Inflammatory diseases of paranasal sinuses. Rhinogenic complications.
Terminology

Sinus – fourth declension
Genitive case plural – sinuum;
Base of the word is sinu + itis;
Correct form, thus, is sinuitis, not sinusitis.
Sinuitis – is an inflammation of mucous membrane, submucous layer and in some cases osseal wall of paranasal sinuses.

25-30% of stationary ENT patients; 15-16% of ambulatory ENT patients.
Which sinuses are affected more often?

1. maxillary (highmoritis).
2. ethmoid (ethmoiditis).
3. frontal (frontitis).
4. sphenoid (sphenoiditis).

In children of age less then 1 month ethmoiditis (80-92%).
Following forms of sinuitis can be distinguished:

1. Monosinuitis.
2. Polysinuitis
   a) hemisinuitis;
   b) pansinuitis.
Etiology

- Bacteria and viruses.
- Acute sinuitis can be caused by: Str. pneumoniae, Streptococcus spp., H. influenzae, M. catarrhalis, S. aureus.
- In chronic sinuitis besides those mentioned above, cause can be anaerobic flora and fungi.
Ways of infection spreading:

1. Rhinogenic.
2. Odontogenic.
3. Traumatic.
4. Haematogenetic.
5. Allergic.
Ways of infection spreading:
Factors contributing sinusitis development:

1. Decrease of common body reactivity.
2. Pathology of nose and nasopharynx.
# Classification

<table>
<thead>
<tr>
<th>Acute</th>
<th>Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Catarrhal</td>
<td>1. purulent - 78%</td>
</tr>
<tr>
<td>2. Purulent</td>
<td>2. Polyps</td>
</tr>
<tr>
<td>3. Necrotizing</td>
<td>3. Polyps and purulent (polyposous-purulent)</td>
</tr>
<tr>
<td></td>
<td>(polyposous)</td>
</tr>
</tbody>
</table>

1. Polyps (polyposous)
Clinic of acute sinuitis

2. Local symptoms.
Clinic of acute sinuitis

<table>
<thead>
<tr>
<th>Common symptoms</th>
<th>Local symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Common weakness, decrease of appetite, fever.</td>
<td>1. Pain according to localization of the sinus.</td>
</tr>
<tr>
<td></td>
<td>3. Purulent secretions.</td>
</tr>
<tr>
<td></td>
<td>4. Olfaction disorders.</td>
</tr>
<tr>
<td></td>
<td>5. Swelling of facial soft tissues.</td>
</tr>
</tbody>
</table>
Purulent sinuitis
1. Anatomical localization – contact of lower maxillary wall with roots of upper teeth.
2. Infection is spread through premolars and molars of the upper jaw:
   - Periodontitis
   - Periostitis
   - Osteomyelitis
   - Purulent radicular cysts;
   - Damage of maxillary sinus during tooth extraction.
Specific clinical features

1. Causal tooth.
2. Unilateral affection.
3. Pain is absent.
4. Pus with unpleasant smell.
5. Primary chronic origin.
Additional diagnostic methods

1. Diaphonoscopy.
2. X-ray.
3. Thermography.
4. Echography.
5. CT and MRI.
6. Optical rhinoscopy.
7. Maxillary sinus puncture.
X-ray of paranasal sinuses in front projection

Decrease of transparency of the right maxillary sinus
Diagnosis of sinuitis with help of CT and MRI

Cyst of the left maxillary sinus

Mycetoma of the left maxillary sinus
Endoscopic examination of nasal cavity

ridge of nasal septum

Crest of nasal septum on the left
Endoscopic examination of nasal cavity

Nasal opening of sphenoidal sinus
Puncture of maxillary sinus
1. Anti-inflammatory treatment

**Antibiotics:**
- Cephalosporins (цефазолін, дурацеф, цефаклор, цефтріаксон).
- Semi synthetic penicillines (амоксицилін, амоксил), including those combined with Clavulanic acid (амоксиклав, аугментін, енханцин).
- Macrolides (кларітроміцин або клацид, роваміцин, макропен або мідекаміцин).
- Lincosamides in odontogenic processes (далацин або кліндаміцин, лінкоміцин)
- Combined medications – Fluimucil - antibiotic with mucolitic agent
Treatment of acute sinuitis

Anti-inflammatory medications
Ереспал (in combination with antibiotics).

2. antihistamine
Оринол плюс (2 антигістамінних препарата + фенілефрін).

3. decongestant
Полідекса з фенілефріном (антибактеріальний препарат + деконгестант).

4. Secretolitics: Синупрет , АЦЦ.

5. Immunomodulatory medications
IPC-19, Рибомуніл, Бронхо-Мунал – лілати бактерій;
Умкалор, Тонзілгон, Сінупрет – фітопрепарати;
Тонзилотрен, Цинабсин – гомеопатичні препарати.
Treatment of acute sinuitis

8. Puncture of paranasal sinuses.
9. Necrotizing form of sinuitis must be treated surgically.
Chronic sinusitis

Causes - untreated acute sinusitis

Contributing factors:
1) Changes of reactivity
2) Sinus drainage disorders;
3) Defective mucous membrane.
Forms of chronic sinuitis

1. Purulent.
2. Polyps (polyposous)
3. Polyps and purulent (polyposous-purulent)
Disease course

1. Remission: common condition normal, smelly discharge, working ability decreased, nasal breathing blocked, olfaction disorders.

2. Acute periods (worsening): fever, common weakness, pain, swelling of eyelids, characteristic changes of blood formula.
Rhinoscopic picture of chronic sinuitis

Purulent discharge in left middle nasal meatus, polyps in the right
Treatment

More effective - surgical

Surgeries on maxillary sinus

- Endonasal;
- ExTRANasal Caldwell-Luc surgery.

Treatment

Frontal sinus surgery

- Killian surgery;
- Belogolovov surgery;
- Операція за Янсеном-Ріттером.
Killian surgery
Treatment

Surgeries on methodical sinus

- Операція за Вінклером;
- Операція за Галлє.
Nasal polypotomy and endonasal incision of ethmoidal bullae according to Halle
Treatment

Endoscopic surgeries of nose and paranasal cavities

Nasal polyps
Nasal cavity after pterygoplaty and fenestration of left maxillary sinus

Opening of maxillary sinus
Rhinogenic complications

1. Orbital.
2. Intracranial.
Has stationary patients with sinuitis, 4-6 among them have rhinogenic complications.
etiology

1. Grip virae.
2. Bacterial microflora
Conditions for occurrence of rhinogenic complications

1. Close anatomic location
2. Angio-nervousos contact