arteriovenous gradient during SVC crossclamping may become detrimental after subsequent pneumonectomy. For this reason, intraoperative monitoring by transesophageal echocardiography is advised in these cases.\textsuperscript{5}

The hypotensive response at SVC clamping may be anticipated in some cases. In our series, 66\% of patients hemodynamically instable at SVC clamping had preoperative antihypertensive treatment with angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers; treatment was stopped 24 hours before surgery. Vasoplegia induced by these drugs makes patients more sensitive to anesthesia-induced hypotension, which is further impaired by SVC clamping. An indirect confirmation of the supposed vasoplegic mechanism is the amount of fluid administered before clamping, which can represent an intraoperative test to predict hypotension at SVC closure. When more than 40 mL/kg of crystalloids or additional vasoactive agents are required to maintain a mean pressure of more than 80 mm Hg before SVC closure, a hypotensive response at clamping is more likely. As a direct consequence, it would be probably more logical to stop these drugs earlier, according to their half-life time.

Another factor to be considered is the need of concomitant azygous vein clamping, as permeability of the azygous vein is important in case of SVC closure.\textsuperscript{6} In patients without preexisting SVC obstruction, azygous flow may become crucial to maintain an adequate right filling volume during crossclamping.

In conclusion, hemodynamic instability at SVC clamping represents a frequent and transitory intraoperative problem that can be managed in almost all cases with aggressive resuscitation maneuvers. It can be anticipated when patients are on antihypertensive treatment with angiotensin system inhibitors and when a synchronous clamping of SVC and azygous vein is needed. Intraoperative hypotension by itself should not stop the operation unless corrective maneuvers are unsuccessful (5\% of cases), considering that no patient from our series had direct adverse consequence from hypotension postoperatively.

### References


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**Massive hemoptysis: Successful treatment with surgical ligation of the thyrocervical artery**

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Bronchial artery embolization (BAE) is an effective treatment for massive hemoptysis and has a primary success rate of 94\% owing to blood flow interruption. The morbidity rate of BAE is low compared with that of emergency lung resection.\textsuperscript{1} We report a case of recurrent massive hemoptysis after primary BAE and further controlled by surgical ligation of the left thyrocervical artery.

**Clinical Summary**

A 57-year-old man was admitted to our hospital for recurrent hemoptysis. The patient had a history of pulmonary tuberculosis with a previous episode of hemoptysis, which required a BAE, 20 years ago. Coronary artery bypass grafting (CABG) was performed following a myocardial infarction, using both right and left internal thoracic arteries. Six months later, a moderate hemoptysis (10 to 20 mL) occurred without any other symptoms, but because of increasing bleeding, the patient was admitted 4 days later. At admission, there was no respiratory distress and no fever. The chest radiograph showed retractile opacities in the left upper lobe and interstitial infiltrate in the lower left lobe. The fiber-optic bronchoscopy confirmed bleeding from the lingula. Primary angiography demonstrated that the left upper bronchus was vascularized by a collateral artery of the thyrocervical trunk.

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Hyperselective catheterization of this vessel and BAE with microparticles (500-900 μm) appeared to be complete (Figure 1, B). The patient required mechanical ventilation during this procedure because of a respiratory failure due to massive hemoptysis exacerbation.

However, bleeding confirmed by bronchoscopic examinations was still persistent in the same territory 12 hours after embolization, and surgery was deemed necessary for a radical treatment. The patient’s general status was critical and left upper lobectomy seemed a dangerous operation. A first attempt at left thyrocervical artery ligation was also proposed. The patient was operated on under general anesthesia. A 5-cm left supraclavicular cervicotomy surgical approach was used. After isolation of the left thyrocervical artery, ligation was performed by surgical clipping at its origin (Figure 2). The operation lasted 30 minutes. The hemoptysis stopped and did not recur; the patient was extubated 2 days later. A computed tomography scan was then performed and showed the presence of cavitating nodules, suggesting thoracic aspergilloma. The patient recovered a good condition, and an upper left lobectomy was performed 8 weeks later. The postoperative course was uneventful, and the patient is still doing well 10 months later.

Discussion
Thoracic surgery is not considered an appropriate initial treatment for severe hemoptysis, because the mortality rate is high compared with that of extensive pulmonary resection.\(^2\) BAE is successful for immediate control of bleeding in 77% to 94% of patients with a life-threatening hemoptysis.\(^1,2\) Relapse of bleeding after first successful BAE can occur in 16% of patients.\(^7\) This recurrence rate is probably influenced by the etiologic disease and the bleeding artery. Bronchial arteries with abnormal origin occur in 8.3% of cases of recurrent hemoptysis.\(^4\) This condition is supposed to lead to a higher risk of relapse.\(^4,5\) The left thyrocervical arterial trunk has a high risk of relapse, with a frequency rate of 8% of abnormal arteries causing severe hemoptysis (n = 2/24).\(^4\) In our case, the atypical vascularization was probably induced by the primary embolization of the bronchial artery 20 years ago and aggravated by the use of left internal thoracic artery for CABG, which could have induced the development of collaterals from the subclavian artery.

Some bronchial vascular abnormalities issuing from the subclavian artery (internal thoracic artery, thyrocervical arterial trunk) may be directly accessible to minimally invasive surgical procedures to interrupt hemoptysis without emergent pulmonary resection. In cases of postembolization life-threatening hemoptysis recurrence, we suggest taking an angiogram to look for an ectopic artery accessible to surgical ligation.

Figure 1. A, Angiogram showing the bleeding from collateral of the left thyrocervical artery. B, Postembolization control angiogram.

Figure 2. Surgical clip at the trunk of the left thyrocervical artery.
Liposarcoma of the pleural cavity: A case report

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We present a case of a large liposarcoma in the left pleural cavity. Pleural liposarcomas are rare; only a few cases have been reported in the English literature. We describe a 56-year-old woman who had dyspnea. A computed tomographic (CT) scan of the chest showed a large fat density mass in the left pleural cavity. Thoracotomy was performed, and postoperative chemotherapy was given 1 month later. She has had a good quality of life for 1.5 years without recurrence.

Liposarcoma is the most common mesenchymal sarcoma in adult life and usually occurs in the retroperitoneum and deep soft tissues of the trunk and extremities, representing approximately 20% of mesenchymal neoplasms. The first case of primary pleural liposarcoma was reported by Ackerman and Wheeler in 1942. There are only 14 cases reported in the English literature up to the present. We report an additional case.

Clinical Summary
A 56-year-old woman with a 3-year history of progressive dyspnea, was urgently admitted to our hospital in January 2005. CT showed that the tumor, which was detected as a large and low-density area in the left pleural cavity, occupied the entire left pleural cavity, the mediastinum, and part of the right pleural cavity (Figure 1). At admission, the patient presented with a pulse rate of 120 beats/min, a blood pressure of 93/55 mm Hg, a breath rate of 30 breaths/min, and an oxygen saturation of approximately 70%. We preoperatively diagnosed liposarcoma with unknown origin.

The patient underwent a tumor resection with thoracotomy. Her vital signs worsened at the beginning of the operation. We quickly removed part of the tumor from the pleural cavity to reduce the pressure on the great vessels and heart. When the patient’s vital signs improved, we operated step by step, and the soft tumor was completely removed. The total weight of the resected tumor mass was 3000 g. The histologic examination revealed a well-differentiated liposarcoma (Figure 2).

The postoperative course was uneventful. The patient recovered with no major complication and was discharged from the hospital 11 days after the operation. Postoperative chemotherapy

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Figure 1. CT scan of the chest showing a large fat density mass in the left pleural cavity and mediastinum, and vascular displacement.