Compliance of an anesthesiologist and surgeon in the prevention of complications after balloon plasty of the trachea.

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Introduction
Surgery on ENT organs is accompanied by the development of a number of complications in the early and late postoperative period. Their prevention depends on the interaction of the entire operating team.

Methods
For the period 2014 – 2017 in Dmitry Rogachev National Research Center of Pediatric Hematology, Oncology and Immunology 40 patients aged 6 months to 4 years were carried out the elimination of subglottic stenosis through balloon plastic. Of these, 22 boys and 18 girls. Before the surgery, 12 children were not carriers of a tracheostomy. Degree of stenosis 2-3 on Meyer-Cotton scale. Used balloon ActiCant, Jonson & Jonson. Induction in anesthesia was performed with sevoflurane. Then the peripheral vein was catheterized. Anesthesia was supported with propofol at a dose of 10 mg/kg/h, analgesia with fentanyl 2 µg/kg/h.

Patients with a tracheostomy was performed and mechanical ventilation with an apparatus Draeger Primus in the mode of PC-CMV. An independent breath was performed by direct laryngoscopy, using a laryngoscope Carl Reiner. Through it, high-frequency jet ventilation was carried out by the Twin-Stream device in combination with low-frequency jet ventilation. The average airway pressure was maintained at 5-8 bar. After the introduction of rocuronium at a dose of 0.3 mg/kg was performed balloon plastic reconstruction of the trachea or subglottic area. In 5 cases, electro外科 coagulation by the device Coblator II it was additionally required.

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>total</th>
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</thead>
<tbody>
<tr>
<td>Boys</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Girls</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>5</td>
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Tab. 1 Number of patients for 2014-2017 with subglottic stenosis

In 4 cases, respiratory failure developed in the postoperative period, which required transfer of patients to the intensive care unit. In 1 case, after induction into anesthesia and depression of consciousness, there was a violation of breathing. Attempting intubation was unsuccessful. It was required to perform an emergency tracheostomy.

Discussion
Obstruction of the respiratory tract if it is impossible to perform intubation of the trachea or to provide airway patency in some other way will result in death within 6-10 minutes. Therefore, the operations performed in patients with respiratory diseases have a number of features in the preoperative period, directly during the operation, as well as in the postoperative period.

In the preoperative period:
- Constant presence of all members of crew from the moment of arrival of the patient to the operating room to the end of operation is obligatory. By the absence of a tracheostoma there appears a high risk of sudden obstruction of airways and the emergency tracheostomy can be required.

During the operation:
- Carrying out high-frequency jet ventilation at "open" airways demands continuous contact between the surgeon and the anesthesiologist. (fig.2)
- Control of fraction of oxygen while using a laser coagulator (fig.3)
- Providing proper conditions for the surgeon work (for example, due to change of frequency of high-frequency jet ventilation, but this purpose demands of the anesthesiologist to understand all surgeon’s actions). (fig.4)

After operation:
Prevention of postoperative complications:
- The injury of a trachea mucosa may cause its hypostasis and increase in degree of a stenosis up to full obstruction. In these cases the tracheostomy intubation for the purpose of ensuring passability and creation of positive pressure at the end of an exhaustion is necessary. (fig.5)

- Elimination of the long-existing stenosis creates conditions for development of NPPE 2 type. (fig.6) For prevention pulmonary edema it is necessary to keep PEEP at the level of 5-8 cm H20 within several hours after operation. It is optimum to use noninvasive methods of respiratory support.

Conclusion
The analysis of cases of critical incidents involving an anesthesiologist and a surgeon leads to an increase in mutual understanding of the members of the surgical team, which leads to increased patient safety.

After using of the laser or electrocoagulator the intubation and providing of mechanical ventilation is necessary for several hours. The neglect this requirement may cause development of NPPE 2 type. In the postoperative period all patients in chamber of awakening were provided with respiratory support by PEEP of 8 cm H2O during 3-4 h. This strategy helps to avoid an intubation and to transfer patient to the special unit.