

Surgical Technique: Periareolar Uniportal Video-Assisted Thoracoscopy: A Scarless Approach

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Abstract

Minimally invasive video-assisted thoracoscopic surgeries (VATS) are gaining popularity over conventional open surgeries. Recent advances in this field aim to reduce port numbers for less postoperative pain and recovery duration. Here, we describe a new surgical technique of uniporter VATS with a peri areolar approach for the management of recurrent spontaneous pneumothorax. This technique yields superior cosmetic results with an easy access to the pleural cavity.

Keywords: Periareolar Uniportal VATS; Periareolar Single Port VATS; Spontaneous Pneumothorax; PSP; Pleurodesis; Blebectomy

Abbreviations

VATS: Video-Assisted Thoracoscopic Surgeries; PSP: Primary Spontaneous Pneumothorax

Case Presentation

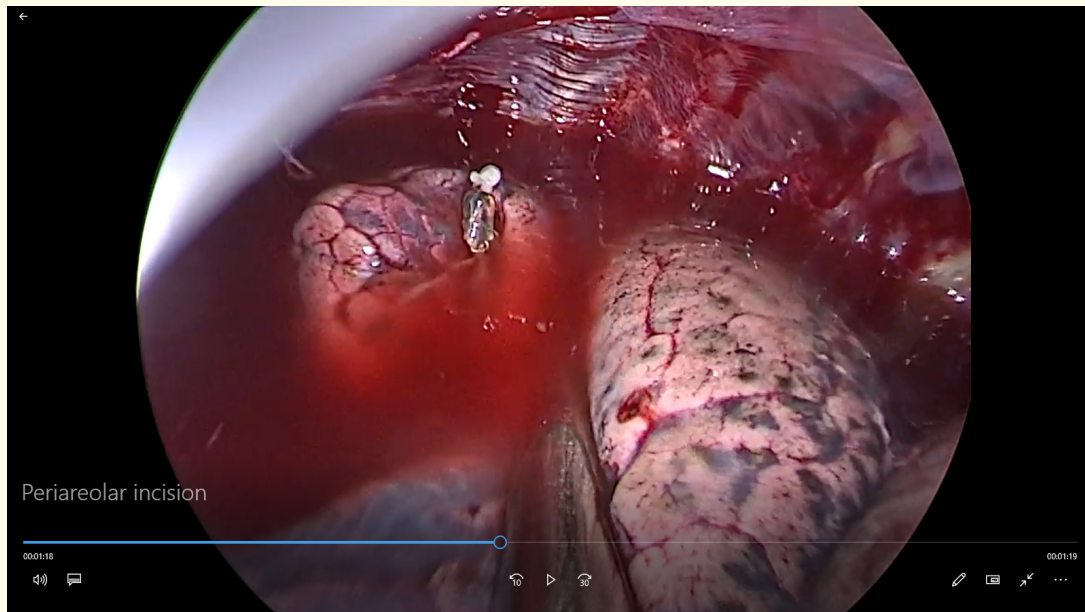
A 30-years-old male patient with a previous history of right-sided primary spontaneous pneumothorax (PSP) managed by chest tube a month ago, presented to the emergency department complaining of left-sided chest pain for 6-hours. No other symptoms were reported. Physical examination showed decreased breath sounds on the left lung, otherwise, the examination was unremarkable.

Chest x-ray showed a large left-sided pneumothorax. A small, seven-french chest drain catheter -connected to the underwater seal system with suction- was inserted at the mid-axillary line of the fifth intercostal space.

Periareolar uniportal VATS blebectomy and mechanical pleurodesis was performed under general anaesthesia with double-lumen endotracheal intubation. The patient was positioned to the standard right lateral decubitus position with a slight posterior tilting of the table (Figure1.A). Draping and covering the skin were performed. An incision was made along the inferior half of the areolar borderline (Figure1.B). Dissection and cutting of the subcutaneous tissue were performed using a diathermy device. The pleural cavity was entered via the fifth intercostal space, and a soft tissue wound protector was applied (Ring Protect™). A 30-degree 10mm-thoracoscope was introduced, and exploration of the 28 left hemithorax was done ((Video 1) see Supplementary material)). Other instruments were inserted through the same periareolar incision. Multiple subpleural blebs were observed in the apical segment of the left upper lobe. Wedge resection blebectomy was performed using Endo-GIA Stapler (ECHELON™+). Apical pleurectomy and mechanical pleurodesis were done easily through the same incision. The pleural catheter that was placed before surgery was replaced by a new one. Hemopneumostasis was ensured and 34 an intercostal block was conducted. The periareolar wound was closed in layers as usual. The patient was extubated in the operative room and transferred to the surgical ward in a good condition. The chest tube was removed after 48 hours. The postoperative

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course was uneventful. The patient was discharged on the third postoperative day in a stable condition with no pain, discomfort. Chest x-ray before discharge showed a well-inflated left lung with no evidence for pneumothorax or pleural effusion.



Video

Two months after the operation, no visible scars were noted (Figure 1 and 2).



Figure 1: A) patient position: right lateral decubitus position.



Figure 1: B) External periareolar incision (inferomedial and inferolateral).



Figure 2: No scarring 2 months later.

Discussion

Currently, VATS is the access of choice for the surgery of PSP among most of the thoracic surgeons worldwide (Foroulis). Two ports VATS on 112 patients with PSP showed excellent cosmetic results, minimal complication, and no recurrence in one-year follow-up [1].

Multi-port periareolar approach was done on 20 patients (8 major resections, ten sublobar resections, two mediastinal tumours resections). Easier access and more satisfactory results were reported compared to the standard approach [2]. Popularity of uni-portal VATS is increasing, and surgeons apply the technique more comfortably with the progress of their learning curve (Migliore). uniportal VATS is already performed through subxiphoid, intercostal, subcostal, and transcervical approaches [3]. A recent study using the transareolar uniportal approach (unilateral and bilateral) done on 46 male patients with peripheral pulmonary nodules was safe and effective [4-6].

We present a more cosmetically-appealing novel approach for managing recurrent PSP. This approach provided high patient satisfaction because of its effective results, no recurrence -till this day- and minimal scarring, if any. Our patient underwent lung resection, blebectomy, and mechanical pleurodesis via the periareolar uniportal VATS approach.

To our knowledge, this is the first operation of this kind to be performed through this new approach. The operative and postoperative periods were uncomplicated. We believe this technique holds an excellent chance to change the approach when treating cases of recurrent spontaneous pneumothorax to achieve the best outcomes for the patients. More operations for different pathology need to be performed via this technique to assess its safety and feasibility.

Conclusion

We described a new surgical technique for management of PSP using periareolar approach uniportal VATS. Within addition to the advantages of earlier recovery and less postoperative complications of minimally invasive VATS, this technique provides superior cosmetics results and easy access to pleural cavity for management of recurrent PSP.

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Conflict of Interest

None declared.

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