Selective thoracoscopic intercostal block through a transbronchial aspiration needle: an alternative analgesic tool for pain control after video-assisted thoracic surgery

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Abstract

Video-assisted thoracic surgery (VATS) is a surgical procedure increasingly used to treat several thoracic diseases. Postoperative pain control is one of the mainstays for patient recovery. A proper analgesic management leads to faster recovery, reduce hospital stay and decreased possibility of postoperative complications. Even though different regional techniques have been reported, optimal post-operative analgesia after VATS remains controversial. Here we describe an alternative analgesic tool using a transbronchial aspiration needle for intraoperative thoracoscopic intercostal block. This technique allows selective intercostal block from the origin of the intercostal nerve, close to the costovertebral joint.

Keywords: anesthesia, pain, perioperative care, thoracoscopy, VATS

Introduction

Postoperative pain control is essential to achieve a faster recovery, reduce hospital length of stay and decrease the possibility of postoperative complications.1,2 Up to date, although different analgesic techniques have been described,3 no gold standard currently exists with respect to regional analgesia for Video Assisted Thoracic Surgery (VATS) procedures. Here, we present an alternative surgical tool using a transbronchial aspiration needle for selective intraoperative thoracoscopic intercostal block.

Technique

An 85-year-old man was referred to our Department for evaluation. Thoracic Computed Tomography scan revealed a 2.8 cm nodule in the apicoposterior bronchopulmonary segment of the left upper lobe. There were no enlarged hilar and mediastinal lymph nodes. A Positron Emission Tomography scan showed increased Fluorodeoxyglucose uptake (SUV 12.6 g/ml) in the pulmonary nodule previously described. Pulmonary function test was normal (FEV1: 1680 cc, 77.6%; DLCO/VA: 98.2%). Once the preoperative evaluation was completed, the patient underwent surgery. Informed consent was signed previously. General anesthesia was induced, and endotracheal intubation was performed with double lumen tube. The patient was placed in lateral decubitus. Due to the longevity of the patient, minimally invasive thoracic surgery seemed to be the best approach to facilitate the postoperative recovery. Biportal VATS technique was performed. A 3 cm long utility incision was placed at the fifth intercostal space anteriorly and a 1 cm camera-port was made in the eighth intercostal space at the level of the posterior axillary line. Once left upper lobectomy and systematic lymphadenectomy was completed, we decided to perform a selective endoscopic intercostal blockade to achieve a good postoperative analgesia. We used a 22-gauge Wang™ transbronchial aspiration needle (Figure 1). First, we introduced the closed-needle guided with a Rochester-Pean forceps through the utility incision. Once inside the chest, the needle was protracted and locked. Then, we identified the intercostal space that we wanted to infiltrate, and punctured the parietal pleural below the inferior margin of the rib, with the goal of placing the tip into the space containing the neurovascular bundle between the innermost intercostal muscles and the internal intercostal muscle. The best place to puncture is as close as possible to the origin of the intercostal nerve, about 1 or 2 cm from the costovertebral joint. Then the needle was advanced 4 mm and, following hemo-negative aspiration, we infiltrated 3 ml of Levobupivacaine 0.5%. Immediately we could see how the local anesthetic spreaded through the intercostal space. Finally, the needle was retracted and withdrawn. The process was repeated as the remaining levels of blockade, in this case 5th and 8th intercostals spaces. This internal anesthetic block was supplemented with intravenous and oral nonsteroidal anti-inflammatory drugs (NSAID) every four hours during hospital stay. Postoperative course was uneventful, the pain was under control and the patient was discharged three days later.
The use of a Wang™ transbronchial aspiration needle is a safe, effective and easy-to-perform technique. Its main advantage is that it causes less postoperative pain than thoracotomy. This advantage leads to faster post-surgical recovery and shorter hospital stay. Furthermore, uniportal approach and the design of adapted thoracoscopic devices as flexible and durable make this technique highly reproducible.

In conclusion, the selective thoracoscopic intercostal block through a Wang™ transbronchial aspiration needle is a safe, effective and easily reproducible technique. Despite its several advantages, further randomized prospective studies are necessary to analyze its effectiveness and support this analgesic technique. It is possible that coming years, new and specific analgesic devices will be developed and adapted for VATS.

**Conflict of interest:** none declared.

**References**


