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Improved Technique for Oral Bronchoscope Intubation Especially for Children

Technique for oral bronchoscope intubation via a special laryngeal mask, which allows for a one-sided opening like a jacket

Reference: Oral Bronchoscope

Source: https://stock.adobe.com/uk/images/use-bronchoscope-to-check-position/74847231?prev_url=detail

IP Status

Patent application submitted, Provisional patent

Seeking

Development partner, Commercial partner

About **LMU Munich**

Ludwig-Maximilians-Universität München is the University in the heart of Munich. LMU is recognized as one of Europe's premier academic and research institutions. The LMU Munich community is engaged in generating new knowledge for the benefit of society at large.

Background

Topic of invention

In the case of difficult intubation is the placement and ventilation via a laryngeal mask often possible without any problems. Intubation is still often needed for an operation, intervention or longer ventilation. The bronchoscope intubation via a laryngeal mask is previously described (see “further details”), but technically difficult. A laryngeal mask one-sided to open like a jacket potentially facilitates bronchoscope intubation via a laryngeal mask.

Background of the intervention

The difficult intubation is still a challenging situation in anesthesia especially in children with congenital head/throat and neck deformities or if difficult intubation was not anticipated or was unknown. In both cases intubation has to be done during anesthesia. In children, because awake intubation is not a suitable technique for children and sometimes awake intubation is also not possible in adults. A solution is the bronchoscope intubation via the laryngeal mask during general anesthesia. After bronchoscope intubation via the laryngeal mask the laryngeal mask is opened on one side and can be easily removed. This reduces the risk of displacement of the endotracheal tube and a change of the endotracheal tube with a tube exchange catheter is not necessary anymore.

Tech Overview

Detailed description of the invention

The intubation laryngeal mask could be completely opened on the upper side from the top (connector) to the end of the air-filled cuff, which has to be heat-sealed at the end, preventing the cuff from deflating, when the mask is opened. The sealing is done either by an airtight zip or an airtight tape, which can be opened or removed from the tube connector to the cuff of the intubation laryngeal mask. The connector (to the ventilator) has also to be opened. This intubation laryngeal mask is only suitable for single use.

Figure 1, Figure 2, Figure 3

Procedure

After correct placement of the special intubation laryngeal mask (ILAMA) in general anesthesia, bronchoscopy is made during ventilation until the carina is illustrated. Then the endotracheal tube is advanced. The endotracheal tube is guided by the bronchoscope inside and by the laryngeal mask outside. Afterwards the ILAMA is opened, the endotracheal tube further advanced and the ILAMA is deflated, and then removed after complete opening. Now the patient is ventilated over the blocked endotracheal tube. The control of the placement of the endotracheal tube is re-assessed by end-tidal carbon dioxide, auscultation and bronchoscopy.

Further Detail

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- Ellis DS, Potluri PK, O´Flaherty JE, Baum VC (1999) Diffcult airway mangement in the neonate: a simple method of intubating through a laryngeal mask airway. Pediatric Anesthesia 9: 460-462.
- Walker R, Ellwood A (2009) The managent of difficult intubation in children. Pediatric Anesthesia 19: 77-87.
- Golisch W, Hönig JF, Lange H, Braun U (1994) Difficult intubation due to facial malformations in a child. The laryngeal mask as an aid. Anaesthesist 43: 753-755.
- Ofer R, Dworzak H (1996) The laryngeal mask airway- a valuable tool in cases of difficult intubation in children. Case report on its use in the presence of Pierre-Robin syndrome. Anaesthesist 45268-270.
- Weiss M, Mauch J, Schmidt J, Jöhr M (2009) Fibre optic-assisted endotracheal intubation through the laryngeal mask children. Anaesthesist 58: 716-721.

Stage of Development

Prototypes were used successfully.

Benefits

- Ventilation breaks could be reduced to a minimum,
- Intubation could be done during anesthesia and if only ventilation by the laryngeal mask was possible.
- The risk of displacement of the endotracheal tube during removal of the laryngeal mask and the rupture of the endotracheal tube cuff line is reduced.
- A change of the endotracheal tube with a tube exchange catheter is not needed anymore.

Applications

The difference compared to other solutions on the market is, that the one sided openable laryngeal mask allows for bronchoscopic intubation during general anesthesia and not in awake patients, as many patients refuse awake bronchoscope intubation. This a step forward to more patient´ comfort and allows for bronchoscope intubation of children during ventilation.

Opportunity

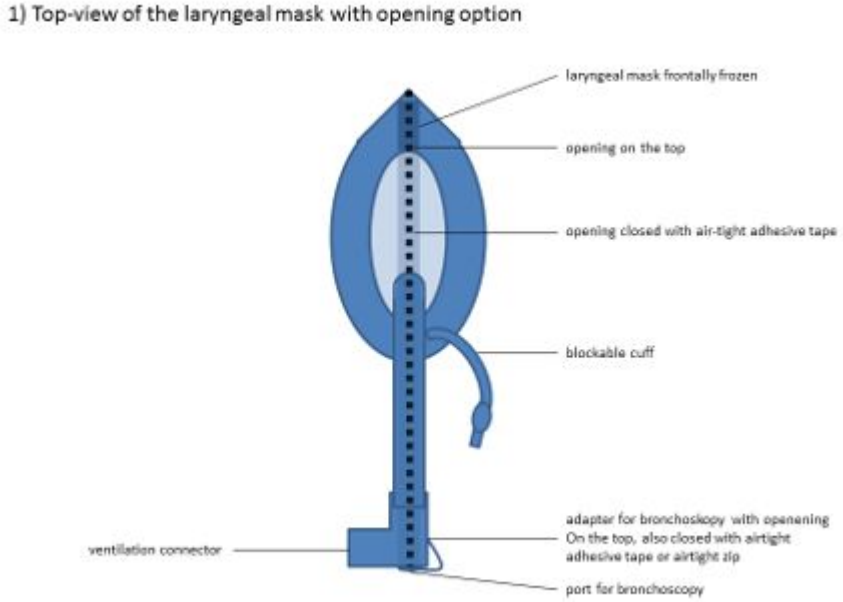
For the further development of the mask we are looking for a laryngeal mask manufacturer or a 3D printing company with medical background.

Patents

- DE102015014420A1

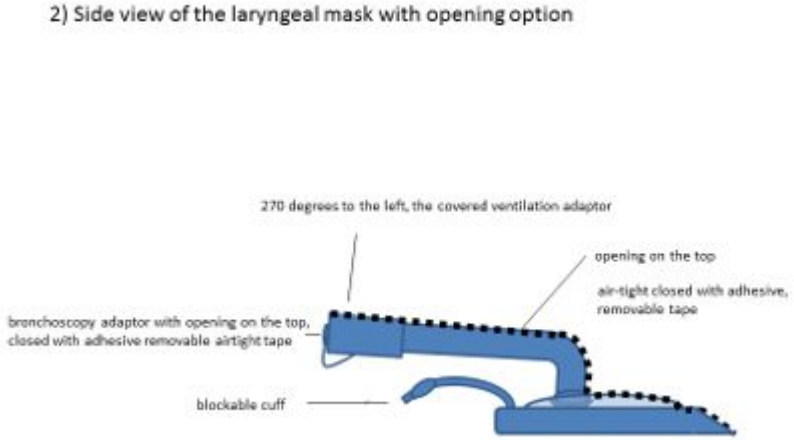
Appendix 1

Figure 1



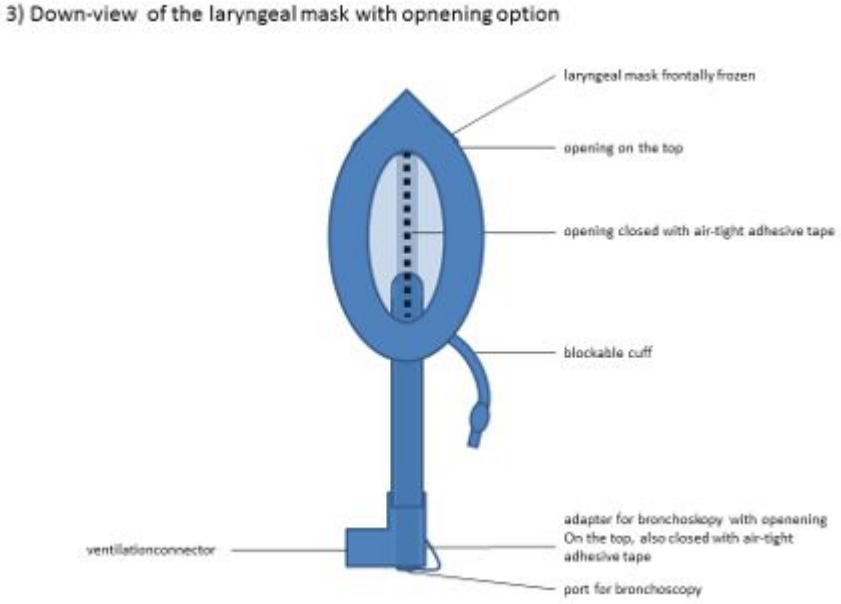
Appendix 2

Figure 2



Appendix 3

Figure 3



For further information, please contact us.

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