

Anesthesia for video-assisted thoracic surgery: An algorithm

Video-assisted thoracic surgery (VATS) is widely used nowadays for the surgical treatment of lung and pleural diseases. Anesthesia has also been evolved in recent years to meet the surgical demands and to be an essential arm of the enhanced recovery after surgery (ERAS) guidelines. Recently, we organized a conference on enhanced recovery after anesthesia (ERAA), whereby to the first time we have introduced the term ERAA instead of ERAS though both are synonym.^[1] One session of the conference was on enhanced recovery after thoracic anesthesia with talks on nonintubated (NI) VATS or in other words tubeless

VATS.^[2] In our setting, we are practicing NI-VATS in selected cooperative patients undergoing lung/pleural biopsies. Due to the wide dimension of various anesthetic techniques in lung and pleural surgeries, we sought to develop an algorithm on anesthesia for VATS [Figure 1]. We classified the algorithm into two different methods, namely, intubated VATS (I-VATS) (tubed) and NI-VATS (tubeless). Then, we classified I-VATS techniques into those patients who require lung isolation and who do not. For those without lung isolation, the most favorable anesthetic technique is the use of a single-lumen tracheal tube and capnothorax with CO₂

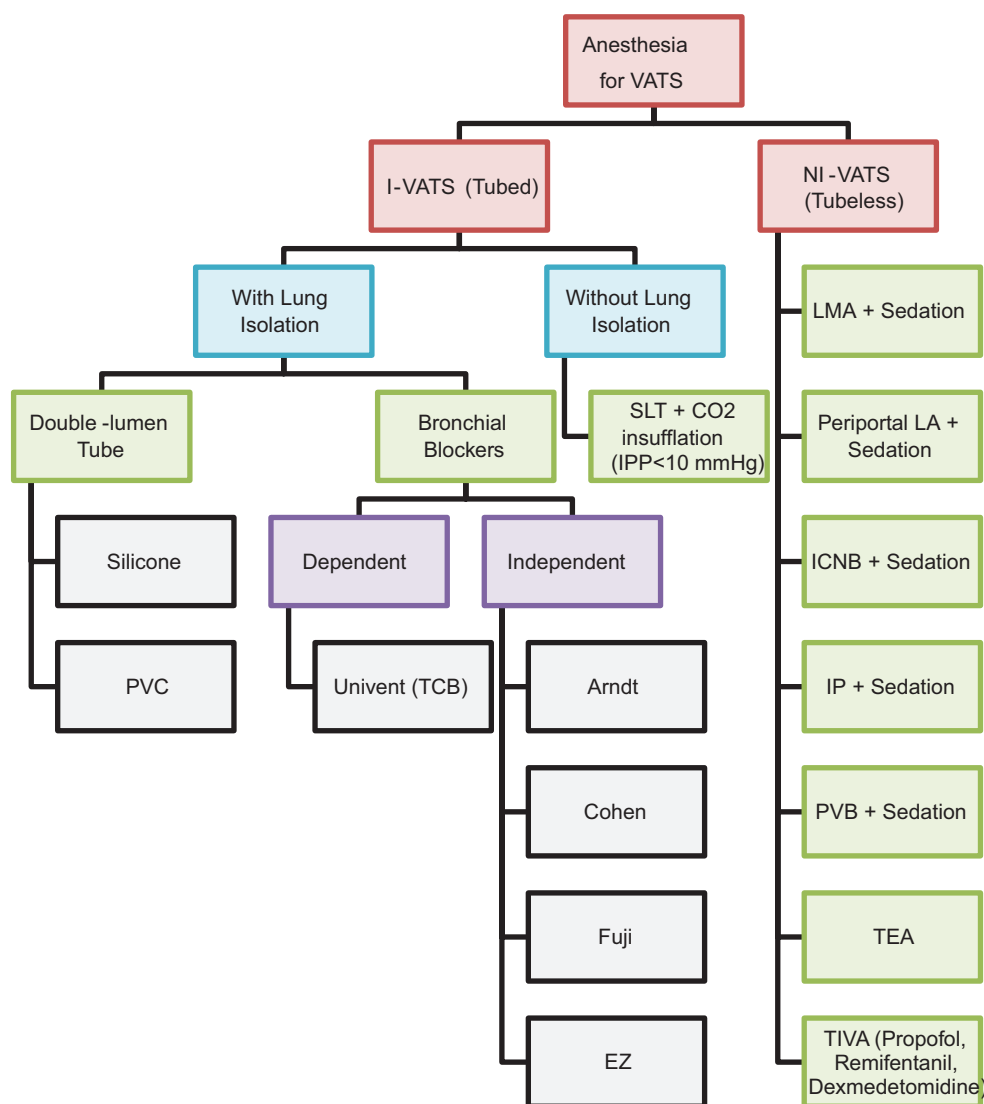


Figure 1: Algorithm

insufflation pressure <10 cm H₂O. That technique we have described validated some time ago for patients undergoing thoroscopic sympathectomy for the treatment of palmar hyperhidrosis.^[3-5] In case lung isolation is required, we have described the tools which could be used and we divided them into the double-lumen tube (DLT) and bronchial blocker (BB). DLT was further classified into two types according to the material used for their manufacture into polyvinyl chloride and silicone types. The silbroncho DLT is the prototype of the silicone material.^[6] The silbroncho tube has important features that it does not irritate the tracheobronchial mucosa; furthermore, it is not affected by the patient temperature and it has a soft-reinforced bronchial end which does not kink or causes any trauma to the tracheobronchial mucosa. The BB is divided into dependent and independent blockers. Univent tube or torque-controlled blocker is the prototype of dependent BBs. The independent BBs are wire-guided endobronchial blocker (Arndt), tip deflecting BB (Cohen), Fuji BB, and bifurcated tip BB (EZ).^[7] Anesthesia for NI-VATS could be achieved with sedation and laryngeal mask airway or periportal local anesthetic infiltration or intercostal nerve block or interpleural local anesthetic instillation or paravertebral block. Furthermore, anesthesia for NI-VATS could be achieved using thoracic epidural analgesia or total intravenous anesthesia using a combination of propofol and remifentanyl or dexmedetomidine. This algorithm is comprehensive and incorporated all commonly used tools

for I-VATS and NI-VATS. We believe that it could be an appropriate teaching module for anesthesia in VATS.

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