PLASTIC SURGERY IN PERFORATION OF MAXILLARY SINUS BY USING TEFLON MEMBRANE

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Abstract

The most common operation in surgical dentistry is the operation of tooth extraction. A frequent complication arising directly from this operation on the upper jaw is the perforation of the base of the maxillary sinus. The resulting defect connects the maxillary sinus with the oral cavity, which necessitates the rapid elimination of the formed message, since the perforation serves as a pathway for the spread of microorganisms and can lead to the development of maxillary sinusitis. The aim of the study is to develop less traumatic way to eliminate the perforation of the bottom of the maxillary sinus when the tooth is removed and utilizing of the Teflon membrane in the plastic of the perforation of the maxillary sinus. All procedures were performed by two methods: closure of the perforation of the bottom of the maxillary sinus by a trapezoidal gliding flap from the cheek without a maxillary sinus; and trapezoidal gliding flap from the cheek with a maxillary sinus. The high efficiency is shown at use of Teflon in the general surgery for hermetic sealing of seams.

Introduction

Oneofthe most common complications in surgical practice that occurs directly during the operation of removing the teeth of the upper jaw is perforation of the bottom of the maxillary sinus. The arisen communication of the oral cavity with the maxillary sinus requires the doctor to take urgent measures to close the defect, since the oranthral communication is in the future the gateway to the infection [1].

A considerable number of works have been devoted to the diagnosis, prevention and treatment of perforations of the maxillary sinus [2].

In traditional methods of treatment, the perforation site is sutured with a mucosal flap taken from the alveolar process, cheek or palate, and in 9-50% of cases the margin of the wound is diverging, which leads to the formation of persistent fistulas [3]. The problems of studying the effectiveness of the use of membranes on a polymer basis in the treatment of patients with perforations of the bottom of the maxillary sinus are not adequately covered.

Recently, a Teflon-based membrane has been widely used for directional regeneration of bone structures. The scientific literature covers a number of clinical methods of treating patients with the use of various osteoplastic materials in order to fill the defects of the jawbone. [4, 5]. Currently, given the

large number of operations to close the oroantral message, it is important to prevent inflammatory complications of the maxillary sinus. In the literature, which describes a large number of techniques for plastic closure of perforations, there are no indications of methods that are most convenient and acceptable for use in a wide practical practice of the outpatient physician. This determines the relevance of our research.

[2] **The purpose of the study** is to develop a less traumatic way to eliminate the perforation of the bottom of the maxillary sinus when the tooth is removed. Use of the Teflon membrane in the plastic of the perforation of the maxillary sinus.

2. MATERIALS AND METHODS

All patients underwent examination and treatment at the Department of Maxillofacial Surgery of the Tashkent State Dental Institute. All patients underwent clinical, laboratory and radiological examinations. In the process of clinical examination, complaints, anamnesis, general condition of the patient, local manifestations of the inflammatory process were studied.

During the survey, the following data were identified:

0. where the tooth was removed;
1. when perforation was diagnosed;
2. what actions were taken;
3. which method of closing the perforation was used;
4. whether X-rays were performed before and after tooth extraction.

When assessing the local status, the presence of edema and pain in the area of the maxilla, the localization and size of perforation, the condition of the soft tissues of the alveolar process in the defect zone, amount and nature of the nasal and

maxillary sinuses that were detached from the nose and maxillary sinus were determined. Bacteriological study was performed to identify the pathogen and its sensitivity to antibiotics.

For X-ray examination of the maxillary sinuses, digital radiography of the skull in a semi-axial projection and orthopantomography were performed. The volume and degree of transparency of the maxillary sinuses, peculiarities of pathological changes, the condition of the alveolar process, the presence of foreign bodies were evaluated. Indications for surgical intervention were acute perforation and chronic perforated sinusitis without foreign body and without gross changes in the mucous membrane of the maxillary sinus. All procedures were performed by two methods.

[3] **Closure of the perforation of the bottom of the maxillary sinus by a trapezoidal gliding flap from the cheek without a maxillary sinus.**

The method consisted in that, under infiltration anesthesia with a 4% solution of articaine in an amount of 3-5 ml, a mucosal-periosteal trapezoidal flap was cut

from the vestibular surface of the alveolar process of the upper jaw in the region of the orantral communication by the base to the transitional fold.
The flap with the help of the rasp was shifted upwards. To increase the mobility of the flap, the periosteum was cut at its base. Revision and antiseptic processing of the socket of the removed tooth was performed, the edges of the defect were refreshed, in the presence of an oroan- thral fistula, the gum was flaked from the palatal side by 3-5 mm. The mouth of the well was covered with a Teflon membrane. The membrane was inserted under the gum from the palatal side and was applied in such a way that it covered the defect on all sides by 3-5 mm, then pressed tightly against the bone for 3-5 minutes. The cut mucosal-periosteal flap moved to the area of the sinus floor defect and was fixed to the palatal margin of the tooth socket with nodal and "P" - shaped sutures with the "vicril" thread (Fig. 7). The wound in the region of the alveolar process from the vestibular side was sutured with nodal sutures. The seam line was covered with an iodoform swab that was fixed to the teeth with ligature wire for up to 7 days. The sutures were removed on the 10th day.

In the postoperative period, standard anti-inflammatory and antibacterial therapy, local hypothermia, rinsing with sodium hypochlorite solution, UFO of the oral cavity were carried out. For a good drainage of the maxillary sinus through a natural opening, vasoconstrictive drops in the nose were prescribed for 2 weeks.

[4] Closure of the perforation of the bottom of the maxillary sinus by a trapezoidal gliding flap from the cheek with a maxillary sinus

Indications for surgical intervention were acute perforation and chronic perfo rated sinusitis with a foreign body (the root of the tooth) and polyposis changes in the mucous membrane of the maxillary sinus. The method consisted in refreshing the edges of the defect under local or general anesthesia, excising the oroanthral fistula, mucus-one was found - a periosteal trapezoidal flap from the vestibular side of the alveolar process of the upper jaw in the area of the bone defect, and the cut in both sides of the transitional fold was prolonged.

Soft fabrics moved upwards. Revision and antiseptic treatment of the bone defect of the sinus floor was made. After bone-plastic trepanation of the anterior wall of the maxillary sinus, sparing maxillary sinusotomy was performed, pathologically altered tissues and a foreign body were removed. In the postoperative period, standard anti-inflammatory and antibacterial therapy, rinsing with sodium hypochlorite solution, ointment of the oral cavity was carried out. Iodoform turunda was removed after 4-7 days. For a good drainage

of the maxillary sinus, vasoconstrictive drops were prescribed in the nose for 2 weeks.

The use of methods of surgical treatment in patients with a defect in the bottom of the maxillary sinus is given in Table. 1.

At perforations of the bottom of the maxillary sinus, 16 patients (80%) were operated without maxillary sinusitis, 4 patients (20%) with maxillary sinusitis. In 16 patients (53.3%) with oroanthral fistulas, a maxillary sinusotomy was performed with excision of the fistula and closure of the sinus floor defect, 14 patients (46.7%) underwent surgery without sinusotomy.

To assess the effectiveness of the treatment, a clinical and radiological examination was performed at 1, 3 and 6 months.

RESULTS

In the clinic there were 20 patients with perforation of the bottom of the maxillary sinus. With perforation of the right sinus bottom there were 12 patients, the left sinus - 8. In the process of clinical examination, complaints, anamnesis, general condition of the patient, local manifestations of the inflammatory process were studied. When studying the anamnesis, it was revealed that the disease began after removal of the upper molars and premolars. Patients complained of air and fluid entering the nasal cavity from the oral cavity, bleeding from the socket of the removed tooth, hemorrhagic and mucous discharge from the nose. In some cases purulent discharge, pain in the region of the removed tooth, pain in the upper jaw, difficulty breathing through the nose, pain in the corresponding half of the head, heaviness on the affected side of the face, fever were determined.

The severity of the symptoms directly depended on the timing of the perforation of the base of the maxillary sinus and the presence of an inflammatory process in the sinus. As reflected in Table. 2, the main number of patients (75%) was received within the first week after tooth extraction, and 25% - during the second week.

During the first 3 days after the operation, the patients complained of pains in the upper jaw, swelling in the infraorbital and buccal region, upper lip, discharge of blood from the nose. The configuration of the face was changed due to postoperative edema in the infraorbital and buccal region, the upper lip. Skin in color is not changed, palpation is painful, and opening the mouth is slightly limited and painful. A hemorrhagic discharge was noted from the nasal cavity in a moderate amount. Nasal breathing on the side of the operation was somewhat difficult. Stitched sutures. In the area of the suture line, fibrin deposits, hyperemia and edema of the transitional fold were determined. During

the first three days, the postoperative edema of the soft tissues of the buccal region and the transitional fold tended to increase.

At 4-6 days, postoperative edema and pain in the wound began to decrease. From the nasal cavity, the mucocutaneous hemorrhagic discharge was retained. In 3 patients, the seams in the oral cavity were well-founded, the flap was viable. In 1 patient there was an eruption and a partial divergence of the sutures in the region of the top of the flap. The bottom of the wound was filled with fibrin deposits, necrotic masses. Messages of the oral cavity with the maxillary sinus were not.

On the 7-10th day postoperative edema in almost all patients was almost completely stopped. Complaints were on a scanty mucous discharge from the nose, sometimes with an admixture of stagnant blood. In 3 patients, the operating wound healed by primary tension. The stitches were removed on the 10th day. In 1 patient with a partial divergence of sutures, wound healing was secondary tension, the wound edges began to contract, granulation and marginal epithelialization appeared. The wound was completely closed and epithelized on the 14th day.

On the control radiographs, there was a slight decrease in the pneumatisation of the maxillary sinuses, mainly in the area of the alveolar bay. Foreign bodies were not.

After 1 month, patients did not present any complaints. The configuration of the face is unchanged. Nasal breathing is free. Opening the mouth is not limited. Mucous membrane of alveolar process of pale pink color. The postoperative scar is thin; there is no recurrence of oranthral communication. On the roentgenogram of the paranasal sinuses of the data for the inflammatory process in the maxillary sinus is not revealed.

After 3, 6 months of the patients had no complaints. There is no recurrence of oranthral communication. There are no signs of an inflammatory process in the maxillary sinus.

When generalizing the results of surgical treatment of the perforations of the bottom of the maxillary sinus, it turned out that out of 20 patients in 17 (85%) the operating wound healed by primary tension. The stitches were removed on the 10th day. In 3 patients (15%), a partial divergence of the joints was observed, but there was no re-communication with the oral cavity. The healing of the wound passed by secondary tension. Observation in dynamics showed that there was no further transition to chronic sinusitis. **CONCLUSION**

To close the defect of the bottom of the maxillary sinuses, the Teflon membrane is of interest. In addition to the physiological effect of hemostasis, the substance has a high adhesive ability The polymerization reaction in the adhesive layer

occurs within 3-5 minutes, after which the membrane of the preparation tightly connects to the tissues and becomes impermeable to liquids and air. Teflon is gradually replaced with a connective tissue and in terms of 30 to 60 days in macro preparations is not determined. The high efficiency is shown at use of Teflon in the general surgery for hermetic sealing of seams.

CONFLICT OF INTEREST

Authors declare that there is no any conflict of interest.

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