



Case Report

Uniportal video-assisted thoracoscopic right lower and middle sleeve bilobectomy for a neglected carcinoid tumor

Rawand Abdulrahman Essa, MD, PhD^{a,b,c,d}, Sirwan Khalid Ahmed, RN, BScN^{a,b,c,d,*}, Dunya Hars Bapir, MSc^d

^a Department of Emergency, Rania Teaching Hospital, Rania, Sulaimani, Kurdistan-region, Iraq

^b Department of Cardiothoracic and Vascular Surgery, Rania Medical City Hospital, Rania, Sulaimani, Kurdistan-region, Iraq

^c Department of Emergency, Rania Pediatric & Maternity Teaching Hospital, Rania, Sulaimani, Kurdistan-region, Iraq

^d Department of Biotechnology, Institute of Science and Modern Technology, Rojava University, Qamishlo, Syria

ARTICLE INFO

Keywords:

Carcinoid tumor
Right main bronchus
Uniportal VATS
Sleeve bilobectomy
Minimally invasive surgery

ABSTRACT

The bronchial carcinoid (BC) tumor is a neuroendocrine lung tumor that accounts for 1–2% of all lung neoplasia occurrences. However, BC tumors remain rare in the literature. Nowadays, video-assisted thoracoscopic surgery VATS can be safely performed with an excellent clinical outcome. The typical procedure involves three incisions. We assume that performing the same procedures with a single utility incision is possible. This report describes our experience performing sleeve bilobectomy for a neglected carcinoid tumor using a uniportal VATS without spreading of ribs.

1. Introduction

The bronchial carcinoid (BC) tumor is a neuroendocrine lung tumor that accounts for 1–2% of all lung neoplasia occurrences. However, BC tumors remain rare in the literature. These tumors, which infiltrate the airways and cause coughing, hemoptysis, and recurrent pulmonary infection, are classified as typical carcinoid (TC) or atypical carcinoid (AC) based on their Histopathology [1]. Surgery is the mainstay of therapy, and lung-sparing operations should always be undertaken when oncologically indicated [2]. To prevent pneumonectomy, bronchial sleeve resection should be considered in centrally positioned tumors [2]. The use of uniportal VATS method is becoming more common and widely accepted [2,3]. The aim of this paper to present a uniportal VATS right lower lobe sleeve bilobectomy for a neglected carcinoid tumor. This study has been written in the line with SCARE 2020 criteria [4].

2. Case summary

A 70-year-old woman presented with a cough of 9 years duration, shortness of breath, and recurrent pneumonia. On April 10, 2007, the patient underwent surgery for left breast mastectomy because of

invasive ductal carcinoma and left nephrectomy was performed 30 years ago because of a mass in the left kidney. Her body mass index (BMI) was 24.5 kg/m². Upon arrival, the patient's temperature was 37.3 °C, normal range 35.5 °C–37.5 °C, blood pressure (BP) was 136/82 mmHg, normal range 120/80 mmHg, respiratory rate was 21/min, pulse rate was 107 bpm, and the patient's oxygen saturation (SPO₂) was 92% at rest without oxygen. Furthermore, laboratory test results were within normal limits. On September 30, 2014, the chest CT scan was performed, showed a lesion in the right main bronchus, and consolidation of the right lower lobe (RLL) (Fig. 1). Fiberoptic bronchoscopy revealed that a firm tumor was obstructing the right main bronchus. The right main bronchus invaded by this tumor (Video 1). Histopathological were examined and revealed a typical carcinoid tumor, and pathological stage was pT2a-pN0-pMx (TNM 8). After medical therapy for pneumonia, the patient was sent for surgery. A minimally invasive RLL sleeve bilobectomy was performed using a Uniportal VATS approach.

Supplementary video related to this article can be found at <https://doi.org/10.1016/j.amsu.2022.103359>

3. Surgical technique

On February 2021, In the supine position, under general anesthesia,

Abbreviations: BC, bronchial carcinoid; VATS, Video-assisted thoracoscopic surgery; TNM, tumor (T) nodes (N) and metastases (M).

* Corresponding author. Department of Emergency, Rania Teaching Hospital, Rania, 46012, Kurdistan region, Iraq.

E-mail address: sirwan.ahmed1989@gmail.com (S.K. Ahmed).

<https://doi.org/10.1016/j.amsu.2022.103359>

Received 10 January 2022; Received in revised form 2 February 2022; Accepted 10 February 2022

Available online 11 February 2022

2049-0801/© 2022 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

the patient was intubated with a double lumen tube, then positioned in the left lateral decubitus position. Then, a 4 cm incision in the mid-axillary line through the right 5th intercostal space was performed. The right main bronchus was open with blade number 15. The tumor was found to have extended to the middle and lower lobe. First, the middle and lower pulmonary vein was dissected, then divided via Endo-GIA stapler vascular reload (Endo GIATM Straight Tip Reload with Tri-Staple TM Technology). Later, branches of the pulmonary artery to both middle and lower lobes were divided individually and stapled with vascular reload (Endo-GIA Stapler) (Fig. 2), and the right upper lobe was anastomosed to the sub-carinal part of the trachea. Standard lymph node dissection was done. Then checking for air leaks was done with normal saline and inflation of the lung has been done. After good hemostasis, a single chest drain was placed and the small incision was sutured in layers. In addition, after repositioning of the patient to supine position, before extubation; checking of the tracheobronchial tree has been done with fiber-optic bronchoscopy to see the site of anastomosis, which it was fine. Finally, extubation done intra-operatively. The postoperative course was uneventful. On the 4th postoperative day, the patient was discharged home with clean right main bronchus after doing fiberoptic bronchoscopy (Fig. 3, Video 2). The surgery time for this procedure was 180 min, and 450 cc of blood has been lost till the end of surgery. After 6 months follow-up; fiber-optic bronchoscopy was repeated for the patient and it was free from any recurrence of the tumor and complications. Eight months later, the CT scan of chest, brain, abdomen and pelvis was repeated, all of them were normal.

Supplementary video related to this article can be found at <https://doi.org/10.1016/j.amsu.2022.103359>

4. Discussion

We describe a successful and uncomplicated instance of a centrally positioned, a neglected carcinoid tumor treated with single-port minimally invasive surgery. For the best short- and long-term results,

tracheobronchial sleeve resection is the therapy of choice for BC tumors. Indeed, VATS lobectomy offers several advantages including shorter length of stay, decrease chest tube output and duration, a smaller incision, and decreased postoperative pain [5]. Until recently, minimally invasive surgery was not used for bronchoplastic resections; nevertheless, numerous studies have demonstrated the safety and effectiveness of minimally invasive techniques [3,5,6]. These reconstructions are technically challenging and need the opportunity to use thoracoscopic sutures. Placing low-tension sutures, preventing devascularization of the bronchial stumps, and aligning the anastomosis are all potentially difficult elements of reconstruction after VATS bronchoplasty [2]. Although numerous studies describe VATS bronchoplasty using three or four ports, we prefer a single-port method. To date, only few cases have been reported in the literature of VATS sleeve resection [2,3,7]. In conclusion, this case revealed that single port (Uniportal) sleeve RLL bilobectomy can be safely performed with an excellent clinical outcome.

Sources of funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Author contribution

Rawand A. Essa: Conception and design, execution, analysis and interpretation of data, involved in drafting the article, revised it critically for important intellectual content, read and approved the final version of the manuscript. **Sirwan K. Ahmed:** Conception and design, execution, analysis and interpretation of data, involved in drafting the article, revised it critically for important intellectual content, read and approved the final version of the manuscript. **Dunya H. Bapir:** involved in drafting the article, revised it critically for important intellectual content, read and approved the final version of the manuscript.

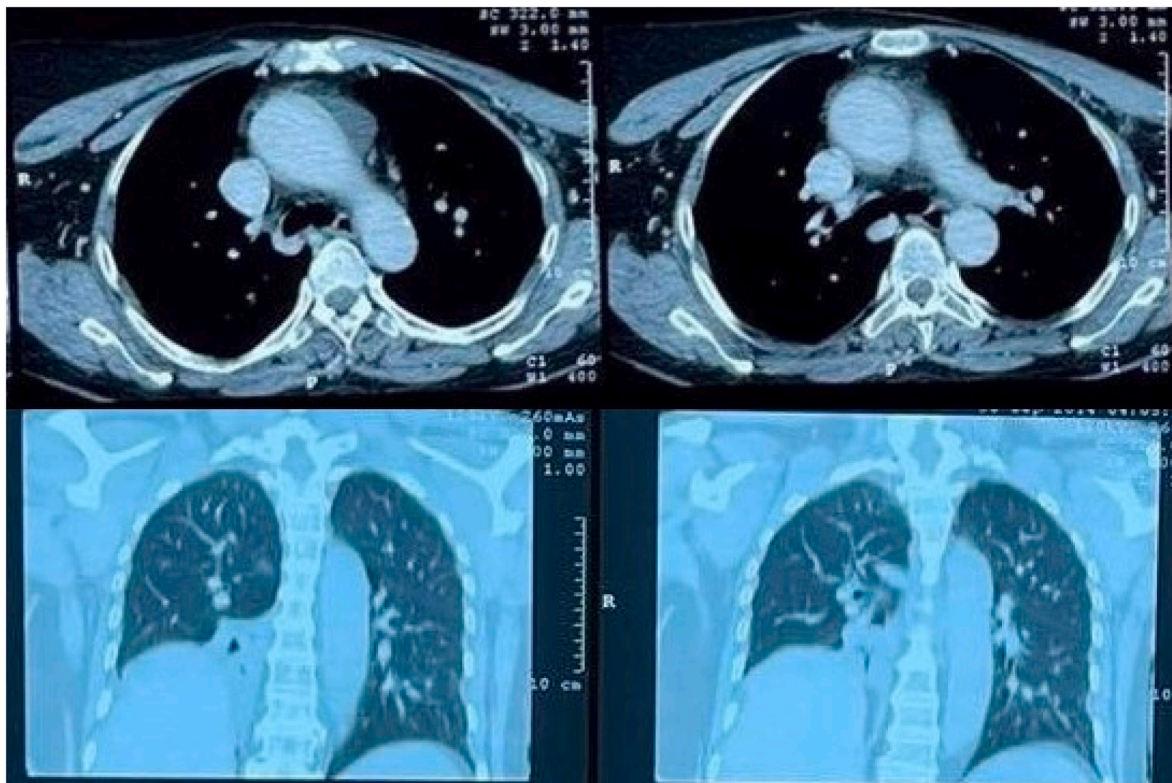


Fig. 1. CT scan shows intrabronchial lesion, and consolidation of the right lower lobe (Carcinoid tumor).



Fig. 2. Resected carcinoid tumor from the right main bronchus.

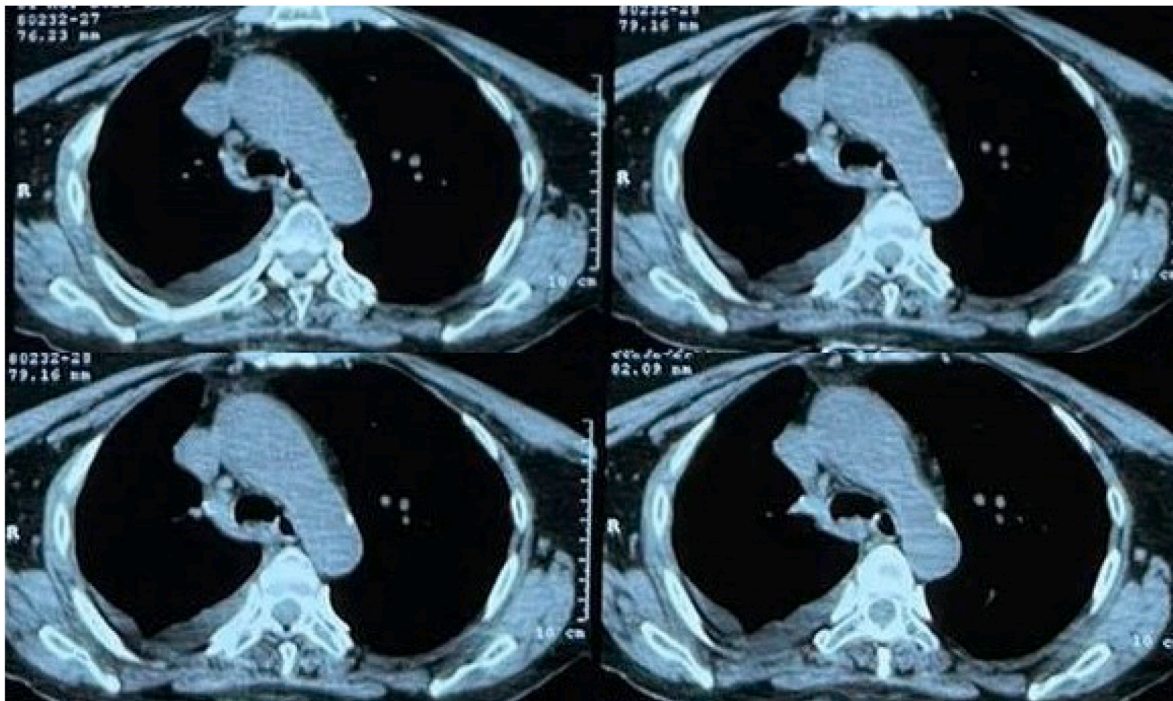


Fig. 3. Postoperative CT scan shows the clean right bronchus.

Ethical approval

Ethical approval has been given by the ethics committee of our faculty.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Trial registry number

Not applicable.

Guarantor

Dr. Rawand A. Essa, and Registered Nurse Sirwan K. Ahmed: Accept full responsibility for the work and conduct of the study, had access to the data, and controlled the decision to publish.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Author agreement statement

We declare that this manuscript is original, has not been published before and is not currently being considered for publication elsewhere. We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We confirm that the order of authors listed in the manuscript has been approved by all of us. We understand that the Corresponding Author is the sole contact for the Editorial process. He is responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs.

Data availability statement

The data underlying this article are available in the article.

Declaration of competing interest

There is no conflict to be declared.

Acknowledgments

1. Special thanks for the pioneer of Uniportal VATS (Dr. Diego

Gonzalez-Rivas) for teaching us this procedure and helping us in all the consultations from far away.

2. Special thanks for Dr. Abdulla Ahmad (Anaesthetist) for giving the patients a great anesthesia and following of the patient in ICU.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.103359>.

References

- [1] R. Bagheri, S.Z. Haghi, A. Sadrizadh, F. Rezaeetalab, Tracheobronchopulmonary carcinoid tumors: analysis of 40 patients, *Ann. Thorac. Cardiovasc. Surg.* 17 (2011) 7–12.
- [2] H. Andrade, P. Joubert, A. Vieira, P. Ugalde Figueroa, Single-port right upper lobe sleeve lobectomy for a typical carcinoid tumour, *Interact. Cardiovasc. Thorac. Surg.* 24 (2017) 315–316.
- [3] D. Gonzalez-Rivas, R. Fernandez, E. Feira, L. Rellan, Uniportal video-assisted thoracoscopic bronchial sleeve lobectomy: first report, *J. Thorac. Cardiovasc. Surg.* 145 (2013) 1676–1677.
- [4] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, A. Thoma, A.J. Beamish, A. Noureldin, A. Rao, B. Vasudevan, The SCARE 2020 guideline: updating consensus Surgical CAse REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.
- [5] A. Mahtabifard, C.B. Fuller, R.J. McKenna Jr., Video-assisted thoracic surgery sleeve lobectomy: a case series, *Ann. Thorac. Surg.* 85 (2008) S729–S732.
- [6] R.A. Essa, S.K. Ahmed, D.H. Bapir, S.A. Rasul, C.P. Abubakr, A.A. Khdir, S.B. Mina, P.K. M-Amin, Resection of esophageal duplication cyst in a 6-month child: a surgical challenge by video-assisted thoracoscopic surgery VATS, *IJS Glob Heal* 4 (2021) e63.
- [7] D. Gonzalez, M. Paradelo, J. Garcia, M. dela Torre, Single-port video-assisted thoracoscopic lobectomy, *Interact. Cardiovasc. Thorac. Surg.* 12 (2011) 514–515.