Ophthalmic Manifestations of Paranasal Sinus Disease; A Clinical Grading System

Surayie Al Dousary, MD
Associate Professor
Director Rhinology Research Chair

Fatma Al Anazy, MD
Associate Professor

Rhinology Research Chair
King Saud University, Saudi Arabia

www.rhinology.ksu.edu.sa
sdousary@csc.net.sa
Ophthalmic manifestations can result from a myriad of Non Sinogenic and Sinogenic Disease:

- Acute sinus infection
  - Secondary orbital inflammation
- Chronic sinus inflammation
  - Resulting in expansion and erosion of the surrounding structure
- Sinus Mucoceles
  - Orbital Extension
- Local Immunological reactions
  - Orbital involvement
Sinogenic Ophthalmic Manifestations

- Anatomic disturbance
- Mild functional disturbance
- Visual impairment
- Disease related Manifestation
Classification of Sinusitis Orbital Complications

- In 1937, Hubert published a classification of sinusitis complications, which included palpebral, orbital, and intracranial diseases.

- In 1948, Smith and Spencer used the Hubert classification to stage orbital complications.


- In 1994, Bent and Kuhn described what probably are the most widely accepted criteria for AFS diagnosis.
AFS Ophthalmic Manifestation

Varies from proptosis
AFS Ophthalmic Manifestation

To visual loss
Mucocele Ophthalmic Manifestation

Varies from Proptosis, Tearing, etc
Material and Methods

- Forty two patients with Paranasal sinus diseases (Acute and Chronic) present with ophthalmic manifestation
- Rhinology Research Chair, King Saud University, Saudi Arabia
- January 2008 and December 2010
- Exclusion Criteria:
  - Tumors
  - Non Sinonasal Orbital Pathology
- Clinical Assessment (ENT & Ophthalmology Consultants)
- Computed Tomography (CT), and MRI
Management

► All Patients underwent Functional Endoscopic Sinus Surgery
► CT Guided FESS in cases with extensive disease
► The urgency of intervention proportional to the severity of the disease
► Medical Treatment
  ► Antimicrobial (Infection)
  ► Systemic Steroid (AFS)
### Results

<table>
<thead>
<tr>
<th>Grade</th>
<th>Presentation</th>
<th>Number of Patients</th>
<th>Acute sinusitis</th>
<th>Mucocele</th>
<th>AFS</th>
<th>CRS</th>
<th>Proptosis</th>
<th>Orbit Infection</th>
<th>Visual Impairment</th>
<th>Follow Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Anatomical disturbance</td>
<td>Proptosis</td>
<td>15(36%)</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>5</td>
<td>15</td>
<td>0</td>
<td>1-2 y</td>
<td></td>
</tr>
<tr>
<td>II Functional involvement</td>
<td>Epiphoria, Diplopia, Ophthalmoplegia, Ptosis</td>
<td>11(26%)</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>8</td>
<td>0</td>
<td>1-2 y</td>
<td></td>
</tr>
<tr>
<td>III Orbital infection</td>
<td>Orbital cellulitis, Pre septal-cellulitis, Orbital abscess, Subpereostial abscess, Cavernous sinus thrombosis</td>
<td>11(26%)</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>0</td>
<td>3M -2 y</td>
</tr>
<tr>
<td>IV Visual impairment</td>
<td>Visual Impairment, Blindness</td>
<td>5(12%)</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1M-2 y</td>
<td></td>
</tr>
</tbody>
</table>

- 20 male and 22 female, Their age ranged from 8 to 65 year with a mean age of 30 year, 12 child.
Results

The Sinogenic Ophthalmic Manifestation Causes:

- Allergic Fungal Sinusitis (50%)
- Chronic Rhinosinusitis (36%)
- Acute Sinusitis (10%)
- Mucocele in (4%)
Conclusion

The Proposed Clinical Grading System

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Disturbance of ophthalmic Anatomy</td>
</tr>
<tr>
<td>II</td>
<td>Mild Disturbance of Ophthalmic Function</td>
</tr>
<tr>
<td>III</td>
<td>Orbital Infection</td>
</tr>
<tr>
<td>IV</td>
<td>Visual Impairment</td>
</tr>
</tbody>
</table>
Conclusion

- This is an easy to apply Clinical grading system that doesn’t require Imaging.
- Encompass Sinogenic Acute orbital infection and chronic pathology causing orbital manifestation.
- Help to classify the cases and measure the outcome.
- The main cause of orbital complications is chronic Paranasal sinus disease in (74 %) of the cases.
- Visual Impairment group (Grade IV) has unfavorable outcome.
References

King Saud University
Rhinology Research Chair 2011
Conference and Workshops Nov 21-24, 2011

- Upper Airway Allergy Update and Workshop.
- Conference on Fungal Sinusitis
- Functional Endoscopic Sinus Surgery Course.

Thank You

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Riyadh
Saudi Arabia