Ministry of Health of Ukraine
POLTAVA STATE MEDICAL UNIVERSITY
Chair of surgical stomatology and maxillo-facial surgery

Complex (cranial and maxillofacial) and combined trauma of maxillofacial area. Traumatic illness. Classification, clinic, diagnostics and stages of treatment of victims. Early and late complications of damages of maxillofacial area. Prevention, clinic, diagnostics, stages of treatment of victims.

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Lecture plan

1. **Complex (cranial and maxillofacial) and combined trauma of maxillofacial area.**
2. **Traumatic illness.**
3. **Classification, clinic, diagnostics and stages of treatment of victims.**
4. **Early and late complications of damages of maxillofacial area.**
5. **Prevention, clinic, diagnostics, stages of treatment of victims.**

- **SOLITARY(isolated) TRAUMA– sporadic damage of any anatomic region.**
- **ASSOCIATED(combined) TRAUMA – simultaneous damage of two or more anatomic regions.**
- **INTEGRATED TRAUMA** is an injury resulting from two or more different disturbing factor.

- **POLYTRAUMA is a severe associated trauma which involves traumatic shock, therefore it is a shock-producing associated trauma.**
- **SYNDROME OF MUTUAL AGGRAVATION** Each of these injuries makes general pathological situation worse, and together with it every single injury in case of a polytrauma takes a more complicated course with the risk of complications (more than in case of an isolated trauma).

CLASSIFICATION OF INJURIES OF THE MAXILLOFACIAL REGION (Military medical academy named after S.M.Kirov, 1984)

- ***Mechanic injuries of upper, middle, lower and side facial regions.***
- ***By localization***
- *Soft tissue injuries:*
- **Solitary injuries affecting:**
- **A)** the tongue; B**)** salivary glands; C**)** big nerves; D**)** big vessels.
- *Associated injuries*
- ***Bone injuries***
- **A)** lower jaw; B**)** upper jaw; C**)** zygomatic-bones ; D**)** nasal bones; E**)** two and more bones.

CLASSIFICATION OF INJURIES OF THE MAXILLOFACIAL REGION (Military medical academy named after S.M.Kirov, 1984)

- ***By the nature of the wound: perforating, blind, gutter, penetrating into oral, nasal cavity, sinus maxillaries.***
- ***By mechanism:***
- Gunshot wounds: bullet, missile, inflicted by globe-shape and arrow-shaped elements.
- Non-gunshot wounds: contused, stab, cut, chopped wounds.
- Integrated injuries.
- Burns.
- Frostbites.

Types of asphyxias and their treatment.

Types of asphyxias	Types of asphyxiasPathogenesis	Treatment
Dislocated	Dislocation of the tongue, lower jaw fragments, pressure of the cut off upper jaw	Stitching, fixation of the tongue, reposition and fixation of jaw fragments
Obturated (Obstructed)	Bridging the breathing passages with a foreign body, blood clots	Removing a foreign body, blood clots, if it is ineffective – tracheotomy, tracheostomy
Stenotic	Compression of trachea by edema, neck hematoma	Conicotomy, tracheotomy
Valve (valvuar)	Bridging the aperture of larynx with a scrap (shred) of soft tissues from the palate and the tongue	Fixing of an overhanging flap or its excision
Aspiration	Aspiration of blood and vomit mass	Sanation of bronchial tree (saliva ejection)

CLASSIFICATION OF CRANIOCEREBRAL INJURY:

- Brain concussion.
- Cerebral contusion:
- **Light;**
- Moderate;
- Severe.
- Cerebral compression.
- Diffusive axonal brain injury.
- **Head compression.**

SEVERITY OF CRANIOCEREBRAL INJURY

- **Light;**
- Moderate;
- Severe.

PERIODS CRANIOCEREBRAL INJURY

- *Acute (2-10 weeks);*
- *Intermediate (2-6 months);*
- Remote (more than 6 months).

Diagnosis:

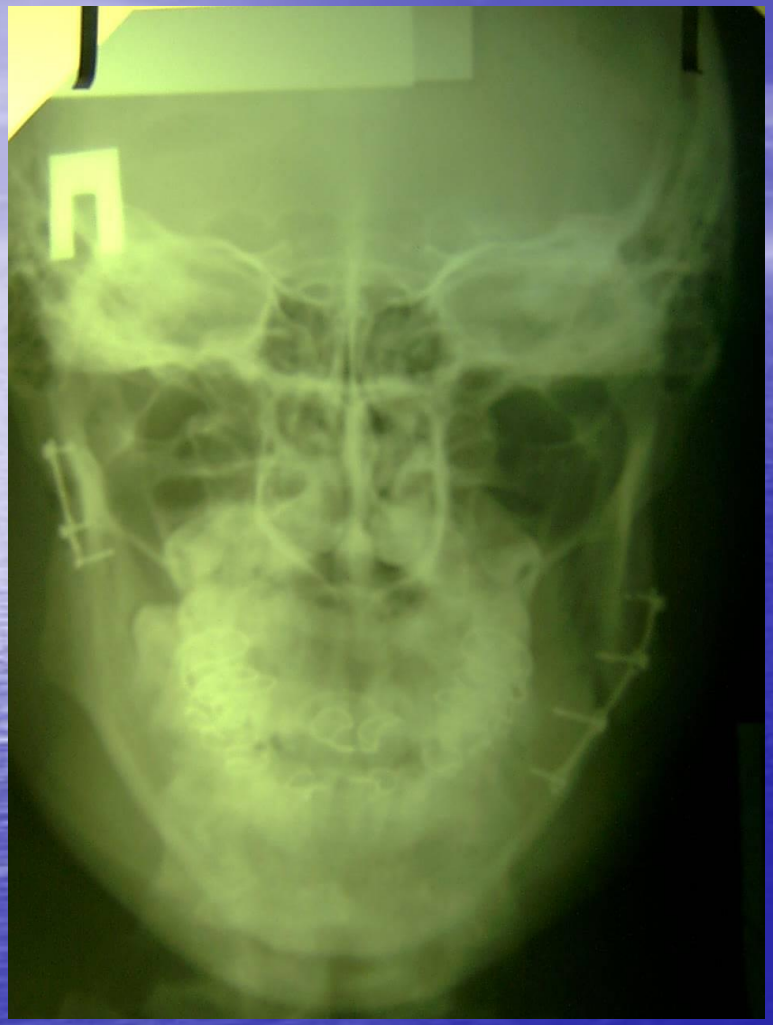
- fractures of lower jaw without dislocation of bone fragments
- multiple contusions, haematomas, scratch on the face
- Closed craniocerebral traumas, periobital haematomas

Treatment:

smooth immobilizing splint-brace

Sarkisov's bandage

- Diagnosis: mandibular fracture without dislocation, nasal fracture with dislocation, bleeding into conjunctiva, eyelid and subcutaneous fat ("glasses" syndrome), closed craniocerebral traumas, concussion.



- Osteosynthesis of the lower jaw with the help of mini-plates.

- Multiple fractures of the lower jaw with dislocation of the fragments (before treatment).

- Osteosynthesis of the lower jaw fragments with the help of Kirschner's wire (K-wire),

INTEGRATED INJURIES

- With surgical pathology prevailing.

With therapeutic pathology prevailing.

- ***Bifactorial models of integrated injuries of surgical type***

- Mechanical-thermal;
- Mechanoradioactive;
- Mechanochemical;
- Mechanophysical;
- Mechanoinfectious;
- Mechanical-emergency-factorial.

GENERAL FEATURES OF INTEGRATED INJURIES:

- Syndrome of mutual aggravation
- **Problems in providing medical aid;**
- Unsatisfactory functional consequences of the treatment.

TRAUMATIC DISEASE

- This is a pathologic process caused by a severe shock-producing mechanic trauma when the sequence of changes of key pathogenesis factors determines regular sequence of clinical periods.

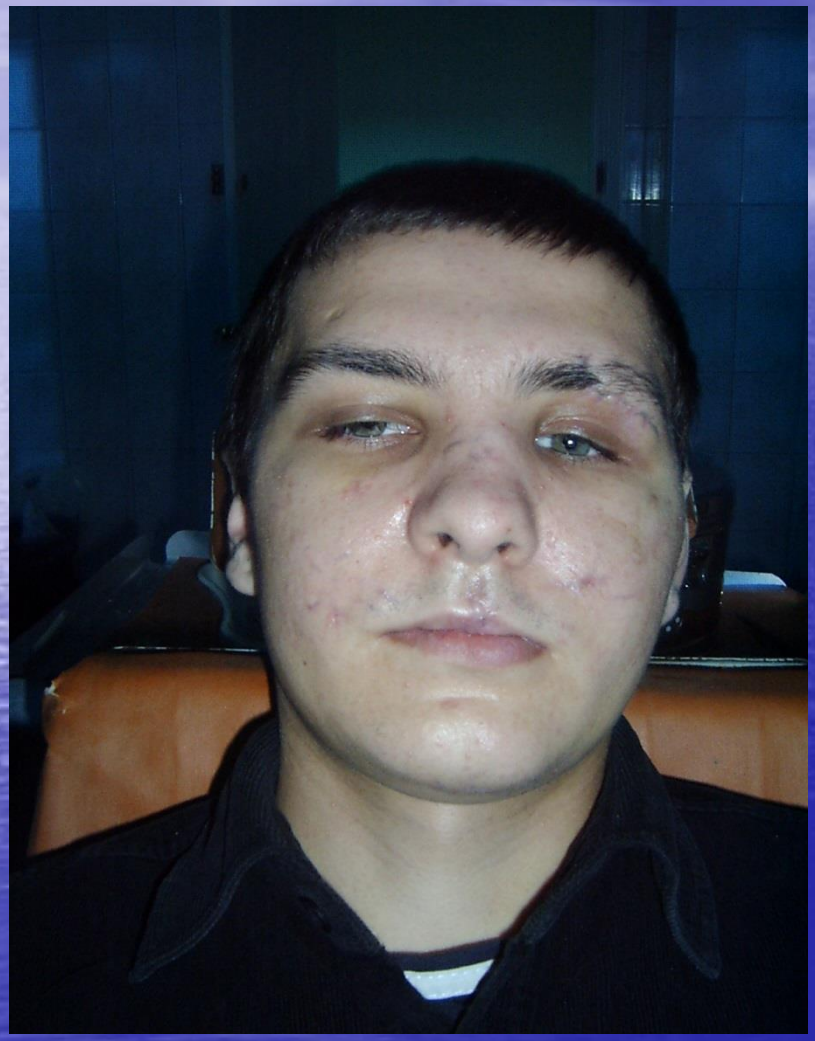
- For profuse bleeding from oral cavity the unconscious patient is intubated.

- **Diagnosis**: upper jaw fracture of Le Fort III type, lower jaw fracture, multiple contused and avulsed injuries of facial soft tissues, face hematomas.

  - craniocerebral traumas, brain contusion, skull base fracture,

  - the thorax contusion.

- Diagnosis: associated cranio- maxillofacial trauma (traffic accident).
- Fracture of the upper jaw of Le Fort I-II type, fracture of the lower jaw, multiple contused and avulsed facial injuries.
- The appearance of a newly-admitted patient.



- The external view of patient after treatment.

- Diagnosis: fracture of the upper jaw of Le Fort III type, severe craniocerebral trauma, suborachnoid hematoma.
- The appearance of a discharged patient.

PERIODS OF INJURY DYSTROPHY (TRAUMATIC DISEASE)

- **Shock period**

  – period of acute functional and systemic disorders caused by a severe injury

- **Early after-shock period**

  – Genesis of organic and polyorganic insufficiency (3-7 days after the injury).

PERIODS OF INJURY DYSTROPHY (TRAUMATIC DISEASE)

- **Period of infectious complications**

  - (higher risk of infections, period of secondary immunodeficiency) – duration 1 week – 1 month.

- **Period of reconvalescence**

  – duration from a few weeks to a few months.

- Shock is a collective concept, which means exorbitant tension of the mechanisms for homeostasis regulation as a result of various primary endogenous and exogenous impacts.

Classification of the shock by etiological principle)

- Exogenous pain shock (traumatic, burn, after electrical accident)
- Endogenous pain (cardiogenic, nephrogenic, abdominal)
- Humoral (posttransfusion, hemolytic, insulinic, anaphylactic, toxic)
- Psychogenic.

Traumatic shock

- This is a phase compensatory-adaptive reaction of an organism to an aggressive, usually pain impact of the outdoor environment accompanied by dysfunctional, energy, regulatory disorders of homeostasis system and neurohumoral reactivity leading to hypovolemia.
- Characteristic feature – staging of clinical course and typical changes of hemodynamics which determines severity of the shock.

Degrees of severity of the shock

- 1 degree (slight) – consciousness is preserved, the patient is inert and apathetic. The skin is pale, the temperature is lower than normal. Reaction of the pupils of the eyes is preserved. The pulse is regular, quickened to 100 per minute. Blood pressure is about 100-60 millimeter of mercury, breathing rate is up to 24 per minute. Reflexes are preserved.

Degrees of severity of the shock

- 2 degree (moderate) – consciousness is soporous. The skin is pale, grayish, cold and dry. Pupils react sluggishly to light, reflexes are diminished. Blood pressure is about 80-50 millimeter of mercury. The pulse up to 120 per minute. Breathing rate is up to 29-30 per minute, diminished, dyspnea.

Degrees of severity of the shock

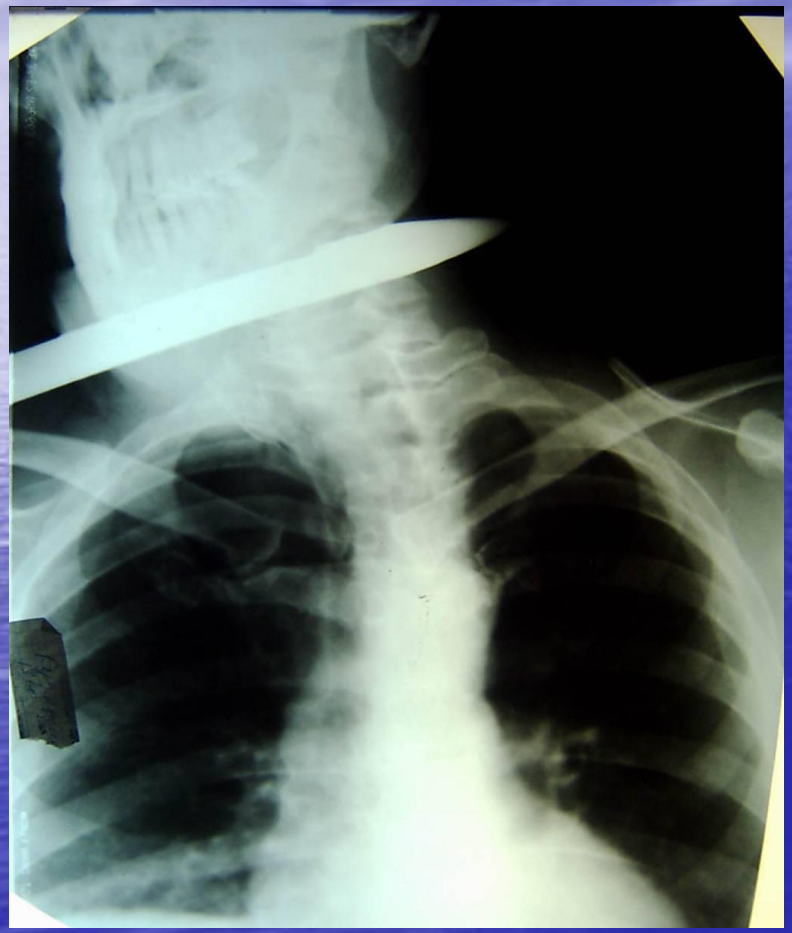
- 3 degree (severe) – deeply depressed consciousness of stupor or coma type. The skin is pale, sallow. Pupils' reaction is absent, reflexes are critically diminished, areflexia. Diuresis is critically diminished or anuria.

Degrees of severity of the shock

- 4 degree (beyond the limits, irreversible) by D.M.Sherman – is actually an apparent death. Resuscitation measures are absolutely ineffective.

- Associated injury.
- The appearance of a patient with a foreign body.

- Associated injury.
- The appearance of a patient with a foreign body.



- Chest and neck radiography
- Presence of a foreign body.

- Diagnosis: lower jaw fracture with bone fragments dislocation, multiple contusions of facial soft tissues, neck, anterior surface of the thorax, bruises.
- Craniocerebral traumas, brain concussion.

MAIN PRINCIPLES OF INJURY DYSTROPHY TREATMENT

- The earliest possible infusion therapy
- Quick evacuation of the injured to specialized medical surgical facilities (multitrauma centers);
- Emergency surgeries combined with antishock measures;
- Early delayed operations as soon as the patient is out of the shock and the reached hemodynamics is relatively stabilized.

MAIN PRINCIPLES OF INJURY DYSTROPHY TREATMENT

- Insurance of a long-term compensation;
- Prescription of preventive multicomponent antibacterial therapy at an early after-shock period;
- Prediction and preventive treatment based on basic pathogenetic mechanisms at each period of injury dystrophy;
- Rehabilitation and stage-by-stage restorative surgical interventions.

- Рентгенография нижней челюсти в боковой проекции.
- Д-з: травматический остеомиелит тела нижней челюсти в стадии секвестрации.

- Лечение местных воспалительных осложнений проводят по общепринятым методикам.
- Д-з: нагноившиеся раны лобной области, ЗЧМТ, сотрясение головного мозга.

Questions for discussion of the lecture

1. Complex (cranial and maxillofacial) and combined trauma. Explain the difference between these concepts.
2. Features of examination of a patient with neurosurgical injury?
3. Classification, clinic, diagnostics and stages of treatment of victims.
4. Traumatic illness. What stages of the disease do you know? What is the prognosis of the disease?
5. Early and late complications of damages of maxillofacial area. What precautionary measures can we use?

Thank you for attention.