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Orbital trauma with a large wooden foreign body: a case report

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Abstract

Introduction: Injuries caused by a foreign bodies in the craniofacial region constitute a significant percentage of accidents during the work. The most serious problem is to determine the exact location and extent of damage caused by a foreign body. The aim of work is to present a scheme of conduct in case of a foreign body inside the eye socket.
Matherials and methods: Describes a case of a patient with an injury caused by a wooden foreign body. The circumstances of occurrence, ophthalmic and surgical actions taken in order to remove it were included. A lot of attention has been paid to prevention of intraocular infections.
Results: Patient did not find both post-traumatic and postoperative ophthalmic nerve injuries.
Summary: The most important for healing process is exact removal of the foreign body and prophylaxis of infections. In addition to treatment, it is important to educate the patient in the prevention of this type of injury.

KEY WORDS: wooden foreign body, orbital trauma, orbital injury

Introduction:

Foreign objects inside the eye socket are a big diagnostic problem for both ophthalmologists and maxillofacial surgeons. The type of foreign bodies can be divided due to the material they are made of: metallic, e.g. lead, non-metallic, e.g. glass, and organic, e.g. wood. Unless the metallic and non-metallic foreign bodies are well tolerated, the organic ones cause an intense inflammatory reaction, which is why they must always be removed [1]. Often, in cases where the nerve and eyeball are not damaged, foreign body may remain a symptomatic in the orbit for a long time [2,3]. In other cases, foreign body may cause intra orbital hematoma.

The presence of foreign bodies inside the eye socket is usually associated with accidents at work. Due to the performance of manual work, men are more likely to suffer injuries than women [1]. The reason is lack proper preparation of employees to operate machines, not using basic protective tools in the form of glasses or visors, routine activities and non-compliance with health and safety rules. Unfortunately, there is still a high percentage of accidents in people under the influence of alcohol. The analyzes show some dependencies as to the frequency of accidents and the age of employees [1]. Younger people are more likely to suffer from injuries due to

little work experience, poor knowledge of machine operation and youthful bravado.
Injuries in the eyes are a serious social and economic problem, because they are experienced by young and healthy men, who often lose sight due to an accident [4].

Case report:

On 09/10/2015, a 48-year-old man, while working on woodworking, suffered an injury without losing consciousness. A fragment of branch drove into the right eye socket and damaged the lower eyelid. The patient came to the nearest center (local casualty department) where head CT and basic blood tests were performed.

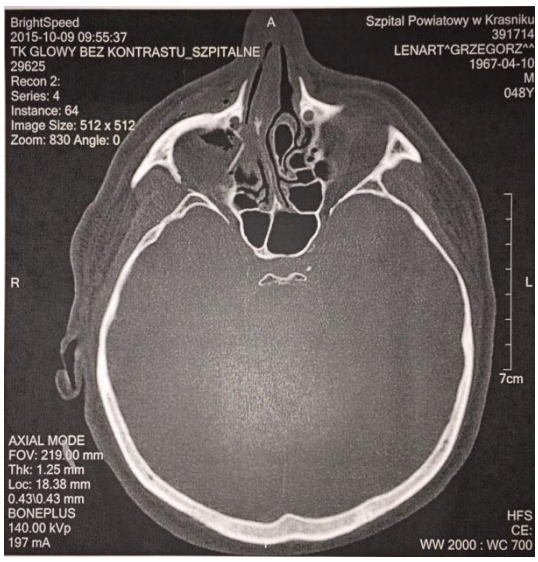

Fig. 1 Computed Tomography of the head without contrast

In CT (Figure 1), a multi-fracture of right orbital bottom wall of the right orbital sinus was found. A foreign body in right eye socket. Blood in bay, curvature of the nasal septum in the right direction, rejection of right and subcutaneous socket of the surrounding soft tissues. Parameters of morphology, biochemistry and coagulation were normal.
Patient was transported to the reference hospital-Clinic of Maxillofacial surgery in Lublin.
In order to exclude eye injury and supply the lower eyelid wound, he was referred for consultation to the Ophthalmology Clinic. On the same day, the procedure of reconstruction of tear ducts and stitching of lower eyelid of the right eye were performed under the general anesthesia. Immediately before the procedure, Oftaquix drops were given to the eye operated as part of perioperative prophylaxis. After the procedure, gentamicin was subconjunctival, and Betadina, Oftaquix and Dexamytrex were given to the eye. Ophthalmologic consultations were recommended after surgical orbital surgery and anti-bacterial treatment in the form of eye drops with ofloxacin.
Further treatment was carried out in the Maxillofacial Surgery Clinic. On 12.10.2015 an operation was performed to remove the foreign body (wood) from right orbital sinux, the side wall of nose and right maxillary sinus. Operation was performed under the general anesthesia.
From the intra oral incision around 12-17 tooth area, the muco-periosteal flap was cut. In the front wall of right maxillary sinus, a fragment of foreign body was revealed - the wood wedged into the nasal wall of the right maxillary sinus.
After removing the fragment of nasal wall of the bay and cutting the wood, its part was removed. In order to remove the second part to the foreign body, the ligature (fig. 2) was screwed in with help of which it was possible to extract all the rest of the wood. Patient abolished the procedure well.
For antimicrobial prophylaxis, he received intravenous antibiotic therapy with cefazolin and metronidazole.
Postoperative period was without complications. Patient responded well to painkillers and was discharged from the hospital four days after the surgery with recommendations for maintaining oral hygiene.


Fig. 2 The wooden twig removed from the right orbit

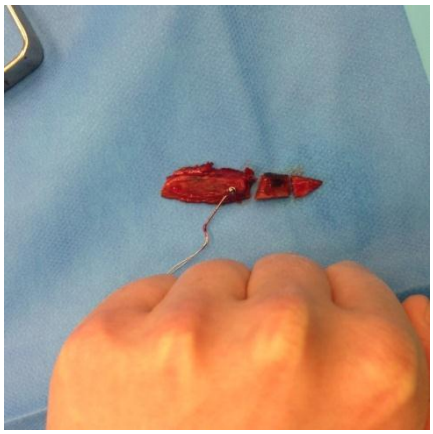

Fig. 3 Comparing the size of a foreign body to the fist

Discussion:

Injuries caused by the chipping of wood fragments into the orbital area are relatively frequent in men working without the use of appropriate protection in form of protective glasses. In order to locate a foreign body, an accurate history of the trauma, physical examination and imaging should be performed [1,2,3]. In case of the patient, CT was used, which is the first choice test, because clinical symptoms may result not only from the presence of a foreign body, but also from bone orbital bone fractures or post-traumatic hematoma. Despite advanced methods, some cases of especially multiple organisms with organic structure pose diagnostic difficulties.
[1,2,8]. It is very important for assessment of the diagnostic procedure to assess the extent of injury, way of penetration and the material from which foreign body is built. Examination of fundus, assessment of eye strain, examination of visual acuity, reflexes to light, field of vision, eye mobility and possible double vision assessment. Wounds and injuries that penetrate the eye socket require rapid medical intervention, because even a small foreign body present in the eye socket can lead to many complications, both acute and chronic. In addition to direct injury to the optic nerve resulting in a sudden loss or visual impairment, chronic inflammation of orbital structures, osteomyelitis and vasculitis may develop [5]. Organic foreign bodies are a greater threat, because a higher percentage of threatening complications and infections was noted than in the case of inorganic foreign bodies [1]. Empirical antibiotic therapy is recommended because of possibility of rapid spreading of infection, and because of location of the infection near the brain. Depending on size of the foreign body, different methods of its removal are used. In a situation where the foreign body is large, it may become lodged, and it should be fragmented into smaller parts. It should be remembered that wooden foreign bodies are very brittle, therefore they should be removed very accurately, and the cut inside the eye should be kept to a minimum. Always the eye socket should be intensively rinsed with antibiotics [6,7].

Conclusion:

It should be emphasized how important is the multidisciplinary cooperation of maxillofacial surgeons together with an ophthalmologist. The only effective method of treatment is careful surgical removal of the foreign body. All patients should receive post-operative antibiotic therapy due to the high frequency of secondary orbital infections. The final outcome and prognosis depend to a large extent on the location of foreign body and on whether there are serious complications. Described case is a confirmation of rule of injuries of the facial part of the skull in men who do not comply with the principles of health and safety at work.

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