much more and needs a specialized training programme exclusively focusing on swallowing disorders. The present programme has been designed to bring out well trained swallowing and dysphagia management specialists by offering them a systematic and comprehensive training in evaluation, management and all spectra of dysphagia related issues. Dysphagia clinic in Amrita Institute is one of the most comprehensive service in the country where the faculties includes specialists from head and neck surgery, neurology, radiation oncology and gastroenterology and lead by a team of trained swallowing therapists. The center is equipped with all facilities that are needed for running a clinic including state of art video fluoroscopy, pharyngeal manometry and electrical stimulation equipment. This unit has been linked with dysphagia management group of UCLA lead by Dr. Uttam Sinha and Ms. Melody Ouyoung and has regular monthly tele dysphagia meet. Perspectives and ideas with regards to dysphagia management and research are discussed in the monthly Tele Dysphagia meeting. The unit also runs a monthly Paediatric Dysphagia board with the Otolaryngologists, Paediatric Neurologists and Paediatric Gastroenterologists where personalised recommendations are planned for paediatric patients with dysphagia. The present work load in department is immense with spectra of patients from head and neck extensive resection and reconstructive surgeries, neurological and radiation oncology. Post Graduate Teaching is led by Dr. Jayakumar Menon, who is one of the most known dysphagia management expert in country. Dr. Jayakumar Menon also consults in a bimonthly Complex Dysphagia Clinic with the dysphagia management team. The probability of placement after the completion of programme is excellent considering the interest shown by various centers across the country to start dysphagia management units.

Faculties

Name	Designation	Departments
Dr. Subramania Iyer	Professor & Head of Department	Swallowing Disorders Centre, Head & Neck Oncology, Plastic & Reconstructive Surgery, Craniofacial Surgery
Dr. Jayakumar Menon	Senior Consultant Laryngologist	Swallowing Disorders Centre

Dr. Vidhyadharan S	Assistant Professor Consultant & Clinical Lead	Head & Neck Oncology Swallowing Disorders Centre
Dr. Jayanth Pavithran	Associate Professor Consultant	Otorhinolaryngology Swallowing Disorders Centre
Dr. Krishnakumar T	Professor	Head & Neck Oncology
Dr. Deepak Balasubramanian	Associate Professor	Head & Neck Oncology
Dr. Vinayan	Professor & Head of Department	Paediatric Neurology
Dr. Vivek Nambiar	Associate Professor	Stroke Medicine
Dr. Anoop	Associate Professor	Radiation Oncology
Dr. Shine Sadasivan	Associate Professor	Adult Gastroenterology
Dr. Anoop Koshy	Associate Professor	Adult Gastroenterology
Dr. Unnikrishnan Menon	Professor	Otorhinolaryngology

Evaluation system-

- Internal assessment of the candidates
By 6 monthly internal assessment theory and practical examinations
- Final assessment
Two theory paper of 3 hrs duration - 200 marks
Practical and viva -100 marks

1. BASIC SCIENCES MSDT1

- 1.CO1:knowledge in detailed anatomy & physiology
- 2.CO2:comprehension about the basics of dysphagia
3. CO3:apprehension about the basics of statics and application of research methodology and techniques
4. CO4:understanding the relationship between nutrition and human wellbeing
5. CO5:knowledge about the techniques and principles of radiation safety

OBJECTIVES

To orient the student on the basics of detailed Anatomy and Physiology.

To orient the students on the basics of Dysphagia.

SECTION 1

A. Anatomy

1. Oral
2. Pharyngeal
3. Laryngeal
4. Esophageal
5. Respiratory
6. Neuro anatomy

B. Sensory innervation and motor control

1. Cortical
2. Subcortical
3. Peripheral

SECTION 2

A. Dysphagia

- a. Definition
- b. Causes
- c. Anatomy and Physiology of Deglutition

B. Biomechanics

1. Bolus preparation & propulsion
2. Airway protection
3. Respiratory-swallow coordination

C. Development and maturation

1. Embryological development of larynx.
2. Development of swallowing
(Suckling, sucking, swallowing, and chewing)
 - a. Prenatal
 - b. Neonatal
 - c. Infant
 - d. Toddler
 - e. Young child
 - f. Mature sensory motor system
 - g. Elderly

II STATISTICS AND RESEARCH METHODS

OBJECTIVES

1. To orient the student on the basics of statistics, and its application to the field of Dysphagia Management.
2. To enable the student to select and carry out appropriate statistical calculations as required for research in their field.
3. To equip the students with necessary knowledge to be able to interpret the analyzed statistical related data
4. To familiarize the students on the importance and applications of research methods and techniques.

1. Introduction to Biostatistics

- a. Need for statistical methods in medicine, public health and biology- Their uses and misuses,
- b. Types of variables, Data collection methods, Population and sample

2. Descriptive data analysis methods

- a. Statistical tables, Diagrams and graphs, Measures of average and dispersion,
- b. Correlation and regression analysis

Probability and Distributions (Normal, Binomial & Poisson)

Logic of statistical Inference

- a. Concept of standard error, Type- I and II errors, Interval estimation of parameters and principles of Tests of significance

5. Methods of Tests of significance of statistical hypothesis

- a. Student's t tests(Unpaired & Paired), Chi-square tests, Analysis of variance,
- b. Non-parametric methods

6. Estimation of Minimum Sample Size and Sampling Methods

III BASICS OF DIETARY AND DIETETICS

OBJECTIVES

To orient the student to the basics of dietary and to understand the relationship between nutrition and human well being a

To enable the student to carry out appropriate dietary plans for patient manage-

ment.

SECTION 1

A. Introduction to Nutrition.

- a. Food as a source of nutrients.
- b. Definition of nutrients, adequate, optimum and good nutrition
- c. Carbohydrates, Fat, Proteins, Minerals, Vitamins.
- d. Malnutrition.

SECTION 2

A. Dietetics.

- a. Modification of diet.
- b. Diets for different disorders.
- c. Enteral and Parenteral feeding
- d. Energy modification for weight management.
- e. Modification of diet in surgery and radiotherapy.

IV BASICS & PRINCIPLES OF RADIATION AND RADIOTHERAPY

OBJECTIVES

- 1.** To familiarize the students with the techniques and principles of radiation safety

SECTION 1

- A. Radiation hazards- genetic and somatic effects.
- B. Radiographic positioning terminology.
- C. Safety methods in diagnostic radiology.
- D. Radiation monitoring instruments

SECTION 2

A. Radiotherapy.

- a. IMRT.
- b. IORT
- c. 3DRT.

SWALLOWING ALTERATIONS AND ETIOPATHOLOGY MSDT2

- 1. CO1:knowledge about the characteristics and etiopathologies of dysphagia
- 2. CO2:thorough knowledge about the nature of disorder
- 3. CO3:apprehension about the signs and symptoms of dysphagia observed clinically and instrumentally
- 4. CO4:comprehension of swallowing impairment
- 5.CO5:core knowledge about the areas of impairment in instrumentally measure pathophysiology

OBJECTIVES

- 1. To equip the student to understand the characteristics, and etiopathologies of dysphagia.
- 2. To equip the student with thorough knowledge of the nature of the disorder.

A. **Abnormal swallowing**

SECTION 1

Etiology and conditions

1. **Neurogenic**

- a) Stroke- Different types- neural control of swallowing- dysphagia in each type of strokes
- b) Dementia-early onset- dysphagia symptoms- Advanced- dysphagia signs and symptoms.
- c) Neurodegenerative disorders- Parkinsonism -presentation of dysphagia.
- d) Multiple system atrophy - Etiopathology and causes.
- e) Progressive supranuclear palsy, Corticobasal ganglionic degeneration, Chorea, Dystonia -Signs, Symptoms of dysphagia.
- f) Neuro surgical- different procedures- LCN palsy - effect on swallowing
- g) Spinal cord injuries
- h) Traumatic brain injury – incidence – pathophysiology - effect on swallowing

2. **Structural**

- a) Head and neck cancer and treatment effects
- b) Different types of surgeries-Principles of reconstruction-dysphagia
- c) Dysphagia following glossectomy, mandibulectomy, maxillectomy, buccal mucosa resection.
- d) Dysphagia in laryngectomy

- e) Dysphagia following RT/CTRT.
- f) Zenker's diverticulum
- g) Cervical neck disease
- h) Cricopharyngeal hypertrophy

3. Iatrogenic

- a) Tracheostomy- Types- care- dysphagia related to tracheostomy.
- b) Ventilator issues related dysphagia
- c) Drug induced
- d) Postsurgical
- e) Osteophytes
- f) Burns

4. Psychiatric or behavioral

- a) Globus pharynges
- b) Delirium
- c) ETOH related

5. Congenital and Hereditary Causes

- a) Odontoma dysphagia
- b) Hereditary ataxias
- c) Down's Syndrome, Pierre Robin Syndrome etc

6. Systemic

- a) Myositis
- b) HIV/AIDS
- c) Esophageal causes

SECTION 2

Signs and symptoms observed clinically and instrumentally

1. Protracted mastication
2. Impaired oral sensation
3. Oral incontinence/drooling
4. Nasal regurgitation
5. Uncontrolled bolus flow into pharynx
6. Abnormal swallow onset
7. Laryngeal penetration and laryngeal secretions
8. Aspiration
9. Pharyngeal residue and stasis
10. Retrograde bolus flow
11. Esophageal considerations

SECTION 3

A. Areas of impairment in instrumentally measured pathophysiology of swallowing in adults

1. Bolus formation/propulsion
2. Swallow initiation and coordination
3. Airway protection
4. Swallow duration
5. Respiratory swallow coordination
6. Pharyngeal clearance
7. Esophageal components

B. Consequences of swallowing impairment

1. Aspiration and pneumonia
2. Malnutrition

3. ASSESSMENT OF DYSPHAGIA MSDT3

- 1.CO1:apprehension about differential diagnosis
- 2.CO2comprehension and training in clinical examination
- 3.CO3:understanding the different instruments used for evaluation of dysphagia
- 4.CO4:interpreting the type of dysphgia using the clinical and instrumental evaluation
- 5.CO5:providing a treatment plan based on instrumental and clinical evaluation

OBJECTIVES

1. To train the student in differential diagnosis.
2. To make the student to understand the different instrumentations used for evaluation of dysphagia and to make them to utilise these skills in clinical settings.

Clinical Examination

A. History

B. Non instrumental examination

1. Cognition/state
2. Position/posture
3. Pulmonary/respiratory status
4. Multisystem sensory motor examination
 - a. Structure/function of:
 1. Head/neck
 2. Lips/cheeks
 3. Tongue

4. Palate/velum
 5. Oropharynx/pharynx
 6. Larynx
 7. Dentition/jaw
- b. Reflexes
- c. Sensation (sensory awareness)
Clinical "hands on" swallowing examination
Standardized test materials - familiarization -administration -
MDADI-FOIS-GUESS-PA scale

C. Instrumental examination

1. Video fluoroscopy

- a. Instrumentation
- b. Evolution - In modern era
- c. Radiation exposure.
- d. Protocol and guidelines.
- e. Scoring and Interpretations.

2. Fiberoptic endoscopic evaluation of swallowing (FEES)

- a. Role of Endoscopy
- b. Instrumentation
- c. Mechanism and Techniques.
- d. Scoring.
- e. Role of fees in pediatric population.
- f. Role of fees in adult dysphagia.

3. Flexible Endoscopic Evaluation of Swallowing with Sensory Testing (FEEST)

- a. FEEST indication.
- b. Technique.
- c. Application and outcomes
- d. Safety.

4. Pharyngeal manometry/ manofluorography

- a. Instrument.
- b. Procedure.
- c. Selecting appropriate candidate.
- d. Interpretation.

5. Ultrasonography

- a. Role in dysphagia.

6. Electromyography

7. Esophageal manometry

- a. Instrumentation.
- b. Technique.
- c. Interpretation.

8 Laryngoscopy

- (1) Flexible
- (2) Rigid

9 Bronchoscopy

10. Esophagoduodenoscopy (EGD)

11. Transnasal Esophagoscopy (TNE)

4. MANAGEMENT OF DYSPHAGIA MSDT4

1. CO1: offering therapeutical intervention for all types of dysphagia
2. CO2: comprehension on the recent advances in dysphagia and intervention
3. CO4: participation in multidisciplinary interaction to provide maximum rehabilitative benefits for patient
4. CO5: documenting the assessment and progress notes and treatment outcomes

OBJECTIVES

1. Should be able to diagnose and manage all dysphagia cases
2. Should offer therapeutical intervention for all dysphagia patients.
3. To understand the current advances in dysphagia intervention.

SECTION 1

A. Treatment planning

- 1. Nutrition/hydration status**
- 2. Management strategies**
- 3. Treatment candidacy and prognosis**

B. Non surgical management

1. Swallowing maneuvers
2. Compensatory postures and positioning
3. Bolus modification
4. Adaptive equipment
5. Physiotherapeutic exercises
6. Sensory augmentation
7. Biofeedback

C. Prosthetic management

D. Surgical/medical management.

E. Pediatric dysphagia management

F.Recent advances - Vitalstim

SECTION 2

A. Non-oral feeding

- a) NGT- PEG- FJ
- b) Indication
- c) Advantage of one over another

B. Counseling families and patients regarding diagnosis and treatment planning

C. Documentation

- a) Assessment
- b) Progress notes and treatment outcomes
- c) Discharge summary

D. Models of delivery

- a) Dysphagia program and implementation
- b) Team approach
- c) Family, staff, patient education
- d) Multidisciplinary interactions (acute care and long-term care)

Pattern of Question paper (Theory)

The duration of each theory paper will be three hours; the paper will have one section having 10 questions each carrying 10 marks and a total of 100 marks

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