AUXILIARY DEVICE FOR NASAL CAVITY AND ADENOID SURGERY

TECHNICAL FIELD

The invention relates to the technical field of medical auxiliary devices, in particular to an auxiliary device for nasal cavity and adenoid surgery.

BACKGROUND

In the operation of nasal cavity and adenoids, clear surgical field exposure is very important for the smooth operation and reduction of complications. At present, in this kind of surgery, a common surgical field exposure method is: with the help of a catheter, it is inserted from one nostril of the patient, and then the catheter is led out of the mouth, and then the two ends of the catheter are closed with vascular forceps to form a ring structure, and the soft palate is pulled through this ring, thus achieving the purpose of exposing the nasopharynx.

Undeniably, this traditional surgical field exposure method can assist the nasal cavity and adenoid surgery to some extent. However, with the deepening of clinical practice, many problems have gradually emerged.

First of all, when performing nasal surgery, the blood produced during the operation can easily flow into the nasopharynx from the posterior nostril. Because the nasopharynx is connected with the respiratory tract, it is easy to cause blood choking after blood flows in, and this kind of blood choking frequently will not only interfere with the normal operation and increase the difficulty of the operation, but also lead to serious complications such as respiratory tract obstruction, which poses a threat to the life safety of patients.

Secondly, when the adenoids are large and protrude to the posterior nostril, it is difficult to fully expose the surgical site by using the existing catheter pulling method.

Poor surgical field of vision will make it difficult for doctors to locate and operate accurately during the operation, which will increase the blindness of the operation. This will easily damage the surrounding tissues and organs such as nasopharynx and throat during the operation, which will lead to a series of complications, such as nasopharyngeal bleeding, throat infection and dysphagia, which will seriously affect the postoperative recovery and quality of life of patients.

Finally, the position stability of catheter during operation is not good. In the process of traction, the catheter is easy to shift, and it will compress the nasal cavity, uvula and nasopharynx of soft palate. Long-term or excessive compression will lead to mucosal damage in these parts, and then edema will occur. Mucoedema will not only bring postoperative pain and discomfort to patients, but also affect the normal physiological function of nasal cavity and throat, increasing the risk of complications such as postoperative infection. Therefore, an auxiliary device for nasal cavity and adenoid surgery is proposed.

SUMMARY

The invention aims at solving the problems in the existing background technology. In order to achieve the above object, the invention provides the following technical scheme: an auxiliary device for nasal cavity and adenoid surgery comprises a main catheter, wherein a first inflation balloon and a second inflation balloon are arranged on the main catheter, which are communicated with each other and jointly form a notch in the middle; when the first inflation balloon and the second inflation balloon are inflated and expanded; the notch can be embedded and fixed in the posterior nostril area; wherein, the second inflation balloon is attached to the adenoid tissue.

As the preferred technical scheme of the invention, the main catheter is further provided with a third expansion bag; the third expansion bag is in contact with the nasopharyngeal side surface of the soft palate in the use state, and is located at an anatomical position close to the uvula.

As the preferred technical scheme of the invention, the main catheter is also integrated with a connecting component, and the connecting component is equipped with a first inflation port and a second inflation port.

As the preferred technical scheme of the invention, one end of the main catheter is provided with a first buckle, and the other end is provided with a second buckle; the buckle is used to fix the device around the external support structure or the patient's mouth.

As the preferred technical scheme of the invention, the surface of one side of the second inflation balloon facing away from the first inflation balloon is coated with a heat-resistant material layer.

As the preferred technical scheme of the invention, the first inflation port is used for conveying gas to the first inflation balloon, while the second inflation port is used for providing a gas source for the third expansion bag.

As the preferred technical scheme of the invention, the first inflation port and the second inflation port are both equipped with one-way valve structures, so that the gas will not flow backwards or leak after inflation is completed.

As the preferred technical scheme of the invention, the main catheter is made of any elastic material selected from natural rubber, silicone rubber or polyvinyl chloride; the first inflation balloon, the second inflation balloon and the third expansion bag are made of the same material as the main catheter.

An application method of an auxiliary device for nasal cavity and adenoid surgery comprises the following steps: step 1, inserting a main catheter from one nostril and passing through the oral cavity; close the other end of the main catheter to form a ring, and pull the soft palate to expose the nasopharynx;

Step 2, supplying air to the first inflation balloon and the second inflation balloon through the first inflation port, so that the air intake of the first inflation balloon and the second inflation balloon expands, the notch is attached to the back nostril, and at the same time, the second inflation balloon is attached to the adenoids, so that the adenoids move to the nasopharynx with the continuous entry of the air source, which is convenient for the

exposure of the adenoids during the operation and prevents the damage of the back nostril during the adenoid operation;

Step 3, supply air to the third inflation balloon through the second inflation port, so that the third inflation balloon abuts against the uvula to protect the uvula and the nasopharynx surface of the soft palate;

Step 4: During the operation, the first buckle and the second buckle are used to connect the external ends of the main catheter, and the first buckle is tightened to enhance the pulling ability of the main catheter, and the inner diameter of the main catheter in the nasal cavity and oral cavity can be adjusted as required.

As the preferred technical scheme of the invention, the first inflation port and the second inflation port are provided with one-way valves to prevent the air source from leaking outwards, so as to keep the internal pressure of the first inflation balloon, the second inflation balloon and the third inflation balloon stable, improve the stability of the auxiliary device in the nasal cavity, and reduce mechanical damage to the nasal cavity, uvula and soft palate nasopharyngeal surface;

After the operation, the first inflation balloon, the second inflation balloon and the third inflation balloon are deflated first, then the connection between the first buckle and the second buckle is released, and the main catheter is taken out from the nasal cavity and the oral cavity; Because the connector and the main catheter are detachable, the connector can be detached from the main catheter for replacement, and at the same time, it is convenient to clean the inside of the main catheter.

Compared with the prior art, the invention has the beneficial effects that: the main catheter of the invention is inserted from one nostril and comes out from the oral cavity, and then the other end of the main catheter is adjusted and closed by the buckle to form a ring, so that the soft palate is pulled and exposed to the nasopharynx, and at this time, the first inflation balloon and the second inflation balloon can prevent blood from flowing into the nasopharynx during nasal surgery, resulting in blood choking;

In the invention, the notch is clamped into the posterior nostril, which is used for strengthening the fixation of the first inflation balloon and the second inflation balloon, and at the same time, when the second inflation balloon is inflated, the adenoids can be effectively pushed to the nasopharynx, which is convenient for the exposure of the adenoids during the operation and prevents the injury of the posterior nostril during the adenoid operation; According to the invention, the stability of the device in the nasal cavity can be improved after the airbag is inflated, so that the device is effectively prevented from shaking, and further mechanical damage to the nasal cavity, uvula and soft palate nasopharyngeal surface is reduced.

BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 is a schematic diagram of the main structure of the present invention;
Fig. 2 is a partial structural diagram of the present invention;
Fig. 3 is a partial structural diagram of the present invention;
Fig. 4 is a schematic diagram of the present invention in surgery.
In the figures: 1. main catheter; 2. first inflation balloon; 3. second inflation balloon; 4. third inflation balloon; 5. first buckle; 6. first inflation port; 7. second buckle; 8. second inflation port; 9. connector; 10. notch.

DESCRIPTION OF THE INVENTION

In order to make the purpose, technical scheme and advantages of the embodiment of the invention more clear, the technical scheme in the embodiment of the invention will be described clearly and completely with the attached drawings. Obviously, the described embodiment is a specific embodiment of the present invention and is not limited to all embodiments.

Embodiment: Referring to Figs. 1-4, an auxiliary device for nasal cavity and adenoid surgery comprises a main catheter 1, on which a first inflation balloon 2 and a second inflation balloon 3 are arranged, which are communicated with each other and jointly form a notch 10 in the middle; When the first inflation balloon 2 and the second inflation balloon 3 are inflated and expanded, the notch 10 can be embedded and fixed in the posterior nostril area; wherein, the second inflation balloon 3 is attached to the adenoid tissue.

The main catheter 1 is further provided with a third inflation balloon 4, which is in contact with the nasopharyngeal side surface of the soft palate in the use state and is located at an anatomical position close to the uvula. The main catheter 1 is also integrated with a connector 9, which is equipped with a first inflation port 6 and a second inflation port 8.

One end of the main catheter 1 is provided with a first buckle 5, and the other end is provided with a second buckle 7, which is used to fix the device around the external support structure or the patient's mouth.

The surface of the second inflation balloon 3 facing away from the first inflation balloon 2 is coated with a heat-resistant material layer. The first inflation port 6 is used to deliver gas to the first inflation balloon 2, while the second inflation port 8 is used to provide a gas source for the third inflation balloon 4. Both the first inflation port 6 and the second inflation port 8 are equipped with one-way valve structures, so that the gas will not flow backwards or leak after inflation is completed.

The main catheter 1 is made of any elastic material selected from natural rubber, silicone rubber or polyvinyl chloride; the first inflation balloon 2, the second inflation balloon 3 and the third inflation balloon 4 are made of the same material as the main catheter.

An application method of an auxiliary device for nasal cavity and adenoid surgery comprises the following steps: step 1, inserting a main catheter 1 from one nostril and passing through the oral cavity; the other end of the main catheter 1 is closed to form a ring, and the soft palate is pulled to expose the nasopharynx;

Step 2, air is supplied to the first inflation balloon 2 and the second inflation balloon 3 through the first inflation port 6, so that the first inflation balloon 2 and the second inflation balloon 3 are inflated, and the notch 10 is attached to the back nostril.

At the same time, the second inflation balloon 3 is attached to the adenoids, and with the continuous entry of the air source, the adenoids are urged to move to the nasopharynx, which is convenient for the exposure of the adenoids during the operation and prevents the damage of the posterior nostrils during the adenoids operation;

Step 3, supply air to the third inflation balloon 4 through the second inflation port 8, so that the third inflation balloon 4 abuts against the uvula to protect the uvula and the nasopharynx surface of the soft palate;

Step 4, during the operation, the first buckle 5 and the second buckle 7 are used to connect the two external ends of the main catheter 1, and the first buckle 5 is tightened to enhance the pulling ability of the main catheter 1, and the inner diameter of the main catheter 1 in the nasal cavity and oral cavity can be adjusted as required.

The first inflation port 6 and the second inflation port 8 are provided with one-way valves to prevent the air source from leaking outwards, so as to keep the internal pressure of the first inflation balloon 2, the second inflation balloon 3 and the third inflation balloon 4 stable, improve the stability of the auxiliary device in the nasal cavity, and reduce the mechanical damage to the nasal cavity, uvula and soft palate nasopharynx;

After the operation, first deflate the first inflation balloon 2, the second inflation balloon 3 and the third inflation balloon 4, then disconnect the first buckle 5 and the second buckle 7, and take out the main catheter 1 from the nasal cavity and the oral cavity. Because the connector 9 is detachable from the main catheter 1, the connector 9 can be detached from the main catheter 1 for replacement, and at the same time, it is convenient to clean the inside of the main catheter 1.

The first inflation port 6 and the second inflation port 8 are both provided with one-way valves to prevent the air source from leaking outwards. Due to the arrangement of the one-way valve, the air source in the air bag can be prevented from leaking, so that the pressure inside the air bag is stable, so as to improve the problems in the operation of the equipment, and further reduce the problem that the user's nasal cavity, uvula and soft palate are damaged due to the shaking of the equipment; Wherein, the one-way valve can be a valve core.

Because the main catheter 1 is made of natural rubber or silicone rubber or PVC, and the first inflation balloon 2, the second inflation balloon 3 and the third inflation balloon 4 are made of the same material, the use cost of the equipment is reduced by using the above materials, and the equipment is convenient to move in the nasal cavity and oral cavity by using its flexibility.

When the first inflation balloon 2 and the second inflation balloon 3 are inflated, the notch 10 at the joint of the first inflation balloon 2 and the second inflation balloon 3 is attached to the back nostril, and at this time, the second inflation balloon 3 is attached to the adenoids. With the continuous entry of air source, the second inflation balloon 3 urges the adenoids to move to the nasopharynx, thus exposing the adenoids to the surgical field of vision, which is convenient for doctors to operate on the adenoids. At the same time, when the third inflation balloon 4 inflates, it collides with the uvula and the nasopharyngeal surface of the soft palate, so as to lift the uvula and the soft palate and protect them while expanding the surgical field of vision.

The above embodiments are only used to illustrate the invention without limiting the technical scheme described by the invention. Although this specification has described the invention in detail with reference to the above embodiments, the invention is not limited to the above specific embodiments, so any modification or equivalent substitution is made to the invention. All technical solutions and improvements that do not depart from the spirit and scope of the invention are covered by the scope of the claims of the invention.