Topic content:

Maxillofacial orthopedics, according to scientists, has a thousand-year history. Artificial eyes, noses and ears have been found in Egyptian mummies.

In the first ever prostheses and an obturator, which was intended to eliminate a defect in the palate tissues, was proposed by Amboise Paret in 1575. In 1728 Pierre Fauchard was recommended to drill the sky for improved fixation of the prosthesis, Kingsley in 1880 proposed prosthetics of the nose, palate and orbit.

The founder of prosthetics after jaw resection is considered to be Claude Martin in 1889, who described structures that could replace the upper or lower jaw.

The current maxillofacial orthopedics contains 2 parts: maxillofacial traumatology, which is now a surgical discipline, and maxillofacial prosthetics.

At the moment, specialists are engaged in the diagnosis and treatment of injuries to the maxillofacial region, which could occur for various reasons, injuries, surgical interventions.

Orthopedic treatment can be combined with surgical manipulations. At the moment, surgical options for fixing broken jaws, for example, osteosynthesis, extra-oral fixators, craniofacial fixation, fixing with shape memory devices. Today, new methods of bone grafting, soft tissue transplantation, correction of cleft lip and palate have been developed.

The development of neoplasms in the maxillofacial region, requires extensive use in the surgical and postoperative periods of orthopedic interventions. A radical solution after operations on malignant tumors of this localization significantly improves survival rates, but after operations there may be consequences in the form of extensive defects that disfigure faces and bring physiological and psychological torment to patients.

The tasks of restoring aesthetics, chewing and swallowing functions, and restoring working capacity require the use of complex rehabilitation measures and irotopedic methods of treatment, which come to the fore.

Classification of devices in maxillofacial dentistry

In maxillofacial orthopedics, devices of different designs often have the same therapeutic properties. This was the reason to systematize all orthopedic devices in accordance with their purpose, method of fixation and technology.

According to their purpose, the devices are divided into requesting (repositioning), fixing (holding), guiding, substituting, forming, separating and combined. In the treatment of fractures of the jaws, correcting, fixing and guiding orthopedic devices are used. Correcting, or reposing, orthopedic devices are called, with the help of which the fragments are installed in the correct position. These include wire and plastic tires for jaw traction, devices with screws, with extra-screw control levers.

There are simultaneous and long-term (gradual) reposition. Simultaneous, as a rule, is carried out during the operation and is carried out manually, and prolonged — with the help of devices. The latter is used in cases when during the operation it is not possible to correctly match the fragments of the jaw manually. The mechanism of action of the repositioning devices is based on their ability to pull displaced fragments or, conversely, to exert pressure on them. At the same time, they can be mechanical or functional and consist of two parts — a supporting and an acting one. Crowns, mouthguards, rings are used for the supporting part. base plate or head cap. As a mechanically active part of the apparatus, special devices are used that are capable of developing the forces necessary for the displacement of fragments — rubber rings, screws. elastic braces. In functionally functioning devices, the force of muscle contraction is used to move fragments, which is transmitted through the surface planes to the fragments and mixes them into the correct position (shina Vankevich, etc.).

The guiding devices include devices with inclined planes or a sliding hinge, which provide bone fragments with a certain pressure when combined. These include Vankevich, Weber tires, wire tires with Schroeder joints, Pomerantseva-Urbanskaya, etc.

The devices that hold the fragments of the jaw in the correct position and ensure their immobility are called fixing. These include various dental splints (smooth wire brace, aluminum wire splints with spacers, extra-oral devices for fixing fragments of the lower jaw). Fixing devices are used mainly in the treatment of jaw fractures and somewhat less often in bone grafting. for example, to hold fragments of the lower jaw after its resection.

Reliable stabilization of jaw fragments with tooth mobility or sharp atrophy of its alveolar part with the help of dental splints is not possible. In such clinical situations, so-called dental splints should be used, in which the locking properties of the locks are enhanced due to the simultaneous coverage of the teeth and the alveolar process, With complete loss of teeth, the base plates cover both toothless jaws simultaneously, join together at the right distance, forming a monoblock.

When plastic compensation for defects in the soft tissues of the face, devices are used that serve as a support for the plastic material or, in other words, its fixator for the period of engraftment. They are called formative, because with the help of these devices, a prosthetic bed is created, for example, a removable denture on a toothless lower jaw during operations aimed at improving the conditions for fixing the prosthesis. These devices are also used to maintain the soft tissues of the face after surgery, to create a rigid support, to prevent the formation of scarring of soft tissues. In the design of the device, fixing devices and a forming part are distinguished.

After resection of the jaws or with defects of the jaws of traumatic origin, devices are used that will mix the lost tissues. They are called mixed. Some authors divide them into dental alveolar, maxillary, facial and combined. They also include prostheses used, for example, after resection of the jaws and called resection. The devices are divided into standard and individual. The latter are made by a doctor directly at the operating table or chair, and sometimes using the services of a dental laboratory.

Disconnecting devices include devices that separate the oral and nasal cavities. They are called obturators. The separating devices also include a protective palatal plate and devices used for the plastic elimination of acquired defects of the hard palate.

Combined devices perform several functions. In case of fractures of the jaws, the devices ensure the reposition of fragments and their immobilization. During plastic surgery, they can hold fragments of the lower jaw and form the lower lip.

According to the method of fixation, maxillofacial devices can be divided into intraoral, extraoral and intra-extraoral. Intraoral devices are located in the oral cavity and are strengthened on the teeth and the alveolar part. Extra-oral are located outside the oral cavity, on the tissues of the face and head. Intra-non—oral devices include devices, one part of which is fixed inside, and the other outside the oral cavity. Intraoral devices can be located within one jaw and are called single-jawed or on both jaws (double-jawed devices, splints).

Devices and splints used in maxillofacial orthopedics, according to the method of their manufacture, can be standard or individual. In turn, individual devices are prepared by the doctor directly at the operating table (chair) or in the dental laboratory. Devices and tires can be made of plastic and metal alloys. The latter are bent, cast, soldered and combined.

According to the therapeutic purpose, the devices are divided into basic and auxiliary. The main devices are those that have an independent therapeutic value — fixing, replacing and correcting. Auxiliary devices include devices that ensure the successful performance of bone (skin) plastic surgery. At the same time, surgical intervention is carried out as the main type of medical care, and orthopedic — as an auxiliary (for example, the manufacture of a fixing device for bone grafting).