For larger skin defects we used skin grafts and local flaps.

Table 2.

Table 1.

Table 3. The size of BCC in the orbital region.

The operation was performed under local anesthesia in 70 cases and general anesthesia was used in 41 cases because of the extent of the tumor.

Results

BCC was found in 51 female and 60 male patients. The gender ratio female: male was 1:1.18.

Age of patients ranged from 24 to 84 year. Gender and age distribution are presented in table 1.

Table 1. Gender and age distribution.

In 57 cases (51.35%) the tumor site was on the lower lid, in 38 cases (34.24%) on the medial canthus, and in 14 cases (12.61%) on the upper lid. In 2 cases (1.80%) the lateral canthus.

Table 2. The distribution by tumor site.

The tumour size was distributed as follows: T1 (less than 2 cm) in 97 patients, T2 (2-5 cm) in 6 patients and T4 in 8 patients.

Orbital infections most frequently occur in the form of bacterial complications of the paranasal sinus infection. In adult patients with sinusitis approximately 3-5% are subject to the occurrence and development of orbital complications, while in children these values range between 0-5%. By means of retrospective observation a group of 36 patients treated at the Otorhinolaryngological Clinic, Clinical Center, Kragujevac, within the period from 1990 to 2002, was subject of our analysis. The group of 25 patients with orbital complications of rhinosinus origin consisted of 15 children (8.25%) and 14 adults (63.76%).

Orbital complications in the orbit of rhinosinus origin most commonly occur between 7 and 15 years of age. With children the most common complication was orbital cellulitis (n=10/18), while with the adults it was the retrobulbar neuritis (n=6/18). Orbital complications with children in 88.89% of the cases were related to their actual sinusitis, while chronic sinusitis preceded complications with the total of the adult patients. These differences were in the clinical picture with children and adults. With children (83.33%) out of total of 15 children, the X-ray find was a homogeneous intensive shadowing. Streptococcus pneumoniae (n=10/18) bacteria was most frequently isolated with the adults using the middle nasal corridor smap, while with children it was Moraxella catarrhalis in 8 cases (47.06%). In the course of 48 hours to bila Moraxella catarrhalis u 8 slučajeva (47.06%). Ukoliko se u toku 48 h konzervativnog lečenja ne uoče znaci poboljšanja kliničkog stanja, mogu se razviti komplikacije u obliku akutnih sinusitisa kod djece (n=6/18) i akutnih sinusitisa kod odraslih (n=12/18). Komplikacije sa zapaljenjskim oboljenjem sinusa, mogu se razviti komplikacije kod odraslih pacijenata. Pripojevala, u 8 slučajeva (40%) kod odraslih, kod djece (n=6/18) sa zapaljenjskim oboljenjem sinusa, mogu se razviti akutnih sinusitis kod dece, kao i saniranju hroničnih procesa (alergija, polyp, ciste) kod adulta.

Key words: sinusitis, complications, orbital diseases

Introduction

Orbital infections most frequently occur in the form of bacterial complications with the inflamed paranasal sinus, though certain other etiological factors such as injuries, foreign body penetration, bacteremia or skin infection should be taken into consideration as well (1).

According to Friedman bacterial infections of the orbit caused by paranasal sinus infection occur with approximately 75% of the patients (2).

Orbital complications of rhinosinus inflammatory origin occur due to inflammatory process progression towards periorbit, thereof towards the orbital tissue and the tissue of the eye itself or due to mucous membrane thrombophlebitis and paranasal sinus and orbitare. They are most frequently formed percutely thus requiring urgent diagnostics and polyclinical treatment approach.

It is widely accepted that, even in the era of antibiotic treatment, there is a probability of orbital complications with the patients with inflammatory sinus illness averaging between 3-5%, while with children the percentage averages between 0.8-8% (3-5).

Orbital complications of rhinosinus origin belong to the group of ecuacranial complications (3, 6, 7). We categorize them as following: Periorbit (prespinal)
Inflammatory processes in the orbit of rhinosinus origin most frequently occur in the period between 7 and 15 years of age (45.75%), while in the oldest age group (46–55 years) the latter were diagnosed in none of the cases (table 1).

The sample of 32 patients with orbital complications consisted of rhinosinus origin of 18 children (56.25%) and 14 adults (43.75%) (figure 1).

The incidence of basal cell carcinoma was higher in men and in older subjects. We presented the surgical technique and reconstruction possibilities and pointed out the importance of sufficient excision margins. A recurrence rate of 0.5% was observed in follow-up. Median survival time was 15.79 years. In tumors larger than 7 cm recurrence rate was 66.67%, and solid BCC was presented in 0.46%. Only 15.00% of recurrent tumors in tumors with positive margins.

Surgical excision is the method of choice for basal cell carcinoma. The greatest risk recurrence was found for basal cell carcinoma of the medial canthus and for carcinoma larger than 2 cm. There was no significant difference between BCC located in bone and extracranial location. For high risk cases, consideration should be given to adjuvant radiotherapy.

Key words: basal cell carcinoma, orbit, surgery

INTRODUCTION
Basal cell carcinoma (BCC) is the most common type of skin cancer, affecting 80–90% of all malignant tumors. The most important risk factors for BCC are fair skin, inability to tan, and chronic exposure to sunlight. BCC generally grows slowly, invading and destroying the adjacent tissues. It rarely has metastasized spread. Different types of BCC are occasionally observed, especially in young patients.

Histopathological examination of BCCs includes evaluation of amounts of cellular and stroma elements and the level of epithelial differentiation. BCC in orbital region could be classified as: solid, adenoid, solidadenoid and superficial form. In solid types the peripheral tumor cell layer shows a specific palisade arrangement. The adenoid BCC shows glandlike structures and the tumor has a mucoid appearance. Superficial multicentric BCC shows irregular proliferation of tumour tissue attached to the deep epidermis. In most cases there is a low penetration into the surrounding tissue.

The various types of treatment described in the literature include: surgical excision, cryotherapy, radiotherapy and laser surgery. Attention has been paid to periorbital skin wounds which can be repaired by following methods: granulation (secondary intention), side-to-side closure, skin grafts and skin flaps. Having in mind that each defect has multiple repairing options, it is important to establish understandings for all possibilities and choose the one most appropriate for the patient. It is also important to preserve as much normal tissue as possible, particularly in the periorbital region, and thereby allow the best chance of a good functional reconstructive result.

The surgery is the most effective treatment option. The procedure can be performed under general anaesthesia irrespective of the tumour size and reconstructive design. The minimal health tissue margin has to be 3 to 5 mm for small tumor, but larger (1 cm) margins are advised for tumours greater than 2 cm and for recidivant disease.

Free skin grafts are indicated for reconstruction after removal of larger tumours in canthal region. For proper healing different methods of postoperative care are suggested. Pressure bandages were introduced in 1966 by Mustarde, and in 1979 Mera developed a suture technique for skin graft for securing the contact with the wound bed. That is an appropriate method for skin graft either partial or full thickness.

Skin flaps must be designed according to local anatomy and flaps from frontal and cheek region are mostly used.

**DISCUSSION**

Inflammatory processes in the orbit of rhinosinus origin, occur with somewhat different clinical picture with persons belonging to different age groups, as well as with altered courses of propagation and infection spreading from paranasal cavities depending on patient's age. Diversities encountered upon in clinical observations of the same complications which occur with children and adults are based on overall and local physiopathological characteristics of patient's age, whereby it is to be noted that with children the evolution of all paranasal sinuses is terminated.

With children the illness is of a peracute form, which is explained by the instability of humoral and cellular defense mechanism and poor resistance to viral and bacterial infections, so that the occurrence of synoorbital complications is usually preceded by some viral infection of upper respiratory tract, and orbital complications usually occur within the period of approximately 5–8 days after the acute sinusitis onset (3).

With adults the occurrence of orbital complications is most frequently the consequence of chronic inflammatory process exacerbation in sinuses, or the latter were the consequence of recurrent acute sinuses, and the inflammatory process progression is always direct and accompanied by bone wall microdestruction, whereas with children the inflammatory process almost always spreads from sinuses to orbit veinally and lymphatically (8–10).

Synoobital complications with children in 88.89% of the cases occurred due to the acute sinusitis (n=16/18) (table 3), which concur with scientific literature data. Complications were preceded by some of the viral infections: morbilli, influenza, viral infections of upper respiratory tract, as well as allergies. The occurrence of inflammatory process in the orbit with children bore season characteristics, while with adults synoorbital complications were not seasonal (3, 10).

Each of these complications was a different degree and severity, but their common characteristic was highly uncertain prognosis. In making the diagnosis, close cooperation with ophthalmologists and pediatricians (with children) was facilitated which the most adequate treatment procedure. The basis for making the diagnosis was anamnestic, clinical picture, clinical otorhinolaryngological examination, biochemical blood test and X-ray computer tomographic imaging of paranasal cavities.

The number of affected sinuses was not in relation towards beta lactam antibiotics (penicillin antibiotics and cephalosporine antibiotics).

While examining the clinical picture of synoorbital complications with children and adults in this paper, a difference in symptomatology and form of orbital complication was observed (table 4).

In the X-ray image we observed the homogeneous intensive shadow in 83.33% of the cases, while with the adults both homogeneous intensive and homogeneous non-intensive shadows were observed in the X-ray image. With fifteen (83.33%) out of the total of 18 children, the X-ray finding was the homogeneous intensive shadowing, the homogeneous non-intensive shadowing occurred with two patients, and the level shadow in the maxillary sinus with one patient. With 7 (50%) out of the total of 14 adult patients, there occurred the homogeneous intensive shadowing, while homogeneous non-intensive shadowing occurred with 6 patients, and the level-shadow in the frontal sinus with 1 patient (figure 2).

**Figure 2. Comparative analysis of shadow intensity on X-ray images of paranasal sinuses.**

In 29 cases out of the total of 32 patients (90%) the swab pathogen was isolated from the middle nasal corridor. The most frequently isolated bacteria with the adults were Streptococcus catarrhalis, 8 cases (47.06%), Haemophilus influenzae, 6 cases (35.29%) and Streptococcus pneumoniae, 3 cases (17.65%), respectively (figure 3).

**Figure 3. Isolated bacteria in middle-nasal corridor swab.**
The results from our study demonstrated the increase in the activities of antioxidant enzymes in plasma, mainly the activity of CAT which was significantly elevated. In addition, there was an increasing trend of activities of SOD and of GPx in plasma, but of no statistical importance. One might suppose that this phenomenon may lay in the fact that a few particular enzymes could normally be present in plasma, such as CAT, even though it is primarily intracellular enzymes. (39). Moreover, it is impossible to know even about the extracellular activities of SOD (15). On the other hand, it could also be possible that antioxidant enzymes in plasma, such as SOD and CAT, may originate from different type of cells than lymphocytes, including endothelial cells and other blood cells (7). Our understanding of endogenous mechanisms of carcinogenesis by oxidative processes has advanced greatly in the last decade, yet the description of the molecular action of carcinogen-related oxidative processes to prevent and treat neoplastic disease properly (44). Therefore, the analysis of antioxidant enzymes activities in lymphocytes of CLL patients, including SOD, CAT, and GPx may be applied as a good predictive factor for the disease outcome. However, determination of protective antioxidant enzymes in plasma of CLL patients is a poor prognostic factor, since the presence of these enzymes may represent not only from other cell types than lymphocytes. Furthermore, the identification of an adequate oxidative markers for tumor cell metabolism may be used for early diagnosis as well as for assessment of tumor progression (45).

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12. PMID: 9253-41.
To understand the overall status of antioxidant enzyme machinery in both CLL patients and control subjects, we studied the activities of antioxidant enzymes in both lymphocytes and plasma from both groups. The results obtained in patients and control group were summarized in Table 1 and Table 2, respectively. As seen from Table 1, there were important changes in the activities of anti-oxidant enzyme in lymphocytes comparing CLL patients with controls. SOD activity was significantly reduced in both CLL-groups: the decrease is about 40% in early stage and more than 60% in advanced stage. Catalase activity was decreased more than 35% in early stage and more than 60% in advanced stage, while GPx activity was decreased about 50% in early stage and about 80% in advanced stage. The results for plasma measurement of antioxidant enzyme activities were shown in Table 2. Slightly increased plasma SOD and GPx activities in both stages were not significantly different from the controls, while plasma CAT activity was increased in advanced CLL stage more than 85% compared to normal, healthy subject.

**DISCUSSION**

A disturbance of oxidative metabolism is a common feature of transformed tumor cells (23). Both the alterations of antioxidant enzymes and increases in the production of oxygen reactive species have been described to contribute to tumorigenesis (24). As a result, higher rates of lipid peroxidation (25) and different forms of DNA base lesions (26) have been found in the majority of neoplastic tissues. Thus, the higher susceptibility of tumor tissues to oxidative stress as compared to the normal cells is supported by the increase of lipid peroxidation, DNA damage and by the decrease of antioxidant enzyme activities (27). Although some possible mechanisms through which oxidative stress exerts a regulatory role in tumor growth and progression, including genomic instability, oncogene activation (28) and angiogenesis (29), have been documented during tumor growth in experimental models, such variations have not yet been demonstrated that is manifested as a decrease of the activities of protective enzymes (36, 37). Therefore, the possible explanation for the decrease of the activities of SOD, CAT and GPx in lymphocytes of CLL patients could be due to the inhibitory effect of MDA on protective enzymes. On the other hand, in the case of severe oxidative stress there is an intensive production of ROS that overcome antioxidant capacity of the cells. This phenomena consequently leads to the breakdown of all antioxidant defense machineries that is manifested as a decrease of the activities of protective enzymes, including SOD, CAT, GPx. Alternatively, it is possible that the antioxidant system is impaired as a consequence of an abnormality in the antioxidative metabolism due to the cancer process (32).

To date, no previous studies have ever demonstrated the activities of the antioxidant enzymes both in lymphocytes and plasma of CLL patients. Thus, in order to obtain a comprehensive view of the antioxidant enzyme machinery in CLL patients, besides the usual measurement of antioxidant enzyme activities in lymphocytes, we have also examined their activities (SOD, CAT and GPx) in plasma of CLL patients of both early and advanced stages and compared them to healthy subjects of similar age.