Conference discussion

Dr. R. Santosham (Chennai, India): Two short questions. One is in patients who were laserized, did you find any more technical difficulty, because our observation has been once laser is used, the tracheal wall gets very much thickened and the area of resection becomes much longer. The other thing is in your tracheoesophageal fistula cases that you showed, our main anxiety is leak from the esophagus. Did you use any other covering material while closing the esophagus, and what is your incidence of immediate vocal cord dysfunction after your cases?

Dr. Ris: For the first question, we perform resection in the first few hours after laser therapy, and there is no problem to do the surgery because the fibrosis is not initiated in a few hours, probably after two or three days. As you saw in the picture, we perform immediately after this, because the bronchoscopist shows us the remaining tissue, and probably it cannot heal without surgery.

And the second one, tracheoesophageal fistula, we have only six cases. We put the sub-thyroid muscle between the trachea and the esophagus, and we have no problem with the laryngeal nerves in our series.

Dr. Patterson: And there was a question about vocal cord dysfunction also.

Dr. Cordos: No vocal cord dysfunction in our series.

Dr. H.-B. Ris (Lausanne, Switzerland): I have a question regarding the intrathoracic tracheal portion above the carina. I found this is a very difficult region to do circumferential resection of a certain length because you have virtually no possibility to mobilize this tracheal segment. What is your opinion? Do you have tricks? What is the length of resection you can do in the intrathoracic portion of the trachea above the carina?

And the second question, you had four cases of squamous cell carcinoma. Where were they localized and were they all resected and healthy tissues?

Dr. Cordos: For the first one, to perform a lower tracheal resection, as you know from the literature, we use the dissection of the pulmonary hilum, and this permits to release the anastomosis. Our length of segment of trachea resected was 2.5 cm in this area.

Dr. Ris: I specifically asked for resections of the supracarinal part of the intrathoracic trachea where we found that release maneuvers do not allow for a satisfactory mobilization of the tracheal segments in order to perform a tension-free anastomosis.

Dr. Cordos: No, no, above the carina. The lower third of the trachea.

Dr. Ris: There we found typically that the release maneuvers are not very helpful. You found the high release maneuver very helpful?

Dr. Cordos: Fortunately, this patient was the oldest, 82 years, with most part of the trachea situated intrathoracic and the maneuvers that we performed — hilum dissection and neck flexion were enough for a 2.5 cm resection; he is now alive after two years. This is the evidence.

And the second question was about?

Dr. Ris: About squamous cell carcinoma, whether or not they were resected in healthy tissue.

Dr. Cordos: The margin of the segment resected was sent to the pathologist, and he told us that the margin was free of neoplasia.

Dr. M. Bjoelovic (Novi Sad, Serbia): My question is, your longest resected segment of trachea was 4 cm. For longer stenos, do you consider longer stenosis inoperable or you simply hadn’t longer stenosis?

Dr. Cordos: The longest stenosis operated by us one month ago was nine rings (4.5 cm), and we also performed this using only neck flexion, and anterior dissection in the pretracheal avascular space. I consider that even longer portions can be resected.

Dr. I. Motus (Ekaterinburg, Russia): I have a question for you. What kind of artificial lung ventilation do you prefer performing the anastomosis?

Dr. Cordos: The question was about some tricks in anesthesiology in these cases. We have a very good relation with the anesthesiologist and he stays all the time in the operation room. And we use the crossfield intubation of the distal part of the trachea, until we perform the posterior suture, almost in all cases with a running suture, and then he has a tube in the larynx and it is pulled down in the distal trachea, and we perform the anterior part of the anastomosis. In some cases when we perform the lower third resection of the trachea, we use high-frequency jet ventilation. I consider it very easy to perform the running suture around this very thin tube.

eComment: Early extubation following tracheal surgery. Is it safe?

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We read with great interest the article by Cordos et al. regarding their experience on tracheal resection surgery and we would like to congratulate them for their excellent results [1]. According to the authors’ experience, all patients were extubated in the operating room with no early postoperative respiratory complications. Early extubation following major tracheal surgery is a debating issue. Wolf et al. have reported that among 23 early extubated adult patients, 10 of them required re-intubation [2]. On the contrary, Brown et al. reported that early extubation in selected cases of children undergoing major tracheal surgery has been positive with no need for post-extubation airflow intervention [3]. We would like to mention that early extubation is not indicated in all cases, and the proper selection of patients is very important. There are factors that may play a negative role in early extubation such as patients with decreased pulmonary function, tracheomalacia, use of both posterior and anterior grafts, postoperative vocal folds edema, patients with preoperative high degree of tracheal stenosis.

References


eComment: Tracheal surgery

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We read with interest the article by Cordos et al. [1] and the eComment by Barbetakis and colleagues [2]. We have a few comments to make on a few aspects of tracheal surgery. The senior author (RS) has performed more than 350 tracheal resections spanning a period of 28 years. In our experience, it is very uncommon for a patient not to be extubated on the operating table following major tracheal resection, whatever the extent of resection. A person who has been breathing spontaneously without mechanical assistance preoperatively, although with some difficulty will logically not require assistance after the obstruction has been relieved. In situations like poor respiratory reserve or severe pulmonary dysfunction these patients would be accepted for surgery only after careful evaluation and would be palliated by other means, either as temporary measure until the lungs recover or as the final solution if the dysfunction is irreversible. As regards vocal cord edema/dysfunction, a temporary Montgomery T-tube insertion is much less morbid and leads to lesser ICU and hospital stay than prolonging mechanical ventilation. The decision to insert a T-tube can be taken on the table, either during the reconstruction stage – this will depend on the operator’s experience – or after the procedure if a trial of extubation on the table fails and laryngoscopy shows vocal cord edema or adductor spasm.

The other aspect regarding tracheal surgery that has to be emphasized is airway control before the procedure. It has been our preference to place an endotracheal tube in the airway above the lesion for ventilation. In case of very severe narrowing, we do a tracheostomy under local anesthesia,


siting the stoma just below the obstruction and including it in the anastomoses and then secure the airway. Femoro-femoral bypass has rarely been required.

Tracheal mobilization is the other critical aspect of tracheal reconstruction. Care should be taken not to injure the esophagus, the recurrent laryngeals or the lateral blood supply to the trachea. Anterior and posterior mobilization is enough in most of the cases but one should not hesitate to do a sternotomy or a right thoracotomy to perform a hilar release or a pericardial incision to gain additional length on the trachea. The morbidity of a tracheal anastomosis under tension is much greater than the morbidity of an additional incision. In fact, in our experience the additional procedure has not caused any problems so far.

We believe that the first opportunity to repair the trachea is the best chance and re-operations always tend to be suboptimal.

References
