



# Technical aspects of biportal video-assisted thoracoscopic right S7+8 segmentectomy of the lung

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**Abstract:** The technical aspects of the biportal anterior approach for right anterior and medial basal segmentectomy are described with particular emphasis to the exposure and dissection of the segmental hilar structures. The key step, which guides the identification of the segmental bronchus, is the dissection and division of the segmental arteries. After their division the bronchus is exposed, dissected and divided. Finally the intersegmental plane is completed along the inflation-deflation line.

**Keywords:** Anterior and medial basal segmentectomy; video-assisted thoracoscopic (VATS); S7 segmentectomy; S8 segmentectomy; lung resection

Received: 02 June 2018; Accepted: 26 June 2018; Published: 04 July 2018.

doi: 10.21037/jovs.2018.06.20

View this article at: <http://dx.doi.org/10.21037/jovs.2018.06.20>

## General principles

As a rule we perform video-assisted thoracoscopic (VATS) anatomic segmentectomies through a biportal approach, including a 3–4 cm anterior utility incision and another 1.5 cm inferior port.

We utilize a 5 or 10 mm, 30 degree angled HD video-thoracoscope.

The surgeon and the assistant are usually positioned on the anterior (abdominal) side of the patient. The surgeon can change position and place himself cranially or caudally with respect to the assistant depending on the different steps of the operation.

Initially, the anterior utility incision is made and the wound is protected by a plastic soft tissue retractor (wound protector) kept in place by a ring in the chest cavity and one outside the skin (Alexis Retractor, Applied Medical USA). This incision is usually placed at the 4<sup>th</sup>-5<sup>th</sup> intercostal space between the tip of the scapula and the breast in the anterior axillary line.

A second 1.5 cm port is positioned more posteriorly at the level of the 7<sup>th</sup> intercostal space just anterior to a straight line down from the tip of the scapula and is performed under endoscopic guidance using the thoracoscope through the utility incision made previously.



**Figure 1** Technical aspects of biportal video-assisted thoracoscopic right S7+8 segmentectomy of the lung (1).

Available online: <http://www.asvide.com/article/view/25709>

## Operative steps (Figure 1)

For a right S7+8 segmentectomy, the camera is introduced through the utility incision. Dissection starts with opening of the oblique fissure and exposure of the basilar segmental arterial branches using monopolar diathermy. Suction device is using for retraction and maintenance of a dry surgical field. The arterial segmental branch for the segment 8 (A8) is dissected and divided using endovascular

stapler proximal to the origin of A7 branch. The stapler is passed through the utility incision.

The next step is the exposure of the segmental bronchus (S8+7). The bronchus is dissected with a Harken clamp and encircled with a vessel loop. We normally clamp the bronchus and request from the anesthetist to inflate the lung as demonstrated. Division of the bronchus is performed with the endoscopic stapler introduced through the utility incision. If the angle is more favorable, the stapler can be introduced through the inferior port as shown in the video.

After division of the segmental bronchi, the segmental vein for segment 8 (V8) is dissected and divided with endovascular stapler. Again the angle in the presented case favored introduction from the inferior port. Finally, the parenchyma is divided along the inflation-deflation line and the specimen is removed in an endobag. A systematic lymph node sampling is the last step of the procedure.

## Acknowledgments

*Funding:* None.

## Footnote

*Provenance and Peer Review:* This article was commissioned by the editorial office, *Journal of Visualized Surgery* for the series “Uncommon Segmentectomies”. The article has undergone external peer review.

*Conflicts of Interest:* Both authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/jovs.2018.06.20>). The series “Uncommon Segmentectomies” was commissioned by the editorial

office without any funding or sponsorship. AB served as the unpaid Guest Editor of the series and serves as an unpaid editorial board member of *Journal of Visualized Surgery* from Dec 2016 to Nov 2018. The authors have no other conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee(s) and 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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doi: 10.21037/jovs.2018.06.20

**Cite this article as:** Brunelli A, Konstantinidis K. Technical aspects of biportal video-assisted thoracoscopic right S7+8 segmentectomy of the lung. *J Vis Surg* 2018;4:135.