IJIMM, Volume 2, Issue 3, 2024 ISSN: 2995-5319
http://medicaljournals.eu/index.php/IJIMM/issue/view/3
INTERNATIONAL JOURNAL OF INTEGRATIVE AND MODERN MEDICINE

Application and Implementation of Orthodontic Devices Used in Upper Jaw Narrowing

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Relevance of the study. In the application of improved orthodontic devices in the treatment of pathological occlusions caused by narrowing of the upper jaw, there is a plastic base, an occlusion surface in the area of chewing teeth, a three-way extension screw and lip pilots, a U-shaped loop connecting with the base part of the pilot. Connecting loops with a face mask attached to the base face mask rely on the chin as well as the forehead area, causing the middle part of the face to come forward, the growth of the upper jaw in the sagital direction.

The pilot vestibular side, which relaxes the lip muscles, is present between the upper back teeth and the upper lip, and these parts are a device that can effectively heal the three-way Total narrowing of the upper jaw, without complications, quickly and in a patient-friendly style.

Adapted for use during narrowing of the upper jaw in the transversal and sagittal direction, total narrowing of the upper jaw occurs after uranoplasty and heiloplasty surgery in people with congenital complete defects. Hypertonus as well as improper attachment of the lip muscles, thick, short attachment of the lip grooves leads to narrowing of the anterior fragment.

This device ensures that at the same time the upper jaw is pushed in three directions, if we achieve a reduction in the hypertonus of the lip muscles, then in this case the upper jaw increases the force of the push in the sagittal direction.

This orthodontic device is applied with a face mask (Diliary mask). The fitting parts are made up of a plastic base, an occlusion surface (area of chewing teeth), a three-sided expansion screw and its pilots, an Adams clamp to the base molar teeth (two), U-shaped loops that share the pilot with the base part, connecting loops with a face mask attached to the base [1.3.5.7.9.11.13.15.17].

The proposed device will be applied as follows:

Stage 1. Stage of obtaining mold from the upper and lower jaw of the patient. In this case, a mold is obtained from the upper and lower jaw of the patient with a double-layer mold mass S-Slikon.

Stage 2. From the resulting mold, the model is poured.

Stage 3. In the model, anthropometric dimensions of the teeth, tooth rows and jaws are determined. The boundaries of the device to be prepared and the orthodontic elements are drawn and prepared.

Stage 4. Stage of preparation of an orthodontic appliance. The base part of the device itself is made of hard plastic, 3 directional expansion orthodontic screws placed in the center of the palate, two loops for the face arc, two lip pilots are made of soft plastic, and they are made of orthodontic wire bent to the base with a U-shape 0.8 mm.

Stage 5. Stage of installation of the device on the patient's upper jaw.

Stage 6. Device activation stage. The orthodontic screw is unscrewed and widened weekly, with an elastic insert of the face arc ("3/8") size (6.5 OZ strength).

The composition of the orthodontic device used in the Total narrowing of the upper jaw, some part of which itself is made on the basis of hardening (Redont - 0.3, Redont - koler, Protacryl-M, Vilacryl-S) and soft plastic Vilacryl soft. The application of an orthodontic device with a Total expansion of the upper jaw, the use of a method of extension of the upper jaw in the transversal direction by 5 mm in the sagital direction by 4 mm, leads to an orthognathic prikus of the interaction of the jaws.

An improved device used in upper jaw narrowing was found after 3 months to create enough space in the upper jaw for permanent teeth to come out, as well as to develop diastema and tremas between physiological milk teeth.

In the practice of orthodontics, it was applied in order to eliminate narrowing and deformity of the upper jaw in the frontal plane without surgical treatment of patients who were transported by mesial occlusion during the period of milk and Exchange prikusi.

During the narrowing of the upper jaw in the transversal and sagital direction, this device made it possible to expand the upper jaw in a fast and patient-friendly style, without complications, by reducing the hypertonus of the lip muscles, simultaneously pushing the upper jaw in three directions.

The advantages of the orthodontic device are the following, ensuring that at the same time the upper jaw is pushed in three directions, the detachable parts are made up of a three-way expansion screw and its pilots, U-shaped loops connecting the pilot with the base part, loops connecting the face mask attached to the base, lip pilots relaxing the lip muscles.

Today, this and such devices are being developed a lot, for example RU276675K1_2022 03 15 "method of expansion of the upper jaw in patients with high jaw and orthodontic tool for its implementation". This orthodontic device has in common with the extension of the upper jaws in the frontal direction as well as the application of milk teeth to the pricus and the exchange pricus. In this analogue, patients with existing deficiency tooth-jawomalia cannot be released directly in the frontal plane to eliminate narrowing and deformity of the upper jaw, before laying, the patient is examined by conducting a conical computed tomography of the skull, and a digital intraoral scan of the teeth is performed to obtain digital models, after which the device is prepared for insertion. It involves a lot of time and processes.

This is an "integrated treatment of older patients with narrowing of the upper jaw", in addition to the analogue RU2735705K1_20201106, which is intended to assess the results of the treatment of patients with narrowing of the upper jaw, it is advisable to ensure that adult patients participate in the treatment of narrowing of the upper jaw, preparation and implementation of a comprehensive rehabilitation plan for [2.4.6.8.10.12.14.16.18.20.21.22.23].

The closest analogue among them is RU30076U1_2003.06.20 "device for the treatment of frontal narrowing of the upper jaw", this device belongs to dentistry and orthodontics and is used to eliminate narrowing and deformity of the upper jaw in the transversal and sagital direction in patients with dental-jaw anomalies without surgical procedures. The orthodontic device used in the study ensures that the upper jaw is pushed in three directions at the same time. Its closest analogue does not have this feature, in addition, the presence of lip pilots relaxing the lip muscles in the developed device (figure 1) in this case, when the reduction of lip muscle hypertension is achieved, the force of pushing the upper jaw in the sagital direction increases. The nearest analogue does not have this feature.

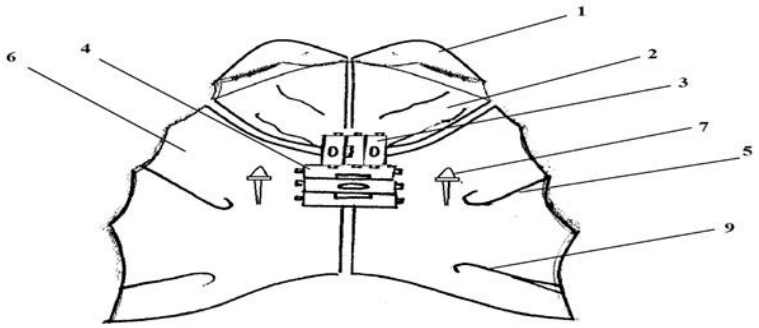

Figure 1. Drawing of an orthodontic device applied to the Total narrowing of the upper jaw (1-lip muscle relaxers and lip pilots; 2-occlusion surface, front base Part; 3-front of the extension screw in three directions; 4-two sides of the extension screw in three directions; 5-U-shaped loops connecting with the base part of the pilot; 6-Side base Part; 7-connecting loops with the face mask).

Юқори жағнинг тотал торайишида қўлланиладиган ортодонтик мослама 3D кўриниши 3.2-расмда келтирилган.

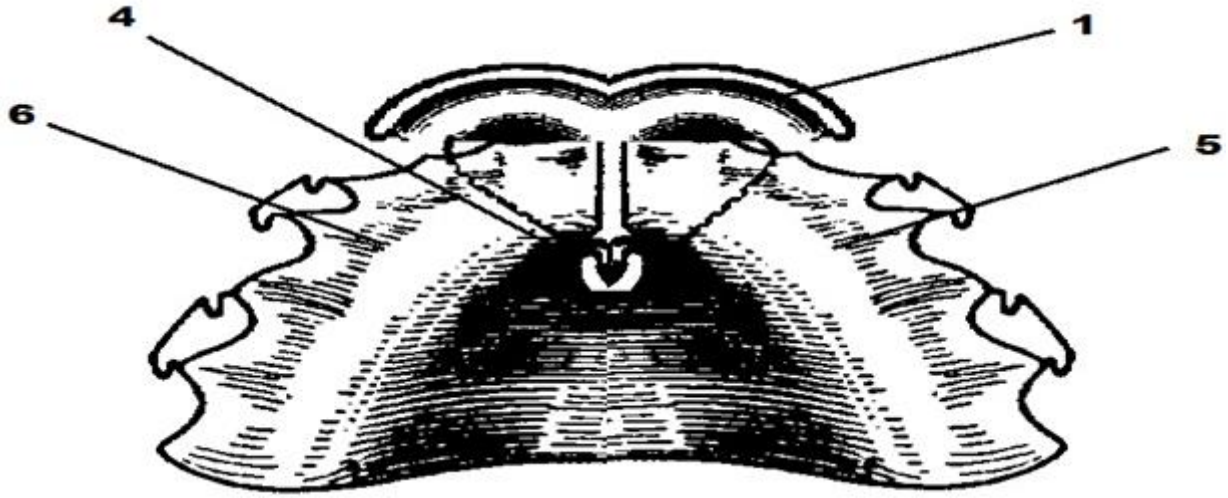

Figure 2. Orthodontic device used in Total narrowing of the upper jaw 3D appearance (1st lip muscle relaxer and lip pilots. 4-Two side parts of the expansion screw in three directions. U-shaped loops connecting pilot 5 with the base part. 6-Side base part).

There are also other additions that differ in the device that we offer: plastic basis, occlusion surface (area of chewing teeth), a three-way expansion screw and its pilots, U-shaped loops that mount the pilot with the base part, loops that connect the face mask attached to the base (face mask rests on the chin and forehead area, leading the middle of the face to good compared to its analogue, without complications, it made it possible to expand in a fast and patient-friendly style.

Adapted for use during narrowing of the upper jaw in the transversal and sagital direction, total torsion of the upper jaw comes to the face after surgery of uronaplasty and heiloplasty in children with congenital complete defects.

Hypertonus and misalignment of the lip muscles, thick, short attachment of the lip grooves, cause the anterior fragment to narrow. This orthodontic device ensures that at the same time the upper jaw is pushed in three directions, if we achieve a reduction in the hypertonus of the lip muscles the force of pushing the upper jaw in the sagital direction increases in this case. The device was applied with a facial mask (Dalyar mask).

The orthodontic device consists of a plastic base, an occlusion surface (area of chewing teeth), a three-sided expansion screw and its pilots, an Adams clamp to the base molar teeth (two), U-shaped loops connecting the pilot with the base part, loops connecting with the face mask attached to the base, lip pilots relaxing the lip muscles [19.21.22.23].

At the next stage, a 3D view of the device was required to prepare along with the prepared mold. There are also ways to put a 3D view of the device without a mold (on a white black background).

Position of application of the device: fixed on the upper jaw, position on the surface of the teeth, applied in combination with a face mask.

The second group of patients being treated had congenital unilateral upper lip with a complete hard humeral palate defect at 8 months of birth with heiloplasty at 16 months of age had undergone surgery to shrink the soft palate plastic as well as the larynx, at 30 months of age hard palate plastic was performed (figure 3.3).

The complaint is an aesthetic defect, the inversion of the prikus, the small size of the middle part of the face. Oral position-Total narrowing of the upper jaw, false priginic prikus, reverse sagital fissure was found to be 2 mm. A plan was drawn up to apply an orthodontic device with a Total expansion of the upper jaw. Using the method of extension of the upper jaw in the transversal direction by 5 mm in the

sagital direction by 4 mm, the relationship of the jaw was taken to the orthagnatic prikus. Patient children after 3 months, enough space was formed in the upper jaw for permanent teeth to come out, diastema and tremas were formed between physiological milk teeth [16.17.18.19.20.21.22.23].

Orthodontic devices used in high jaw narrowing were applied to patients undergoing research by choosing the age of the patient, type of disease, degree and place of application of the device.

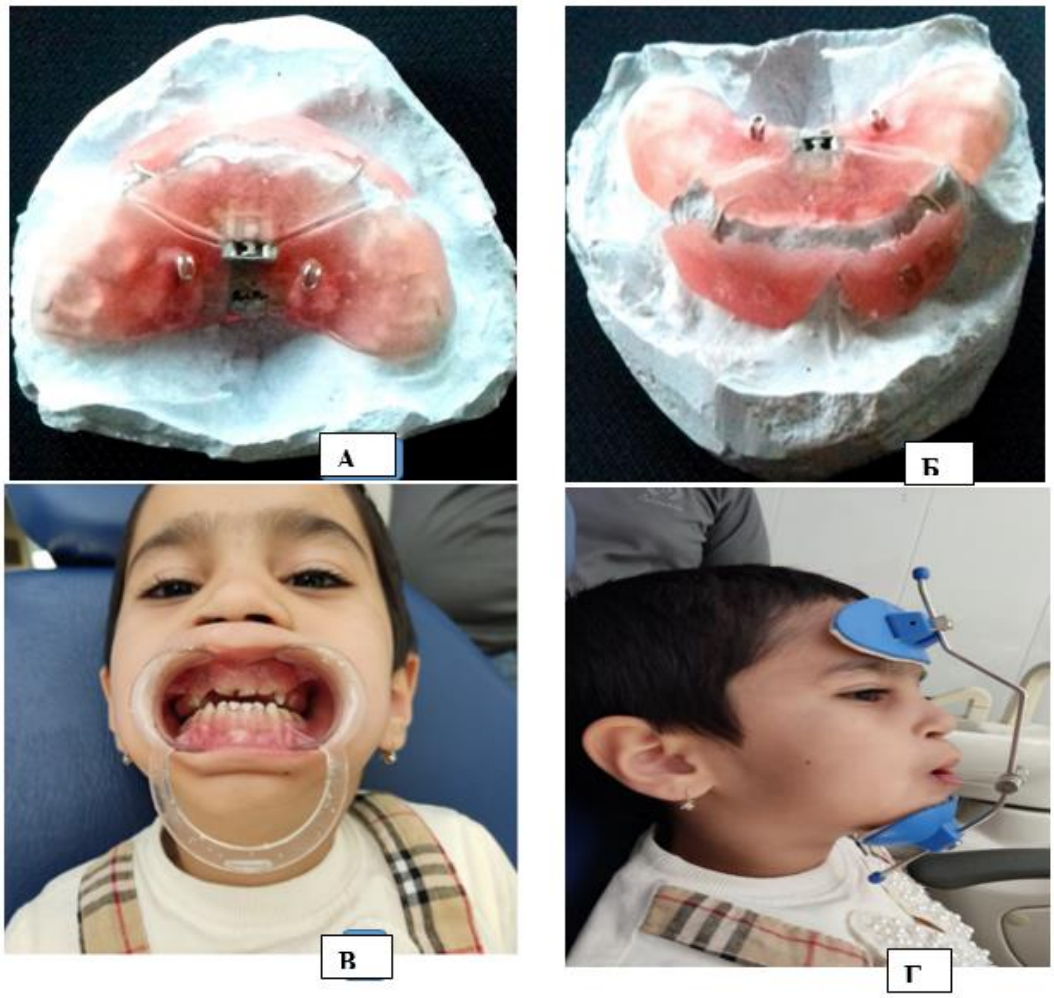

Figure 3. Orthodontic devices used in upper jaw narrowing (B.S 7 years old). A is the view of the orthodontic device from above in the model. B-front view of the orthodontic device in the model. V is the position of the orthodontic device located in the patient's mouth. G-application of an orthodontic device with a facial arc).

Conclusion. Thus, for the first time, an orthodontic device was developed, which was used in the upper jaw narrowing, and was successfully used in sick children. It has been shown to have advantages over other similar analogs. Based on the drawing of this device, a 3D view was prepared and recommended for use.

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