NICOLAE TESTEMIŢANU

PI STATE UNIVERSITY OF MEDICINE AND PHARMACY

FACULTY OF DENTISTRY

DEPARTMENT OF OAL AND MAXILLOFACIAL SURGERY

AND ORAL IMPLANTOLOGY „ARSENIE GUȚAN”

Teaching guide

4th year, 7th semester

Subject: Trauma un OMF region

Type of subject: Compulsory

Code of subject: S.07.O.064

Head of Department, Prof. Dr. hab. med. Chele Nicolae

Study Coordinator, PhD, assoc.prof. Motelica Gabriela

**Teaching Guide No. 1**

**Traumatic injuries to the oral and facial region. Soft tissue injuries**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the types of traumatic injuries to the oral and facial region, their classification, the principles of organizing medical care for accident victims, to examine patients with trauma, and to record the findings in the dental record. Participation in patient admission and recording of work in the registers.

**Training Form and Duration**: Seminar and practical work, 225 minutes.

**Control Questions:**

1. Trauma - definitions, examples. Topographical anatomy of the head and neck soft tissues.
2. Morphopathological characteristics of soft tissue wounds in the OMF Region.
3. Principles of classification of oral and facial traumas.
4. Diagnosis of patients with soft tissue facial injuries in the OMF region.
5. Forms and basic principles of organizing medical care.
6. Emergency treatment, definitive treatment of soft tissue facial injuries.
7. Complications (immediate, secondary, delayed) of soft tissue facial injuries.

**BIBLIOGRAPHY:**

1. Course materials.
2. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
3. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
4. Fonseca, R. J. (2017). Oral and maxillofacial surgery (Vol. 3: Trauma). Elsevier Health Sciences.
5. Lee, K. F., Wagner, L. K., & Yilmaz, Z. (2020). Management of soft tissue injuries in maxillofacial trauma. Oral and Maxillofacial Surgery Clinics of North America, 32(1), 45–58.
6. Chele N. Optimizarea tratamentului complex al fracturilor de mandibulă. Teza de doctor în medicină Chişinău 2006.
7. Hîţu D. Plăgile faciale (curs teoretic). Buletinul Academiei de Ştiinţe a Moldovei. Ştiinţe medicale. Chişinău. 1(10) 2007.
8. Sîrbu D. Osteosinteza mandibulei prin acces endooral. Autoreferat al tezei de doctor în medicină. Chişinău, 2005, Pag. 16.

**Teaching Guide No. 2**

**Dentoalveolar and alveolar process trauma**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the types of traumatic injuries to teeth and the periodontium, anatomical-clinical aspects, treatment principles, to examine patients with dental and-periodontal injuries, and to record data in the dental record. Participation in patient admission and recording of work in the registers.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. Functional morphology of teeth and the periodontium.
2. Etiology and pathogenesis of dental and periodontal traumas.
3. Classification of dental traumas by Ellis.
4. Classification of dental and periodontal traumas by WHO (Andreasen).
5. Coronal injuries: clinical presentation, diagnosis, treatment.
6. Root injuries: clinical presentation, diagnosis, treatment.
7. Periodontal injuries: clinical presentation, diagnosis, treatment.
8. Alveolar process and palatoalveolar fracture: clinical presentation, diagnosis, treatment.
9. Aftercare management and medication of dentoalveolar fractures.
10. Progression and complications of dental and periodontal traumas.

**BIBLIOGRAPHY:**

1. Course materials.
2. Andreasen, J. O., Andreasen, F. M., & Andersson, L. (2018). *Textbook and color atlas of traumatic injuries to the teeth* (5th ed.). Wiley-Blackwell.
3. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
4. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
5. Malmgren, B., & Andreasen, J. O. (Eds.). (2021). *Guidelines for the evaluation and management of traumatic dental injuries*. Wiley-Blackwell.
6. Bourguignon, C., Cohenca, N., Lauridsen, E., Flores, M. T., O'Connell, A. C., Day, P. F., ... & Tsilingaridis, G. (2020). International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 1. Fractures and luxations of permanent teeth. *Dental Traumatology*, 36(4), 314–330.
7. Andersson, L., Andreasen, J. O., & Tsukiboshi, M. (2012). International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. *Dental Traumatology*, 28(2), 88–96. https://doi.org/10.1111/j.1600-9657.2012.01125.x

**Teaching Guide No. 3**

**Mandibular fractures**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the causes of mandibular fractures, the mechanism of injury, clinical classification, and progression. To examine patients with mandibular fractures, record data in the dental record, and participate in patient admission, recording the work performed in the registers.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. General information about the anatomy of the mandible: anatomical features, areas of minimal resistance.
2. Etiology of mandibular fractures.
3. Classification of mandibular fractures (based on the mechanism of injury, number of fracture lines, periosteal involvement, degree of fragment displacement).
4. Mechanism of mandibular fractures and fragment displacement.
5. Clinical presentation of mandibular fractures.
6. Principles of mandibular fractures treatment.
7. The management of teeth in the line of fracture.
8. Non-surgical treatment. Observation and closed treatment (MMF) in mandibular fractures.
9. Types of arch bars and temporary anchoring devices (TADs) used for immobilizing mandibular fractures (MMF), methods of making custom arch bars, requirements for arch bars, and their application.
10. Surgical treatment. Open Reduction Internal Fixation (ORIF): osteosynthesis, fixation devices used in mandibular fractures.
11. Aftercare management and medication of patients with mandibular fractures.
12. Progression and complications of mandibular fractures.

**BIBLIOGRAPHY:**

1. Course materials.
2. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
3. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
4. Ellis, E. (2012). Outcomes of treatment for isolated mandibular fractures: A review. Journal of Oral and Maxillofacial Surgery, 70(8), 2027–2033.
5. Lee, K. F., Wagner, J. D., & St-Hilaire, H. (2019). Mandibular fractures: Overview and current concepts. Oral and Maxillofacial Surgery Clinics of North America, 31(3), 345–357.
6. Kim, S. M., Jung, H. D., & Park, E. H. (2015). A review of 5,000 mandibular fracture cases over 20 years: Demographics and treatment outcomes. Journal of the Korean Association of Oral and Maxillofacial Surgeons, 41(1), 29–33.

**Teaching Guide No. 4**

**Fractures of the superior jawbone (maxilla)**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the causes, mechanisms, classification, clinical presentation, progression, conservative and surgical treatment of upper maxilla fractures. To examine patients with upper maxilla fractures, record data in the dental record, and participate in patient admission and registration.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. General information about the anatomy of the upper jaw: anatomical features, areas of minimal resistance.
2. Etiology, pathogenesis, classification, and mechanisms of superior jawbone fractures.
3. Partial fractures of superior jawbone: clinical presentation, diagnosis, treatment.
4. Superior jawbone fractures (Le Fort I); clinical presentation, diagnosis, differential diagnosis, emergency, and definitive treatment.
5. Superior jawbone fractures (Le Fort II); clinical presentation, diagnosis, differential diagnosis, emergency, and definitive treatment.
6. Superior jawbone fractures (Le Fort III); clinical presentation, diagnosis, differential diagnosis, emergency, and definitive treatment.
7. Non-surgical treatment. Observation and closed treatment (MMF) of LeFort fractures.
8. Types of arch bars used for immobilizing LeFort fractures (MMF), methods of making custom arch bar, requirements for arch bars, and their application.
9. Surgical treatment. Open Reduction Internal Fixation (ORIF): osteosynthesis, fixation devices used in LeFort fractures.
10. Aftercare management and medication of patients with LeFort fractures.
11. Progression and complications of LeFort fractures.

**BIBLIOGRAPHY:**

1. Course materials.
2. Bucur A. Compendiu de chirurgie oro-maxilo-facială, vol. I., Q Med. Publishing, București 2009. Burlibaşa, C. Chirurgie orală şi maxilofacială. Bucureşti : Editura medicală, 2003. Timoşca G., C. Burlibaşa. Chirurgie oro-maxilo-facială. – Chişinău: Universitas. – 1992. – P. 265-298.
3. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
4. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
5. Bell, R. B., & Warren, M. M. (2016). Midface fractures: Classification and treatment. In M. Miloro, G. E. Ghali, P. E. Larsen, & P. Waite (Eds.), Peterson’s principles of oral and maxillofacial surgery (3rd ed., Vol. 2, pp. 957–982). PMPH-USA.
6. Gassner, R., Tuli, T., Hächl, O., Rudisch, A., & Ulmer, H. (2003). Cranio-maxillofacial trauma: A 10-year review of 9,543 cases with 21,067 injuries. Journal of Cranio-Maxillofacial Surgery, 31(1), 51–61.
7. Hwang, K., You, S. H., & Sohn, I. A. (2009). Analysis of facial bone fractures: An 11-year study of 2,094 patients. Indian Journal of Plastic Surgery, 42(1), 42–47.
8. Salinas, N. L., & Faulkner, J. A. (2010). Management of Le Fort fractures. Operative Techniques in Otolaryngology–Head and Neck Surgery, 21(1), 32–37.

**Teaching Guide No. 5**

**Fractures of the nasal bone and the Naso-Orbito-Ethmoidal (NOE) complex**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the aetiology, pathogenesis, clinical forms of fractures of the naso-orbito-ethmoidal complex, principles of diagnosis and treatment, to examine patients with NOE fractures, complete dental records, participate in patient admission, and record the work performed in the register.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. General information about the anatomy of the Naso-Orbito-Ethmoidal (NOE) complex
2. Etiology and pathogenesis of naso-orbito-ethmoid complex fractures.
3. Classification of nasal bone fracture by Rory Attwood.
4. Classification of naso-orbito-ethmoid complex fractures by Markowitz.
5. Clinical presentation of nasal bone and naso-orbito-ethmoid complex fractures.
6. Diagnosis of nasal bone and naso-orbito-ethmoid complex fractures.
7. Non-surgical treatment. Observation and closed reduction of nasal and NOE fractures.
8. Surgical treatment. Open Reduction and Internal Fixation of nasal and NOE fractures.
9. Aftercare management and medication of nasal bone and naso-orbito-ethmoid complex fractures.
10. Progression and complications of nasal bone and naso-orbito-ethmoid complex fractures.

**BIBLIOGRAPHY:**

1. Course materials.
2. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
3. Strong, E. B. (2003). Fractures of the nasoethmoidal complex. Facial Plastic Surgery, 19(1), 19–28. https://doi.org/10.1055/s-2003-38331
4. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
5. Bagheri, S. C., & Dierks, E. J. (2012). Atlas of craniomaxillofacial fixation: A case-based approach (2nd ed.). Saunders.
6. Yoon, S.H.,Kwon,H.J., Kim,Y.J., &Kim,S.G.(2020). Analysis of surgical outcomes and complications in naso-orbito-ethmoid fractures: A 10-year retrospective study. *Journal of Craniofacial Surgery*, 31(4), 1013–1017. https://doi.org/10.1097/SCS.0000000000006341

**Teaching Guide No. 6**

**Zygomatic complex fracture**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the aetiology, pathogenesis, clinical forms of fractures of the zygomatic complex, principles of diagnosis and treatment, to examine patients with zygomatic complex fractures, complete dental records, participate in patient admission, and record the work performed in the register.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. General information about the anatomy of zygomatic complex.
2. Etiology and pathogenesis of zygomatic complex fractures.
3. Classification of zygomatic complex fractures by Zingg.
4. Clinical presentation of zygomatic complex fractures.
5. Diagnosis and differential diagnosis of zygomatic complex fractures.
6. Non-surgical treatment. Observation and closed reduction of zygomatic complex fractures.
7. Surgical treatment. Open Reduction Internal Fixation (ORIF): osteosynthesis, fixation devices.
8. Aftercare management and medication of patients with zygomatic complex fractures.
9. Progression and complications of zygomatic complex fractures.

**BIBLIOGRAPHY:**

1. Course materials.
2. Fonseca, R. J. (2017). Oral and maxillofacial surgery: Trauma (Vol. 3, 3rd ed.). Elsevier.
3. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
4. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
5. Bagheri, S. C. (2012). Clinical review of oral and maxillofacial surgery: A case-based approach. Mosby Elsevier.
6. Manodh, P., Maheswaran, T., & Sholadole, T. (2016). Comparative evaluation of two-point fixation versus three-point fixation in the management of zygomatic complex fractures. Journal of Maxillofacial and Oral Surgery, 15(2), 183–188.
7. Hwang, K., & You, S. H. (2020). Anatomical considerations in the surgical treatment of zygomaticomaxillary complex fractures. Archives of Craniofacial Surgery, 21(4), 205–210.
8. Procopenco Olga. „Fracturile complexului zigomatic și tratamentul lor” Autoreferatul tezei de doctor în medicină. Chişinău, 2015.

**Teaching Guide No. 7**

**Temporomandibular disorders**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand the etiology, classification, clinical presentation, treatment methods for temporomandibular joint dislocations. To perform treatment on models, examine patients with acute or recurrent dislocations, complete dental records, and participate in patient admission and recording.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. Anatomy and functions of the TMJ. Classification of TMJ disorders.
2. TMJ contusions: classification, etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.
3. TMJ dislocations: classification, etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.
4. Acute arthritis: classification, etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.
5. Chronic arthritis: classification, etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.
6. Temporomandibular osteoarthritis: classification, etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.
7. Temporomandibular joint ankylosis: classification, etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.

**BIBLIOGRAPHY:**

1. Course materials.
2. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
3. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
4. Okeson, J. P. (2019). Management of temporomandibular disorders and occlusion (8th ed.). Elsevier.
5. Greene, C. S. (2010). The etiology of temporomandibular disorders: Implications for treatment. Journal of Orofacial Pain, 24(2), 93–104.
6. Schiffman, E., Ohrbach, R., Truelove, E., Look, J., Anderson, G., Goulet, J. P., ... & Dworkin, S. F. (2014). Diagnostic criteria for temporomandibular disorders (DC/TMD) for clinical and research applications: Recommendations of the International RDC/TMD Consortium Network and Orofacial Pain Special Interest Group. Journal of Oral & Facial Pain and Headache, 28(1), 6–27.
7. De Leeuw, R., & Klasser, G. D. (2018). Orofacial pain: Guidelines for assessment, diagnosis, and management (6th ed.). Quintessence Publishing.

**Teaching Guide No. 8**

**Injuries and neurological disorders of the trigeminal and facial nerves**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To investigate patients with the given pathology. Establish the diagnosis and treatment plan.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. Topographic anatomy of the trigeminal nerve and the facial nerve.
2. Etiological and pathogenetic aspects of trigeminal and facial nerve Lesions.
3. Classification of nerve injuries by Seddon.
4. Clinical features and neurosensorial examination of nerve injuries.
5. Stages of peripheral nerve Healing and surgical-therapeutic management of nerve injuries.
6. Trigeminal neuralgia: etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, non-surgical and surgical treatment.
7. Trigeminal nerve neuritis: etiology (trauma, infections, toxicosis, and allergic conditions), clinical presentation, and treatment.
8. Facial nerve neuritis: etiology, clinical presentation, diagnosis, and differential diagnosis, treatment.

**BIBLIOGRAPHY:**

1. Course materials.
2. Miloro, M., Ghali, G. E., Larsen, P. E., & Waite, P. D. (2012). Trigeminal nerve injuries. In Peterson’s Principles of Oral and Maxillofacial Surgery (3rd ed., Vol. 2, pp. 1101–1114). BC Decker.
3. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
4. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
5. Zakrzewska, J. M., & Durham, J. (2017). Trigeminal neuralgia: Diagnosis and management. Cambridge University Press.
6. Benoliel, R., & Sharav, Y. (2010). Chronic orofacial pain. Current Pain and Headache Reports, 14(1), 33–40.
7. Renton, T., & Yilmaz, Z. (2012). Profiling of patients with trigeminal nerve injuries. Journal of Oral & Facial Pain and Headache, 26(3), 221–230.
8. Baad-Hansen, L., & Svensson, P. (2006). Sensory profiling: A tool for diagnosing orofacial pain? Cephalalgia, 26(9), 998–1009

**Teaching Guide No. 9**

**Thermal injuries and ballistic trauma.**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** Investigation of patients with the given pathology. Establishing the diagnosis and treatment plan. Participation in patient admission and recording in notebooks.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. Facial Burns: Classification, diagnosis.
2. Determination of Burn Degree and Estimation of Affected Surface Area: Use of the Parkland Formula
3. Clinical evolution and treatment peculiarities of thermal injuries in the OMF region.
4. Principles of treatment for thermal injuries of the OMF Region.
5. Burn Disease: Clinical presentation, diagnosis, treatment.
6. Frostbites in the OMF region: Classification, clinical presentation, diagnosis, treatment.
7. Firearm Facial Trauma: Characteristics, clinical presentation, surgical diagnosis, and treatment of bone injuries.
8. Firearm Facial Trauma: Characteristics, clinical presentation, diagnosis, and treatment of soft tissue injuries.

**BIBLIOGRAPHY:**

1. Course materials.
2. Clark, N., & Birely, B. C. (2000). Management of ballistic and blast injuries of the face. Oral and Maxillofacial Surgery Clinics of North America, 12(2), 233–249.
3. Larry J. Peterson „Contemporary Oral and Maxillofacial Surgery”, fourth edition, 2003, USA.
4. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
5. Miloro, M., Ghali, G. E., Larsen, P. E., & Waite, P. D. (2012). Gunshot injuries to the face. In Peterson’s Principles of Oral and Maxillofacial Surgery (3rd ed., Vol. 2, pp. 1135–1145). BC Decker.
6. Hollier, L. H., Grantcharova, E. P., & Kattash, M. (2001). Facial gunshot wounds: A 4-year experience. Journal of Oral and Maxillofacial Surgery, 59(3), 277–282.
7. Bento, R. F., & Miniti, A. (1994). Thermal injuries of the face: Surgical treatment and rehabilitation. *Ear, Nose & Throat Journal*, 73(10), 745–752.

**Teaching Guide No. 10**

**Complications of facial trauma**

**Workplace:** Clinical Outpatient Foundations of the Department.

**Objective of the work:** To understand immediate and secondary complications in soft tissue injuries, mandibular fractures, and facial bone injuries. To examine patients with complications, record data in the dental record, and participate in patient admission, recording the work performed in the registers.

**Training Form and Duration:** Seminar and practical work, 225 minutes.

**Control Questions:**

1. Asphyxia: etiology, pathogenesis, clinical presentation, diagnosis, and differential diagnosis, treatment.
2. Haemorrhage: etiology, classification, clinical presentation, diagnosis, and differential diagnosis, treatment.
3. Traumatic shock: etiology, clinical presentation, diagnosis, and differential diagnosis, treatment.
4. Cerebral concussion: etiology, clinical presentation, diagnosis, and differential diagnosis, treatment.
5. Post-traumatic osteomyelitis: etiology, clinical presentation, diagnosis, differential diagnosis, and treatment.
6. Infected wound: etiology, clinical presentation, diagnosis, differential diagnosis, and treatment.
7. Retracted scars: etiology, clinical presentation, diagnosis, differential diagnosis, and treatment.
8. Jaw constriction: classification, etiology, pathogenesis, clinical presentation, diagnosis, differential diagnosis, and treatment.
9. Malunion fractures (pseudoarthrosis): classification, etiology, pathogenesis, clinical presentation, diagnosis, differential diagnosis, and treatment.
10. Non-union fractures: classification, etiology, pathogenesis, clinical presentation, diagnosis, differential diagnosis, and treatment.

**BIBLIOGRAPHY:**

1. Course materials.
2. Miloro M., Ghali G.E., Larsen P.E., Waite P.D. Peterson’s principles of oral and maxillofacial surgery, BC Decker, 2004.
3. Ellis, E., & Moos, K. F. (2004). Complications of treatment for mandibular fractures. In Miloro, M., Ghali, G. E., Larsen, P. E., & Waite, P. D. (Eds.), Peterson’s Principles of Oral and Maxillofacial Surgery (2nd ed., pp. 505–518). BC Decker.
4. Kim, J. Y., Lee, J. W., & Lee, J. H. (2018). Post-traumatic complications in facial fractures: A 5-year retrospective study. Journal of Craniofacial Surgery, 29(6), 1586–1590.
5. Katsnelson, A., & Strong, E. B. (2010). Late complications following facial fractures. Facial Plastic Surgery Clinics of North America, 18(1), 177–186.