



Uniportal video-assisted thoracoscopic lobectomy surgery for lung cancer – case report

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Abstract: Uniportal video-assisted thoracoscopic surgery (VATS) was introduced by Dr. Gonzalez-Rivas in 2011. We report here our first case performed in Universality Hospital in Saudi Arabia using uniportal VATS lobectomy with complete mediastinal lymph nodes dissection.

Keywords: Uniportal video-assisted thoracoscopic surgery (uniportal VATS); thoracic surgery; lobectomy; lung cancer

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Introduction

Recently, uniportal video-assisted thoracoscopic surgery (VATS) of lung resection is growing in many thoracic surgery units all over the world (1). Uniportal VATS lobectomy has shown to be associated with less postoperative pain and analgesia requirement, less duration of postoperative intercostal chest tube drainage, and also reported shorter recovery time when compared to multiport VATS lobectomy (2). Uniportal VATS lobectomy is believed to be safe and feasible technique with good outcome in selected centers (3).

The first uniportal VATS lobectomy with mediastinal lymph nodes dissection was done in 2011 by Dr. Gonzalez-Rivas who is an expert in uniportal VATS (4). Since that time, this new technique has been adopted in many places all over the world. However, in Feb. 2016, uniportal VATS was successfully performed for the first time in our center.

Case presentation

We report a 62-year-old male, presented with shortness of breath and cough. He is diabetic, hypertensive, and is known to suffer from chronic obstructive pulmonary disease

(COPD). He is a heavy smoker for more than 40 years. His chest X-ray showed right upper lobe mass (*Figure 1*).

Enhanced chest and abdomen CT scan confirmed a right upper lobar pulmonary mass lesion with small necrotic changes with irregular edges (*Figure 2A,B,C*). Tru-Cut biopsy confirmed the diagnosis of non-small cell carcinoma, consistent with squamous cell carcinoma, moderately differentiated with prominent necrosis. However, complete staging performed which showed few but less than 1 cm in diameter of mediastinal lymph nodes in the right paratracheal area, but no distant metastatic lesions found in the abdomen, brain or bones.

Procedure

This patient was assessed preoperatively by anesthesia and cardiology teams. He underwent general anesthesia with one lung ventilation through left side double lumen tube. The pleural cavity approached through a single port by performing a 4–5 cm skin incision in the anterior chest wall at the third intercostal space, right upper lobectomy was done through this incision using Thoracoscopic lobectomy instruments and also a complete mediastinal lymphadenectomy performed of station 3, 4, and station

7 (Figure 3). Patient was extubated immediately after the procedure. He stayed one day overnight in the intensive care unit (ICU), till he was transferred to the ward. Postoperative pain was controlled by minimal dose of analgesia through patient-controlled analgesia (PCA) using morphine. Postoperative course was uneventful without any complications, after few days he was discharged home in a good and a stable condition. He remained very well in regular follow up in the outpatient clinic for the next 18 months.

Results

The macroscopic pathological finding of the specimen consisted of a mass measuring 15 cm × 8 cm × 6 cm. However, the microscopic findings showed a necrotizing



Figure 1 Chest X-ray (PA view), showing the right upper lobe mass. PA, posterior-anterior.

and poorly differentiated squamous cell carcinoma of the lung (grade 3). The tumor is unifocal. It extends close to but not beyond the pleural surface of the specimen. The lymph nodes dissection was positive in stations R3, R4. The pathological staging of the neoplasm was: T2aN2M0, which required post-operative adjuvant chemotherapy.

Discussion

Uniportal VATS has become very popular worldwide to treat thoracic surgical diseases, such as benign and malignant lung tumors and pleural pathologies (6). It has been proven to be safe and feasible technique with good outcome, also has shown to be associated with less postoperative morbidity, less duration of postoperative drainage, with less postoperatively analgesia requirement and fast recovery time (3,7). However, uniportal VATS and lung resection has gained recently popularity in some selected thoracic surgery centers for the above reasons (3,4,6,7), in addition, the feasibility of the conversion during the procedure if there are any difficulties or complications encountered such as, bleeding, lymph node invasion or adhesion, the surgeons may convert from uniportal VATS to formal thoracotomy for the patient's interest, which should not be considered as failure of the procedure (7).

Our case report representing uniportal VATS right upper lobectomy with complete mediastinal lymph nodes dissection, which was done as first case in Saudi Arabia on February 2016. Under general anesthesia with one lung ventilation, the patient had 4–5 cm incision in the anterior chest wall at the right third intercostal space. Post-operative recovery was uneventful, and he continue to be asymptomatic without any distal metastasis on regular follow-up in the outpatient clinics for the next 15 months.

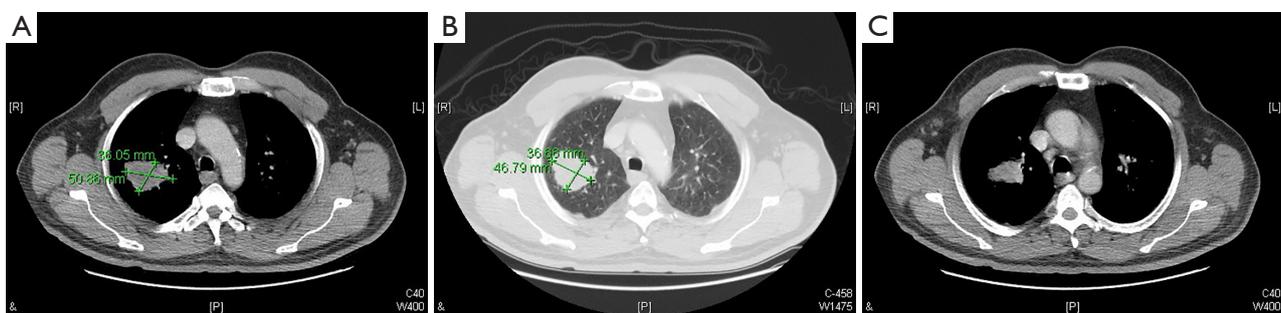


Figure 2 Chest CT scan (different windows views). (A) Chest CT scan (mediastinal window), showing the right upper lobe mass; (B) chest CT scan (pulmonary window), showing the right upper lobe mass; (C) chest CT scan, showing retrocaval (pretracheal large mediastinal lymph node). R, right; L, left; P, posterior.



Figure 3 The stages of the thoracoscopic right upper lobectomy with complete mediastinal lymph nodes dissection (5).

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Conclusions

In conclusion, uniportal VATS lobectomy is a minimally invasive surgical technique. It is a feasible and safe technique with an excellent outcome.

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Footnote

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in accordance with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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