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3rd Joint Meeting of the Spanish Society of Thoracic Surgery (SECT)



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TRANSCERVICAL EXTENDED MEDIASTINAL LYMPHADENECTOMY (TEMLA)

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Introduction

Mediastinal staging plays an important role in the treatment of Non-Small-Cell Lung Cancer (NSCLC) [1,2]. Transcervical Extended Mediastinal Lymphadenectomy (TEMLA) introduced by our team in 2004 is a new technique of preoperative staging of Non-Small Cell Lung Cancer (NSCLC). In this report we present our experience with use of TEMLA in 1450 patients with NSCLC

Material and Methods

TEMLA was performed on patients with proven NSCLC who were candidates for pulmonary resection, regardless of the state of the mediastinal nodes on CT or PET/CT, after negative result of EBUS/TBNA and/or EUS. The aim of TEMLA was to maximally accurately stage and possibly to improve late results of treatment of NSCLC. All mediastinal nodal stations (according to the Mountain-Dresler map), except for the pulmonary ligament nodes (station 9) were removed during procedure [3,4]. Operative technique was described in detail elsewhere [5]. In brief, it included a 5-8 centimeters collar incision in the neck, elevation of the sternal manubrium with a special retractor, bilateral visualization of the laryngeal recurrent and vagus nerves and dissection of all mediastinal nodal stations except for the pulmonary ligaments nodes (station 9). The initial part of the procedure regarding station 1, 2R and 2L stations was performed in the open fashion, the lower paratracheal (10R and 10L stations), the right hilar nodes (station 10R), the subcarinal and the periesophageal nodes (stations 7 and 8) were removed in the mediastinoscopy-assisted technique and the paraaortic and the pulmonary-window nodes (stations 6 and 5) removed in the videothoracoscopy-assisted technique, with the videothoracoscope inserted through the transcervical incision. Generally, the mediastinal pleura was not violated and no drain is left in the mediastinum. In case of opening of the mediastinal pleura during operation there was no need for pleural drainage. Hyperinflation of the lungs by the anesthesiologist during closure of the wound at the end of a procedure and insertion of a piece of fibrin sponge near the place of laceration of the pleura are sufficient maneuvers to prevent pneumothorax. The technique of TEMLA can be extended to remove the supraclavicular and deep cervical nodes bilaterally. The patients with metastatic N2 or N3 nodes found during TEMLA were referred for neoadjuvant chemotherapy and afterwards they were expected to

come back for radical surgery, if possible. Patients with negative results of TEMLA (no metastatic mediastinal nodes found) were offered VATS or thoracotomy with pulmonary resection 10-14 days after TEMLA. The alternative is to perform TEMLA with intraoperative cytological study of the nodes and, in case of negative nodes, to proceed to pulmonary resection during the same anaesthesia through the transcervical, VATS or thoracotomy approach.

The results of TEMLA were estimated in regard to the diagnostic yield, prevalence of N2-3 metastatic involvement of the mediastinal nodes and nodal stations, the number of patients who underwent thoracotomy with pulmonary resection after negative TEMLA were calculated.

Results

TEMLA was performed on 1450 patients, 1123 men and 3277 women in age 36-82 (mean age 63.3) from 1.1.2004 to 30.6.2024. Time of operation was 40 to 330 min (mean 114 min). There was small injury of the right main bronchus managed with fibrin sponge parking, one injury of the segment 1 right bronchus managed with sutures and fibrin sponge, one injury of the upper trunk of the right pulmonary artery repaired with vascular clips. In 1 patients broncho-esophageal fistula was found postoperatively that was successfully repaired with implantation of the intercostal flap. There and no other intraoperative injuries of the vitally important structures. including major vessels, tracheobronchial tree or the esophagus necessitating conversion to thoracotomy or sternotomy. There were 6 postoperative deaths unrelated to the procedure (mortality 0.4 %). Complications of TEMLA occurred in 6.1% of patients with temporary laryngeal nerve palsy in 2.6% and permanent nerve palsy in 0.4 %.. Metastatic N2/N3 nodes were found in 320 patients. Subsequent thoracotomy was performed in 91.4% after negative result of TEMLA. Sensitivity of TEMLA in discovery of N2-3 nodes was 96.4 %, specificity was 100%, accuracy was 98.9%, Negative Predictive Value (NPV) was 98.6 % and Positive Predictive Value (PPV) was 100%

In our recent study we showed that TEMLA had a significantly higher diagnostic yield than all other mediastinal staging modalities (PET/CT, EBUS, EUS, and mediastinoscopy).

Current use of TEMLA

Due to the consequences of the progress of oncological treatment of NSCLC the current use of TEMLA is limited to the subsequent clinical scenarios:

1. Patients after neoadjuvant therapy
2. Patients with suspicious mediastinal nodes on CT and PET/CT, despite negative results of EBUS
3. Clinically operable left-sided NSCLC (combined TEMLA with intraoperative examination of the nodes with the imprint cytology technique with one-step transcervical lobectomy)

References

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