HUMANITAS MEDICAL SCHOOL

Course: Head & Neck

Year: 3rd

Period: 2nd semester

Credits: 6

Disciplines: Oral Diseases, Ophthalmology, Otorhinolaryngology (ENT)

Faculty:

- **Oral Diseases:** *Prof. Roberto Weinstein, Prof. Jason Motta Jones, Prof. Tommaso Ghedini*
- **Ophthalmology:** *Prof. Paolo Vinciguerra, Prof. Mario Romano, Prof. Alessandra Di Maria*
- **Otorhinolaryngology:** *Prof. Giuseppe Mercante, Prof. Fabio Ferreli, Prof. Alberto Paderno, Prof. Domenico Villari*

Objectives

- *to understand the basic pathophysiologic mechanisms of diseases of the Head & Neck;*
- *to be able to recognize the clinical manifestations of the most relevant diseases of the Head & Neck;*
- *to perform a thorough anamnesis and discuss the appropriate diagnostic flow-chart;*
- *to recognize emergencies;*
- *to name the most relevant therapeutic strategies.*

Prerequisites

- *knowledge of the regional anatomy and histology of the Head & Neck: eyes, ears (external, middle, inner), nose and paranasal sinuses, temporal bone and cranial base, oral cavity, oropharynx and hypopharynx, cervical esophagus, larynx, trachea, salivary glands, thyroid and parathyroid glands, neck muscles, vessels, lymph nodes and fascias;*
- *knowledge of the vascularization and innervation of the main organs and systems of the Head & Neck;*
- *knowledge of the physiology of the main organs and systems of the Head & Neck*

Contents

Oral Diseases Module

Lecture 1

Introduction: diseases of the oral cavity

Learning goals:

- to discuss the anatomy and nomenclature of the oral cavity, teeth and periodontal tissues;
- to describe the bacterial biofilm: the dental plaque.

Lecture 2

Natural history of dental caries

Learning goals:

- to define caries;
- to discuss the epidemiology, etiology and pathogenesis of caries;
- to discuss the signs and symptoms of caries;
- to illustrate dental pain;
- to describe the prophylaxis for caries: sealants and fluorides;
- to discuss treatment of caries.

Lecture 3

Natural history of periodontal tissue diseases: gingivitis and periodontitis/Periodontal Medicine

Learning goals:

- to define periodontal lesions;
- to discuss epidemiology, etiology, pathogenesis, signs and symptoms and treatment of periodontal lesions;
- to discuss primary prevention of periodontal disease: the role of domiciliary dental hygiene;
- to discuss secondary prevention strategies;
- to discuss periodontal and coronary heart disease/atherosclerosis;
- to discuss the relationship between periodontal disease and diabetes mellitus;
- to discuss the role of periodontitis in pregnancy;
- to discuss the relation between periodontal disease and acute respiratory infection;
- to present periodontal medicine in the clinical practice.

Lecture 4

Antibiotics and dentistry

Learning goals:

- to define a rational use of the antibiotics for oral diseases;
- to illustrate the rate of antibiotic resistance worldwide;
- to discuss when and how to prescribe antibiotics in different clinical scenarios.

Lecture 5

The impacted teeth and acute inflammatory disorders

Learning goals:

- to discuss acute inflammatory disorders of the oral cavity: diagnosis and emergency treatment.

Lecture 6

Diseases of the oral mucosa

Learning goals:

- to demonstrate an appropriate knowledge regarding the prevalence of oral mucosal diseases in the different areas of the world;
- to be able to make a correct diagnosis of an oral elementary lesion;
- to recognize the most common abnormalities of the oral mucosa including viral and bacterial infections and neoplastic conditions;
- to discuss potentially malignant oral lesions and oral cancer;
- to be able to make a diagnosis of oral leukoplakia;
- to be able to make a diagnosis of oral erytroplakia;
- to define the management protocol for oral leukoplakia;
- to describe the most frequent clinical features of early oral cancer at presentation;
- to describe the role of HVP in oral cancer;
- to illustrate the main rules for smoking cessation promotion in a medical office.

Lecture 7

Medical related diseases of the jaws

Learning goals:

- to indicate the role of different drugs in drug-related osteonecrosis;
- to be able to prevent the osteonecrosis of the jaw;
- to illustrate how to treat an osteonecrosis of the jaw;
- to be able to handle patients under osteonecrosis drug-related prescription or in the need of that.

Lecture 8

Bleeding of the oral cavity, dental trauma and oral pain

Learning goals:

- to perform an adequate anamnesis of patients complaining of bleeding of the oral cavity, dental trauma and oral pain;
- to elaborate ad appropriate diagnostic flowchart and provide the most adequate treatment.

Lecture 9

Dental therapies: state of the art

Learning goals:

- to describe the most advanced options in dental therapies.

Lecture 10

Facial and smile analysis for aesthetic treatments

Learning goals:

- to illustrate facial and smile analysis for aesthetic treatments;
- to describe how digital technologies and empowered AI software are useful for treatment planning and for the communication with the patients;
- to illustrate the areas of interest of different specialists in this field;
- to discuss different clinical scenarios.

Lecture 11

Full mouth complex rehabilitations

Learning goals:

- to show different clinical situations where is important to treat patients;
- to explain what is and the causes of worn dentition;
- to show how to treat worn dentition;
- to understand when we have terminal dentition and when is important to save patient's teeth;
- to describe the different full-arch protocols, from dentures to implant-supported restorations;
- to underline the importance of maintenance after these treatments.

Lecture 12

Clinical cases discussion

Learning goals:

- to discuss clinical cases;
- to summarize the main topics covered in the course.

Ophthalmology Module

Recommended textbook: The Wills Eye Manual, 8th edition. Text editors: Kalla Gervasio, Travis Peck Founding editors: Mark A. Friedberg, Christopher J. Rapuano ISBN-10 1975160754 ISBN-13 978-1975160753

Lesson 1 - DIAGNOSTIC EXAMS IN OPHTHALMOLOGY - chapter 14.8, 14.10-14.12, 14.15

Learning goals:

- To describe the indications for first level examinations
  - BCVA or best corrected visual acuity examination and Snellen chart
  - Biomicroscopy or slit lamp examination
  - Direct and indirect ophthalmoscopy
  - Amsler grid
- To describe the indications for second level examinations
  - Corneal topography/tomography
  - Biomechanichs principle
  - OCT or optical coherence tomography

- Angio-OCT
- Ocular echography
- Fluorescein and indocyanine green angiography
- Visual field testing

Lesson 2 – UVEITIS - chapter 11.36, chapter 12.1-12.9 12.11

Learning goals:

- To describe the anatomy of the uvea
- To provide a definition for uveitis as well as an anatomic, etiological, chronological and pathological classification
- To be familiar with the main features of specific types of uveitis:
  - HLA-B27 related uveitis
  - Toxoplasma uveitis
  - Viral anterior uveitis
  - Posterior herpetic uveitis
  - Behchet disease
  - Vogt Koyanaghi Harada syndrome
  - Sarcoidosis uveitis
  - Fuchs uveitis
- To describe the epidemiology, clinical course and management of choroidal melanomas. Be familiar with the differential diagnosis between a choroidal nevus and a choroidal melanoma.

Lesson 3 - RETINA I - chapter 11.1-11.3, 11.25, 11.26

Learning goals:

- To describe the anatomy of the retina
- To describe the pathogenesis, classification, symptoms and treatment of retinal breaks
- To describe the pathogenesis, classification, symptoms and treatment of retinal detachment
- To describe the epidemiology, symptoms, complications and OCT appearance of posterior vitreous detachment as well as macular holes and their management
- To explain the physiopathology and management of epiretinal proliferations and traction leading to epiretinal membranes

Lesson 4 - RETINA II - chapter 11.6-11.13, 11.15-11.17, 11.32

Learning goals:

- To describe the pathogenesis, symptoms, appearance and treatment of Retinal artery occlusion
- To describe the pathogenesis, symptoms, appearance and treatment of Retinal vein occlusion
- To describe the epidemiology, appearance and management of Diabetic retinopathy
- To describe the epidemiology, appearance and management of Hypertensive retinopathy
- To define what degenerative myopia is as well as its characteristics on fundus examination and its possible complications

- To describe the epidemiology, symptoms, diagnosis, classification and management of Age-related macular degeneration. Know the most commonly used anti-VEGF agents used in the management of wet AMS
- To define Central serous chorioretinopathy as well as its OCT and fluorangiographic appearance and its management
- To briefly describe the appearance of chloroquine-induced maculopathy

Lesson 5 – NEUROPHTHALMOLOGY – chapter 8.4, 8.5, chapter 10.5, 10.7, 10.8, 10.14-10.16, Appendix 3

Learning goals:

- Optic nerve pathologies
  - To define what papilledema is as well as its pathophysiology and become familiar with its appearance on fundus examination. To briefly discuss what pseudotumor cerebri is
  - To describe the differences between anterior and posterior optic neuritis as well as their etiology and symptoms
- Strabismus
  - To describe the innervation of the extrinsic eye muscles as well as the clinical findings in oculomotor nerves paralysis
  - To be familiar with the classification of strabismus and provide examples of the most important types (infantile esotropia, accommodative esotropia, intermittent exotropia)
  - To describe the most common tests to evaluate the presence of strabismus (Hirschberg, Krimsky, cover, cover/uncover and alternate cover test)
  - To describe the major therapeutic options for strabismus and diplopia

Lesson 6 - PALPEBRAL DISEASES - appendix 4, chapter 4.3, chapter 5.8, chapter 6.1-6.4

Learning goals:

- to provide a definition for ectropion and entropion and describe their clinical presentation and management
- to provide a definition for ptosis and describe its clinical presentation and management
- to be able to recognize a patient with blepharitis and be familiar with its therapeutic options
- to be able to recognize a patient with a stye and chalazion and to provide a correct definition and treatment
- to describe the pathophysiology and the diagnostic workup of keratoconjunctivitis sicca or dry eye

Lesson 7 - PATHOLOGIES OF THE LENS and REFRACTIVE ERRORS - chapter 4.29, chapter 13.1, 13.2

Learning goals:

- To provide a definition for cataract and describe its epidemiology, symptoms, classification and management, and to be familiar with the surgical complications related to phacoemulsification
- To list the most common causes of metabolic, congenital and secondary cataracts
- To provide a definition for luxation and subluxation of the lens and describe what are the associated systemic pathologies
- To describe the accommodation reflex and provide a definition of diopter

- To provide a definition for spherical and axial ametropias also focusing on the management and possible related complications
- To provide a definition for malignant myopia
- To describe the most common procedures to correct refractive errors focusing on LASIK, PRK and SMILE
- To define presbyopia and describe its pathophysiology and management
- To provide a definition for anisometropia and antimetropia

Lesson 8 – CORNEA - chapter 3.2, 3.3, 3.13, chapter 4.11-4.15, 4.24, 4.25

Learning goals:

- To describe the anatomy of the cornea
- To provide a definition of keratitis and perform an etiological classification also focusing on its presentation and management. Pay particular attention to the epidemiology, presentation and management of herpetic keratitis
- To describe the epidemiology, appearance and management of traumatic, bacterial and mycotic corneal ulcers. Be familiar with the risk factors and clinical course of acanthamoeba ulcers
- To describe the clinical appearance of the most important corneal distrophies
- To provide the definition of keratoconus and describe the related risk factors, clinical course and characteristic clinical signs, and to describe the therapeutic options currently available
- To be familiar with the classification of corneal dystrophies and describe the appearance of the most representative ones (Meesmann, Groenouw 1 and 2 and Fuchs)
- To learn the therapeutic options (corneal graft PTK)

Lesson 9 – CONJUNCTIVA and SCLERA - chapter 4.9, 4.21 chapter 5.1-5.7

Learning goals:

- To be able to perform a differential diagnosis between bacterial, viral and allergic conjunctivitis and become familiar with their pathophysiology and management
- To describe the clinical appearance, symptoms, and management of the following types of conjunctivitis:
  - Bacterial Conjunctivitis
  - Viral Conjunctivitis
  - Chlamydial conjunctivitis
  - Vernal keratoconjunctivitis
  - Giant papillary conjunctivitis
- To provide a definition for pterygium and pinguecula and be familiar with their typical appearance and management
- To provide a definition for scleritis and episcleritis and perform a differential diagnosis between these two and describe their management
- To perform an anatomic classification of scleritis and describe which are the most commonly associated systemic pathologies

Lesson 10 - PEDIATRIC OPHTHALMOLOGY and Q&A - chapter 8.1, 8.2, 8.7

Learning goals:

- To provide a definition for leukocoria and its most important differential diagnoses mostly focusing on the genetic and clinical characteristics of retinoblastoma
- To provide a definition for amblyopia and describe its possible causes and management

Lesson 11 – GLAUCOMA - chapter 9.1-9.5, 9.7, 9.9, 9.10, 9.12, 9.14

Learning goals:

- To describe the aqueous humor flow, the anatomy of the iridocorneal angle and how to study its patency
- To describe the normal anatomy of the optic cup and its alterations in glaucoma
- To describe the epidemiology and pathophysiology open angle glaucoma. Become familiar with the visual field and optic cup's alterations in open angle glaucoma. Describe the mechanism of both the pharmacological and surgical therapeutic options currently available
- Glaucoma diagnostic basics
- To describe the typical presentation of closed angle glaucoma as well as the associated risk factors and management
- To describe the epidemiology, pathophysiology, clinical features and management of congenital glaucoma
- To describe the possible causes of secondary glaucoma (neovascular, steroid-related, inflammatory, lens-induced, pigment dispersion syndrome/pigmentary glaucoma)

Lesson 12 – CLINICAL CASES

Learning goals:

- To discuss clinical cases
- To summarize the main topics covered in the course

Otorhinolaryngology Module

Lecture 1

The Patient with Dysphonia, Dysphagia and Dyspnea: The Larynx

Learning goals:

- to recognize the possible different diseases associated to dysphonia, dysphagia and dyspnea;
- to elaborate an appropriate diagnostic flowchart and provide the most adequate treatment;
- to suspect benign and/or malignant tumors that require consultation by an ENT specialist;
- to know the X cranial nerve pathway and its clinical implications;
- to recognize and treat acute and life-threatening conditions promptly.

Lecture 2

ENT Diseases in Pediatric Patients

Learning goals:

- to investigate correctly on a child suspected for ENT disorders with anamnesis from the parents, signs and symptoms, clinical evaluation and imaging techniques whenever indicated;
- to recognize malformations, inflammations, and tumors in children.

Lecture 3

The Patient with Pharyngodynia and Dysphagia

Learning goals:

- to recognize and diagnose the most common inflammatory diseases of the oropharynx;
- to select the appropriate treatment for the patient based on the most likely underlying etiological cause;
- to identify and promptly treat the complications of oropharyngeal pathologies;
- to suspect and properly counsel to an ENT specialist the patients with clinically suspicious malignant lesions.

Lecture 4

Oral Cancer

Learning goals:

- to identify the most common causes of cancer of the oral cavity based on topographic anatomy, anamnesis and physical examination of the patient;
- to recognize the suspicious signs for cancer of the tongue, floor of the mouth, cheek;
- to elaborate an appropriate diagnostic flow chart.

Lecture 5

The Patient with Stuffy Nose: Anatomy and Physiology, Inflammatory Pathology and Midline Lesions

Learning goals:

- to recognize and differentiate acute and chronic pathologies involving the nose, the paranasal sinuses and nasopharynx based on the patient's presenting symptoms;
- to elaborate an appropriate diagnostic flowchart and provide the most adequate treatment for the patient;
- to recognize the complications of benign pathologies tempestively and suspect benign and/or malignant tumors that require consultation by an ENT specialist.

Lecture 6

Anatomy of Pterygopalatine and Infratemporal Fossa: Tumors of the Nose and Paranasal Sinuses

Learning goals:

- natural history of skull base tumors;
- to learn when to suspect a tumor of the nose and paranasal sinuses with or without involvement of the skull base according the patient's presenting symptoms and how to investigate on it;
- to elaborate an appropriate diagnostic flowchart and provide the most adequate treatment.

Lecture 7

The patient with Salivary glands and Thyroid nodules

Learning goals:

- to identify the most common neoplasms of the thyroid and salivary glands;
- to recognize suspicious signs for a malignant disease in the thyroid and salivary glands;
- to elaborate an appropriate diagnostic flowchart in the case of a nodule in the thyroid and salivary glands.

Lecture 8

The Patient with a Neck Mass

Learning goals:

- to identify the most common causes for neck masses based on topographical anatomy, anamnesis and physical examination;
- to recognize the suspicious signs for a malignant disease;
- to elaborate an appropriate diagnostic flow chart.

Lecture 9

ENT Emergencies

Learning goals:

- to identify the most common causes of ENT emergencies as early as possible;
- to elaborate an appropriate diagnostic flow chart;
- to get to know the bases of the management of ENT emergencies.

Lecture 10

The Patient with Ear Pain

Learning goals:

- to recognize and differentiate acute and chronic external ear diseases based on the patient's presenting symptoms;
- to elaborate an appropriate diagnostic flowchart and provide the most adequate treatment for the patient;
- to recognize complications of benign pathologies tempestively and suspect benign and/or malignant tumors that require consultation by an ENT specialist;
- to recognize and differentiate acute and chronic external ear diseases based on the patient's presenting symptoms;
- to elaborate an appropriate diagnostic flowchart and provide the most adequate treatment for the patient;
- to recognize complications of benign pathologies early and suspect benign and/or malignant tumors that require consultation by an ENT specialist.

Lecture 11

The patient with Hearing Loss

Learning goals:

- to investigate properly on a patient with hypoacusis: anamnesis, audiometry, tympanogram and imaging techniques whenever indicated;
- to recognize the different types of hypoacusis and possibly hypothesize the underlying etiopathological mechanism.

Lecture 12

The Patient with Vertigo

Learning goals:

- to investigate properly on a patient with vertigo: anamnesis, vestibular examination and imaging techniques whenever indicated;
- to recognize peripheral causes of balance disorders.

Teaching Methods

Lectures

All lectures will be held in presence.

Lessons will focus on the most clinically relevant diseases of the Head & Neck, with a special interest on their clinical manifestations. Lectures will start with the presentation of a clinical problem, from which the students will be guided towards the development of the most appropriate diagnostic flow chart and therapeutic plan. Clinical cases will also be discussed in interactive lessons. Students are encouraged to actively participate to the lectures with questions and comments.

Practical activities:

Practical sessions will be held in presence. Participation is mandatory.

Practical activities will focus on the physical examination of the Head & Neck. Tutors will illustrate how to carry out the basic examination of each organ of interest, using the appropriate equipment. Tutors may project video tutorials in order to aid in the explanation of the techniques, or to illustrate advanced/second-level diagnostic procedures. Students will be able to practice among themselves under the tutor's guidance, in order to acquire the basic skills for the physical examination of the Head & Neck.

Assessment

The exam will be held in presence.
Written Exam:

Multiple Choice Test comprising all Head & Neck Course's Disciplines (Oral Diseases and Dentistry, Eye Diseases, Otorhinolaryngology):

- 30 questions, 10 for each module;
- 1 point for each correct answer;
- 30 minutes maximum;
- to access the oral exam the student must achieve a minimum mark of 18/30, with a minimum of 5 correct answers for each module.

Oral Exam:

Oral Examination covering the whole program. In order to pass the exam, students must obtain a positive evaluation in all modules.

The final mark will be decided collectively by the examination committee.

NB: Subscription to the exam opens 2 weeks before the date of the exam and closes 1 week before. Students who subscribe to the exam without attending it and without cancelling their subscription must provide a formal justification for their absence, otherwise they will lose the opportunity to attend the following exam session.
If a student fails to attend all parts of the exam or withdraws from the exam will be registered as "not sufficient".

Texts

Suggested textbooks (not mandatory):

- Peter Lockart Oral Medicine and Medically Complex Patients Wiley and Blackwell, 2013;

- The Wills Eye Manual, 8th edition. Text editors: Kalla Gervasio, Travis Peck. Founding editors: Mark A. Friedberg, Christopher J. Rapuano. ISBN-10 1975160754 ISBN-13 978-1975160753
- Probst, Grevers, Iro. Basic Otorhinolaryngology: A Step by Step Learning Guide (Thieme, 2006).