

Peer Review File

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Reviewer A

Comment 1: This case is the first such operation at the authors' institution. Should an adenoid cystic carcinoma be selected as the first tumor to be resected at this institution?

Reply 1: Professor, thank for your excellent advices. Our surgical team have successfully accomplished 23 cases of thoracic surgery with acupuncture drug compound non-intubated anesthesia from 2018-5 to 2021-3, including 15 cases of lobectomy、 3 cases of wedge resection、 2 cases of esophagectomy for esophageal cancer and 3 cases of trachea tumor resection. This patient is the third case of trachea tumor resection with acupuncture drug compound non-intubated anesthesia. Case 1 and case 2 diagnosis as cervical trachea benign tumor, our surgical team performed 10cm neck incision and resected the tumor and done end to end anastomosis with acupuncture drug compound non-intubated anesthesia by Professor QiangWang and JianWen's anesthesia team. Based on our experiences of VATS sleeve lobectomy and trachea end to end anastomosis, our surgical team discussed with anesthesia team, conformed operation details of anesthesia and surgery procedures and contingency plans, then we decided to perform the first case of VATS tracheal tumor resection with acupuncture drug compound non-intubated anesthesia. Fortunately the operation successful finished in 2h24min, patient recovered well.

Changes in the text: No.

Comment 2:What may be observed of the gross specimen in panel A of Figure 6 is a minimal gross margin. The authors report “the cutting edge of the tumor specimen appeared to be negative, and the result of frozen pathology showed no tumor tissue in

both stumps of the trachea". Does this mean that the final pathology shows absence of tumor at the margin?

Reply 2: Professor, thank you for your comments. In the operation, after we separated tracheal , anesthetist used bronchoscope to locate the tumor boundary, then we followed the guide , inserted a venous needle at the lower margin of tumor. 1cm far from the tumor margin we cutted open (Figure 6A),and frozen biospy result showed negative margin(Surgical video).

Changes in the text: No.

Comment 3:The best technique to obtain tracheal margins that document complete resection is the excision of short complete rings of tracheal tissue separate from the tumor specimen. Was that done?

Reply 3: Professor, we agree with your opinion. In this operation, we used thoracoscope scissors to cut open tracheal stump, our video showed short complete rings of tracheal tissue before anastomosis.

Changes in the text: No.

Comment 4:Will a surgeon concerned about completing successfully his first tracheal anastomosis by thoracoscopy possess the priority of achieving the best tumor-free margins by placing some tension on the anastomosis?

Reply 4: Professor, thank for your excellent advices. This operation is the first case of VATS tracheal tumor resection and end to end anastomosis with acupuncture drug compound non-intubated anesthesia in our center, before that we have successfully completed 18 cases of thoracoscope/robotic tracheal or bronchus tumor resection. Our initial experiences showed the negative margin is precondition of the operation, but the quality of end to end anastomosis is the most important process. As you mentioned above, if the tension of the anastomosis was too large, the suture segment may be cutted by knots or blood supply of the anastomosis might be affected, resulted in serious complications as anastomosis leak or even death. Therefore, during the

anastomosis process, the assistant was asked for maintain a certain tension on the knots to prevent them from loosening or too tight, to ensure the smoothly healing.
Changes in the text: No.

Comment 5: The manuscript does not discuss the question of postoperative radiation to the anastomosis; adjuvant therapy should be considered or at least discussed in the manuscript.

Reply 5: Professor, thank you for your comments. We reviewed the references, tracheal adenoid cystic carcinoma (TACC) is a rare low-grade malignant tumor, currently surgical resection is the preferred treatment. It is also sensitive to radiotherapy, which could inhibit tumor growth and reduce the recurrence rate. The main indications of radiotherapy are: ① unresectable tumor cases; ② Cases of incomplete resection of tumor margins; ③ Patients with poor condition cannot tolerate surgery. Due to the limitation of radiation dose, TACC cannot be used for adjuvant or consolidation therapy after operation. Because the limited number of cases, there were no retrospective clinical data on chemotherapy for TACC. Currently, cyclophosphamide (C) + doxorubicin (A) + cisplatin (CAP) has been used in chemotherapy for adenoid cystic carcinoma of the head and neck, which can only improve the relevant clinical symptoms or the disease with stable progression, but has no data to improve the survival time of patients.

This manuscript is a case report of VATS tracheal tumor resection with acupuncture drug compound non-intubated anesthesia, so we did not discuss adjuvant therapy of TACC.

Changes in the text: No.

Reviewer B

Comment 1: I couldn't find the reference 22 which describe the acupuncture drug stimulation-assisted anesthesia. Therefore, I could not be able to comment on acupuncture drug stimulation-assisted anesthesia.

Reply 1: Reference 22 as we list .(Chinese society of anesthesiology task force on perioperative application of acupoint stimulation. Consensus on perioperative application of acupoint stimulation [J]. Chin J Anesthesiol, 2017,37(10):1153-1158.)
Changes in the text: Page 12 Line 300-302.

Comment 2: Line 80 - 82 Did you used epidural anesthesia during surgery? If so, please describe the administered dose to the epidural.

Reply 2: Professor, thank you for your comments. In the Line 70-73 we describe the administered dose to the epidural.(Epidural catheter was placed into and 2% lidocaine 3ml was injected into the supine position for 5 minutes. 0.25% ropivacaine 13ml was injected afterwards, so that the anesthesia plane could reach the T2~T10 area.)

Changes in the text: Page 4 Line 70-73.

Comment 3: Please specify the and maintenance dose of propofol and remifentanil. Please describe the monitors during the operation such as brain waves and/or arterial lines.

Reply 3: Professor, thank you for your comments. TCI propofol initial concentration 4ug/ml maintenance concentration 1-3.5ug/ml, remifentanil 0.03-0.08ug/kg/min, Dexmedetomidine 0.5-1ug/kg/h. Bis (Aspect medical system, USA) monitor stayed 40-60 and Invasive radial arterial pressure was recorded during operation.

Changes in the text: Page 4 Line 73-76.

Comment 4: Please indicate the product name and size of the laryngeal mask. Also, please describe the amount of air injected into the cuff of the laryngeal mask.

Reply 4: Professor, thank you for your comments. We use 4# laryngeal mask (igel LMA) in this case, this type does need to inject air.

Changes in the text: Page 4 Line 76-77.

Comment 5: Please explain in detail how much mask-assisted ventilation was done during the operation.

Reply 5: After insert laryngeal mask, we connected the Ohmeda anesthesia machine, SIMV breathing mode was used.

Changes in the text: Page 4 Line 77.

Comment 6: If mask-assisted ventilation was not improved and you intubated, did you have any plan to change the surgical procedure.

Reply 6: During operation, some situation happened (as Extensive adhesion, or severe blood loss, VATS convert to open surgery, the oxygen saturation below 90% continuously and cannot improved oxygen, we have two plans: No1. insert 6.0# tube through igel LMA under fiber bronchoscope to insert bronchial blocker; No2. insert double-lumen tube under lateral position.

Changes in the text: No.

Comment 7: Please specify each dose of 5% lidocaine used for the infiltration block and sprayed on the surface of the lung.

Reply 7: We used 2% lidocaine 100mg(5ml) to spray on the surface of the lung.

Changes in the text: Page 5 Line 102.

Comment 8: Figure 5 is written as Figure 6. Please correct it.

Reply 8: I have correct them, thank you for point out.

Changes in the text: Page 6-7 Line 120/124/129/133/134/140.

Comment 9: Please state the specific product name and size of the bronchoscope used. Please describe how the venous needle was inserted from the inside of the trachea into the thoracic cavity. If there are any items used at the time, please list them include the product name and size. Please also describe whether the cough reflex etc. occurred due to the stimulation of bronchoscope operation.

Reply 9: Olympus HD electronic bronchoscope, type: BF-H290.

The anesthetist used bronchoscope located the tumor boundary, and guide surgeons to insert a venous needle(9# scalp needle) at the lower margin of tracheal tumor from operative port.

During operation, if surgeon stretched the lung tissue ,the cough reflex was occurred, we have three tip to deal with this: First, sprayed lidocaine on the surface of the lung, secondly, operator used needle to block vagus nerve(0.375ropicaine+1%lidocaine 5ml);thirdly ,adjust the concentration of remifentanil.

Changes in the text: Page 6 Line 117-119.

Comment 10: Please state the specific product name and size of the fine thread catheter.

Reply 10: After tracheal exposure open, the anesthesiologist inserted a processed catheter(14# nasogastric tube,WGS-II-12) exchange from the laryngeal mask into the main bronchus and connected to a high-frequency jet ventilator (model TCR-400T, ventilation mode, Frequency 25-40 times/min)

Changes in the text: Page 6 Line 122-123.

Comment 11: Please describe the specific advantages of acupuncture drug stimulation-assisted anesthesia in this case. For example, the dosage of opioid (remifentanil) was reduced.

Reply 11: The main advantages of acupuncture combined anesthesia are as follows:

①This anesthesia methods could reduce the dose of opioids by 20%;②Reducing the cough reflex caused by traction lung tissues;③Reducing the incidence of perioperative nausea and vomiting.

Changes in the text: No.

Comment 12: Please explain whether you were preparing for the percutaneous cardiopulmonary support, etc. in case the catheter insertion or mask-assisted ventilation failed.

Reply 12: Extracorporeal circulation machine, aseptic endotracheal tube and 5# sterile thread tube spare. Anesthetists and surgeons should be trained for handling special situation as a team; Anesthesiologists should train for intubation he endotracheal tube in lateral position, to exchange tracheal catheter at any time, prepare 5# sterile threaded pipe, if patients' oxygenation was low, surgeon should insert a bronchial tube and ventilate with anesthesia machine.

Changes in the text: No.

Comment 13: If you have any advice on the operation of the anesthetist, which is the key to the surgery, please describe it.

Reply 12:I think laryngeal mask, endotracheal exchange tube, high-frequency ventilator was important, but the key was not only the experienced surgical skills for surgeons, but also tacit cooperation and good communication between anesthesia teamand surgical team.

Changes in the text: No.

Reviewer C

Comment :However, substantial language editing is required.

Here are some suggestions:

Reply: Thank you for your kindly help, I have modify my mistakes as you point out.

Comment 1: short of breath → shortness of breath

Changes in the text: Page 1 Line 22.

Comment 2: showed a tracheal neoplasm was → “was” should be deleted

Changes in the text: Page 1 Line 23.

Comment 3: even for experienced surgical team → even for experienced surgical teams

Changes in the text: Page 2 Line 38.

Comment 4: the institutional and/or national research committee(s) → the institutional and national research committees

Changes in the text: Page 2 Line 47.

Comment 5: and short of breath → shortness of breath

Changes in the text: Page 2 Line 49.

Comment 6: bronchoscope → bronchoscopy

Changes in the text: Page 5 Line 102.

Comment 7: 2cm away from carina → 2cm proximal to the carina

Changes in the text: Page 2 Line 51.

Comment 8: Figure 2 Bronchoscope → Bronchoscopy

Changes in the text: Page 3 Line 59.

Comment 9: Distance to carinal was 2 cm away → Distance to carina was 2 cm

Changes in the text: Page 3 Line 60.

Comment 10: Epidural catheter was placed into and → epidural catheter was placed
and

Changes in the text: Page 3 Line 70-71.

Comment 11: oxygenation of the body → “of the body” should be deleted

Changes in the text: Page 4 Line 80.

Comment 12: if PaCO₂ > 80 mmg → if PaCO₂ reached or exceeded 80 mmg

Changes in the text: Page 4 Line 80-81.

Comment 13: would be provided to suspend the operation to meliorate gas → would
be applied to meliorate gas exchange

Changes in the text: Page 4 Line 82.

Comment 14: if masked-assisted ventilation was still not improved, intubation would
be transferred into the trachea immediately → if no improvement occurred,
endotracheal intubation would be performed immediately

Changes in the text: Page 4 Line 82-83.

Comment 15: applying the Indo-GIA → Endo-GIA

Changes in the text: Page 5 Line 105.

Comment 16: behind the tracheal → behind the trachea

Changes in the text: Page 5 Line 110.

Comment 17: (A) Cutted open the → exposure of the

Changes in the text: Page 6 Line 112.

Comment 18: (B) Cutted open the → exposure of the

Changes in the text: Page 6 Line 113.

Comment 19: (C) Insert the fine → Insertion of the fine

Changes in the text: Page 6 Line 113.

Comment 20: (D) Running suture the → Running suture of the

Changes in the text: Page 6 Line 114.

Comment 21: Guided by bronchoscopy(Olympus BF-H290), the anesthetist located the tumor boundary, and surgeon inserted a venous needle(9# scalp needle) at the lower margin of tracheal tumor from operative port.. The incision was made with 1cm distance from the tumor margin

Changes in the text: Page 6 Line 117-120.

Comment 22: an incision 1cm proximal to the upper edge of the tumor was performed, thereby completely removing the tumor, and immediately inserting the fine thread catheter into the lower segment of the tracheal through the assistance port

Changes in the text: Page 6 Line 120-124.

Comment 23: Subsequently, high frequency ventilation was started to supply sufficient oxygen for the patient. The cutting margin of the tumor specimen appeared to be negative

Changes in the text: Page 6 Line 124-125

Comment 24: tracheal stump were sutured → was sutured

Changes in the text: Page 6 Line 114.

Comment 25: after the anastomosis, → after completing the anastomosis,

Changes in the text: Page 7 Line 137.

Comment 26: And drainage tube was removed in 6th day when chest x-ray showed good lung re-expansion → Drainage tube was removed on 6th postoperative day (POD), after x-ray revealed good lung re-expansion

Changes in the text: Page 7 Line 150-151.

Comment 27: of the anastomotic → of the anastomosis

Changes in the text: Page 8 Line 164.

Comment 28: some studies have indicated VATS lobectomy, pneumonectomy and segmentectomy have less pain and lower complication rate compared with open surgery

Changes in the text: Page 8 Line 166-168.

Comment 29: surgical skill → surgical skills

Changes in the text: Page 8 Line 170.

Comment 30: of the anastomotic → of the anastomosis

Changes in the text: Page 8 Line 170.

Comment 31: there are few literature → only few cases have

Changes in the text: Page 8 Line 171.

Comment 32: with no-intubation → with non-intubated

Changes in the text: Page 8 Line 181.

Comment 33: of no-intubation → of non-intubated

Changes in the text: Page 9 Line 183.

Comment 34: breathing and no-intubation → and non-intubated

Changes in the text: Page 9 Line 184.

Comment 35: no-intubation → non-intubated

Changes in the text: Page 9 Line 188.

Comment 36: while minifying → while minimizing

Changes in the text: Page 8 Line 193.

Comment 37: our MDT → our multidisciplinary team

Changes in the text: Page 9 Line 201.

Comment 38: maintain enough oxygen → maintain sufficient oxygenation

Changes in the text: Page 10 Line 216.

Comment 39: For early patients → for early-stage patients

Changes in the text: Page 10 Line 225.

Comment 40: by bronchoscope → by bronchoscopy

Changes in the text: Page 10 Line 225.