Forcefull difficult extubation due to cuff invagination in patient after parotide tumor surgery: the need for algorithm

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Background

Extubation could also be as difficult as intubation. The higher risk for extubation failure is associated with obesity, goitre, obstructive sleep apnea, major head/neck and upper airway surgery, and cervical spine surgery. The possible mechanical causes are laryngeal trauma, cuff herniation, damaged pilot tube, adhesion to tracheal wall and surgical fixation of the ETT. There are no algorithms for difficult extubation due to mechanical causes.

Case report

- A female patient, 57 years old
- ASA status III
- Underwent the surgery of tumor in her left parotid gland
- Induction and course of general anesthesia were uneventful.

-Extubation was planned 20 hours after she was placed in ICU.

-The cuff was deflated, but it was not possible to pull the ETT out due to high resistance.

ETT resistance at extubation attempt after cuff deflation

-NG tube was taken out for suspected knicking with ETT
-antiedematous therapy was administered

Fiberoptic bronchoscopy through the nose and ETT

Videolaryngoscopy with stylet in ETT to secure the route and anable urgent intubation

No signs of hemorrhage, lateral shift of anatomical structure or surgical fixation of ETT

ETT was forcefully pulled out with rotation and traction. Then invagination of the cuff was observed.

There were no respiratory sequellae after ETT being removed. The patient recovered well.

Discussion

Besides anatomical changes, mechanical causes of the tube malfunction may rarely cause difficult extubation, that is seldom present in literature in the form of case reports.

Possible mechanical malfunction or invagination of the cuff in combination of arythenoid oedema may be the explanation for difficult extubation of our patient. After extubation airway collapse may occur and it is important to secure the airway so algorithm is needed in order not to jeopardize the patient.

Learning points

Whenever difficult extubation is present it is important to check the tube patency, to search for existing edema of the epiglottis or the vocal cords, and the signs of surgical fixation.
CT scan and RTG of neck can also be done.