DISCUSSION

Mycotic aneurysms of the coronary arteries are exceedingly uncommon, accounting for less than 3% of all coronary aneurysms.² Most are associated with infective endocarditis, although coronary stents are increasingly implicated in the formation of mycotic coronary aneurysms.^{2,3} We present a unique case of a mycotic aneurysm of the left main coronary artery in a splenectomized patient after a pneumococcal pneumonia complicated by purulent pericarditis. The rapid growth of the pseudoaneurysm within 3 months coupled with the septicemia and purulent pericarditis support the mycotic origin of the pseudoaneurysm. Pre-existing coronary calcifications may have led to an initial endarteritis followed by a contained rupture and purulent pericarditis. Although the presentation was ischemic in nature owing to coronary artery stenosis, it was likely that the pseudoaneurysm caused compression on the coronary arteries as suggested by the positional feature of the patient's symptoms.

Preoperative assessment is essential to define the relationship of the pseudoaneurysm to the surrounding structures. High-resolution multislice CT allows excellent visualization of the proximal coronary arteries and relationships with surrounding structures. Although covered stents have been

reported as a treatment for mycotic coronary pseudoaneurysm, open surgical management remains the gold standard for patients without prohibitive risk.^{4,5} Access to a pseudoaneurysm of the left main coronary artery requires transection of the main pulmonary artery in most circumstances, especially in the presence of dense adhesions, as in the present case. Unroofing of the aneurysm wall with proximal ligation of the coronary artery is mandatory. Although technically challenging, in situ revascularization of the proximal circumflex artery is feasible, as performed in our case. The proximal LAD is often difficult to revascularize and is probably best revascularized with the left internal thoracic artery. Appropriate antibiotic treatment is essential to minimize recurrence.

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Pleural pressure immediately after pulmonary lobectomy: Single versus double chest tubes for suction

Alessandro Brunelli, MD,^a Stephen D. Cassivi, MD,^b Juan Fibla, MD,^b and Luca Di Nunzio, MD,^a Ancona, Italy, and Rochester, Minn

Recent studies have shown that a single chest tube after pulmonary lobectomy is at least as effective as 2 chest tubes in evacuating air and fluid from the pleural space.¹⁻³ In addition, a single tube may produce less pain and may be a more suitable option for patients being treated with fast-tracking approaches. Most surgeons still favor the use of -20 cm

H₂O suction in the first postoperative hours, with the theoretic aim of promoting lung expansion. This level of suction has persisted in most practices since being adapted from early thoracic drainage devices designed by Emerson in the 1940s. The benefits of chest tube suction, however, remain a topic of debate. This study investigated whether the use of 1 or 2 chest tubes after pulmonary lobectomy might influence the level of intrapleural pressure as measured in the first postoperative hours.

MATERIALS AND METHODS

The study was approved by the local hospital institutional review boards, and patients gave informed consent for collection and use of their data in the database for research purposes. This post hoc analysis of a prospective study to assess the efficacy of a novel chest drain system included 145 patients undergoing pulmonary lobectomy through a lateral muscle-sparing thoracotomy in 2 separate thoracic surgery centers (2007-2008). After completion of the lobectomy, 2 chest tubes (1 at the apex and the other placed at the base) or 1 chest tube (placed in a lateral position up to the apex, all tubes

From the Division of Thoracic Surgery,^a Ospedali Riuniti, Ancona, Italy, and the Division of General Thoracic Surgery,^b Mayo Clinic, Rochester, Minn.

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Address for reprints: Alessandro Brunelli, Division of Thoracic Surgery, Ospedali Riuniti Ancona, Via Conca 71, 60020, Ancona, Italy (E-mail: brunellialex@gmail.com).

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TABLE 1. Comparison between patients with 1 versus 2 chest tubes after pulmonary lobectomy

Variables	Single (n = 89)	Double (n = 56)	P value
Age	67.3% ± 12.5%	67.5% ± 10.8	.9
FEV ₁ (% predicted, mean ± SD)	83.8% ± 18.7%	83.6% ± 19.8	.9
FEV ₁ /forced vital capacity	0.68 ± 0.1	0.69 ± 0.1	.8
DLCO (% predicted, mean ± SD)	80.2% ± 19.3%	72.8% ± 19.8%	.08
Site (no. upper)	52 (58%)	41 (73%)	.06
Side (no. right)	40 (45%)	37 (66%)	.02
Chronic obstructive pulmonary disease (no.)	28 (31%)	16 (29%)	.8
P _{max} (cm H ₂ O, mean ± SD)	-11.5 ± 8	-11.3 ± 7	.8
P _{min} (cm H ₂ O, mean ± SD)	-21.6 ± 7.2	-22.2 ± 8.2	.7
P _{max} - P _{min} (cm H ₂ O, mean ± SD)	10.1 ± 10	11 ± 9.5	.3

FEV₁, Forced expiratory volume in 1 second; DLCO, diffusing capacity of lung for carbon monoxide; P_{max}, maximum intrapleural pressure; P_{min}, minimum intrapleural pressure.

28F) were placed intraoperatively in 56 and 89 patients, respectively. The choice to use 1 or 2 chest tubes was based mainly on the individual surgeon's preference and reflected in part a temporal trend (favoring single chest tube placement in the most recent period).

The digital chest drainage units used in this study had a built-in flow sensor and pressure sensor at the level of the canister featuring software (Medela AG, Baar, Switzerland) capable of providing real-time measurements and recordings of the maximal and minimal intrapleural pressures. Only 1 drainage unit per patient was used, to promote mobility. Double tubes were connected by a Y piece to the drainage unit system. Because the pressure measurements were taken distal to the Y piece, these measurements represented the average pleural pressure value detected by the 2 chest tubes. For the purpose of this investigation, measurements of pleural pressures were recorded during the 6th postoperative hour, when all patients were resting in bed and chest tubes were placed on active suction (-20 cm H₂O). The values used for the analysis represent the average values measured during this period.

RESULTS

Comparison of the pleural pressures for patients with 1 or 2 chest tubes is shown in Table 1. We were not able to detect any significant differences in terms of maximal, minimal, or differential pressure between the groups. Subgroups analyses of patients who had undergone an upper lobe resection versus a lower lobe resection, and of patients with chronic obstructive pulmonary disease also did not reveal significant differences either between those with 1 versus 2 chest tubes.

DISCUSSION

Although the clinical implications of these findings remain debatable, and their reproducibility with other digital

drainage systems should be confirmed, these results add to recent evidence showing similar efficacies of single and double chest tubes after lobectomy. The pressure exerted and measured within the pleural space when applying suction to a single chest tube was not different from the intrapleural pressure measured when two chest tubes were used. In this regard, the concern that a single chest tube might not be sufficient to promote adequate lung re-expansion does not seem to be supported by our findings. The results of this study may also serve as reference information for future studies investigating the effects of suction or new digital technology on chest tube management. The use of 1 versus 2 chest tubes did not seem to affect the ability to exert conventional levels of suction on the pleural space in the postoperative setting.

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