Rhinogenic orbital inflammation
what has changed over the past 50 years?

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Introduction
Inflammatory conditions affecting the orbit (orbital cellulitis) represent – from the aetiopathological point of view – a relatively broad spectrum of conditions. Primary orbital inflammation is rare. Secondary orbital inflammation is more common; it develops due to spread of infection from the surrounding structures. Rhinogenic orbital complications are the most frequent. The classification of rhinogenic inflammatory complications involving the orbit is based on Chandler's classification. The aim of our study was to compare the incidence, diagnosis, and treatment of rhinogenic inflammatory complications over the past 50 years.

Material and methods
This was a retrospective study of 292 patients with rhinogenic orbital inflammation, hospitalized in the Department of Otorhinolaryngology and Head and Neck Surgery of the University Hospital in Hradec Králové over the past 50 years (between January 1, 1966 and December 31, 2015). The study patients were divided into two groups. The first group (Group A) consisted of patients treated between 1966 and 1995, i.e., when functional endonasal surgery was not yet a standard treatment in the above-mentioned workplace. The second group (Group B) consisted of patients treated between 1996 and 2015; functional endonasal surgery was a standard surgical method.

Results
In both groups, the proportion of individual types of orbital complications was similar. Preseptal inflammation prevailed (73% vs. 74%); subperiosteal abscess was the second most common type (21% vs. 20%). In both groups, only rarely were patients diagnosed as having postseptal complications (orbital cellulitis, abscess). As for unusual associated intracranial complications, we observed three cases of cavernous sinus thrombosis in patients belonging to Group A and two cases of epidural abscess in Group B.

In both groups, most patients were treated conservatively; surgery was indicated in approximately one-third of the patients (35% vs. 37%). However, a comparison of the surgical approaches revealed noteworthy differences. In Group A, the external route constituted the most commonly used surgical approach (80%) whereas most patients belonging to Group B underwent endoscopic endonasal surgery (60%) or a combination of endoscopic surgery of the paranasal sinuses and external orbitotomy (30%). In both groups, the percentage of reoperations was similar (13% vs. 14%). In most cases, reoperation was indicated for persistent orbital abscesses, localized mainly in the superolateral part of the orbit. In cases of revision surgery, the orbit was always treated using the external surgical approach.

Complete recovery was achieved in 92% of the patients belonging to Group A and 98.5% of the patients belonging to Group B. Diplopia was the most common permanent consequence following resolution of inflammation (3.8% vs. 1.5%). In Group B, there were no cases of residual visual impairment or death, whereas in Group A, mild visual impairment, unilateral blindness, and death were noted in 2.5%, 1.3%, and 0.6% of the patients, respectively.

Conclusions
The diagnosis is based on medical history taking, an ENT examination and an examination of the eyes, followed by a CT scan or contrast-enhanced MR imaging, especially if an intracranial complication is suspected. In the initial stages (preseptal cellulitis), it is possible to wait and see whether imaging-based examination will be needed. Conservative management includes administration of broad spectrum antibiotics, antipyretics, nose drops, nasal mucosa toilet, and corticosteroids. Surgical treatment is indicated if there is an abscess (subperiosteal or orbital abscess on a CT scan or MR imaging), the clinical condition does not improve after 24–48 hours of intensive conservative treatment, and if the following signs and symptoms are present: protrusion of the eyeball with restricted movement and the development of diplopia or the onset of visual impairment, intracranial complications, or sepsis.

Nowadays, the endoscopic endonasal approach is the most frequently used surgical technique if the primary inflammatory site is located in the paranasal sinuses. The technique used to treat the orbital complication itself depends mainly on the location of the abscess area, the available technical equipment, and the surgeon's experience. It is possible to use the endonasal as well as the external approach; the external approach is preferred if revision surgery is needed.

References