

## Pulmonary artery stump thrombosis developed during the late postoperative period



Tevfik Ilker Akcam, Seyda Ors Kaya, Ozgur Samancilar, Kenan Can Ceylan

Dr. Suat Seren Chest Diseases and Thoracic Surgery Training and Research Hospital, Izmir, Turkey

Kardiochirurgia i Torakochirurgia Polska 2016; 13 (3): 260-261

### Abstract

A 73-year-old man underwent left pneumonectomy for squamous cell lung carcinoma 3 years ago. The postoperative and follow-up periods were uneventful. A thrombus was detected in the left pulmonary artery stump during the last chest computed tomography (CT) scan. Anticoagulant treatment was applied: intravenous heparin for 3 days followed by oral warfarin. The follow-up chest CT examination revealed regression in the size of the thrombus.

**Key words:** pulmonary artery stump, thrombosis, pneumonectomy.

### Streszczenie

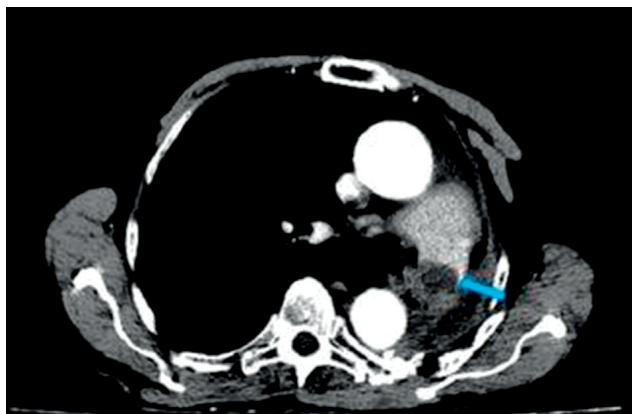
U 73-letniego pacjenta 3 lata wcześniej wykonano pneumonectomię lewostronną z powodu płaskonabłonkowego raka płuca. W okresie pooperacyjnym i obserwacyjnym nie stwierdzono powikłań. W ostatnim badaniu tomografii komputerowej (TK) klatki piersiowej obecne były skrzepliny w kikut lewej tętnicy płucnej. Zastosowano leczenie przeciwzakrzepowe: dożylną heparynę przez 3 dni, a następnie doustną warfarynę. W kolejnych badaniach TK klatki piersiowej odnotowano zmniejszenie rozmiaru skrzepliny.

**Słowa kluczowe:** kikut tętnicy płucnej, zakrzepica, pneumonektomia.

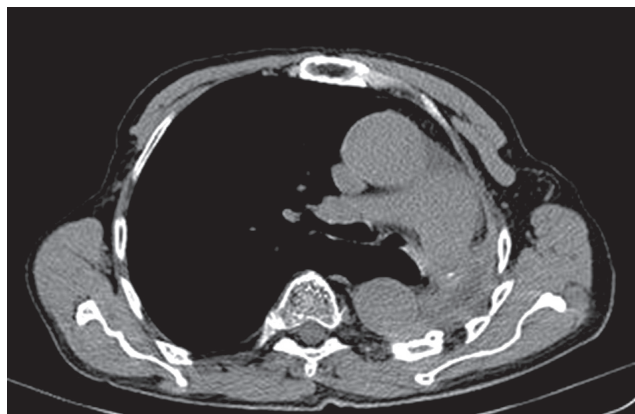
### Case report

A 73-year-old man underwent left pneumonectomy for squamous cell lung carcinoma 3 years ago. The pathological stage was IIa (T2aN0M0), and the vascular resection margins were free of tumor. No adjuvant treatment was applied. The postoperative and the follow-up periods were uneventful. However, a thrombus was detected in the left pulmonary artery stump during the last chest computed tomography (CT) scan (Fig. 1). Venous Doppler ultrasonography of both lower extremities detected no deep vein thrombosis. Anticoagulant treatment was applied: intravenous heparin for 3 days followed by oral warfarin. The follow-up chest CT revealed regression in the size of the thrombus (Fig. 2). Pulmonary artery stump thrombosis was reported as early as 1938 by Crafoord [1]. The frequency of artery stump thrombosis development following pneumonectomy has been reported as 12–20%; however, the number of cases and studies on this subject is limited [2]. Par-

nography of both lower extremities detected no deep vein thrombosis. Anticoagulant treatment was applied: intravenous heparin for 3 days followed by oral warfarin. The follow-up chest CT revealed regression in the size of the thrombus (Fig. 2). Pulmonary artery stump thrombosis was reported as early as 1938 by Crafoord [1]. The frequency of artery stump thrombosis development following pneumonectomy has been reported as 12–20%; however, the number of cases and studies on this subject is limited [2]. Par-



**Fig. 1.** Computed tomography image: secondary changes after left pneumonectomy – compensation. The arrow shows the thrombus in the stump of the left pulmonary artery



**Fig. 2.** Regression in the size of the thrombus observed on the follow-up chest computed tomography scan

**Address for correspondence:** Tevfik Ilker Akcam MD, Dr. Suat Seren Chest Diseases and Thoracic Surgery Training and Research Hospital, Yenisehir, Konak, 35510 Izmir, Turkey, phone: +90 5386062581, e-mail: tevfikilkerakcam@hotmail.com

**Received:** 25.03.2015, **accepted:** 25.03.2016.

ticularly in the case of pneumonectomy, an embolus that develops in the opposite lung can be fatal, but the unfavorable consequences may be prevented with prompt diagnosis and treatment [3, 4]. The described condition generally develops during the early postoperative period; in our case, however, it presented during the long-term follow-up. The initial treatment of choice is anticoagulant therapy. It has also been reported that successful treatment results were achieved in patients undergoing emergency thromboembolism [3]. There are also studies indicating that perioperative thromboembolic prophylaxis may be effective in preventing stump thrombosis [3]. As this condition can lead to life-threatening complications, detecting it is vitally important. The condition is mostly encountered during the early postoperative period; however, one should keep in mind that it may also develop during long-term follow-up. We hereby share the CT image in order to facilitate the di-

agnosis of cases in which no postoperative complications are initially encountered, but in which stump thrombosis develops during long-term follow-up.

### Disclosure

Authors report no conflict of interest.

### References

1. Crafoord C. On the technique of pneumonectomy in man: critical survey of experimental and clinical development and report of authors material and techniques. *Acta Chir Scand* 1938; 81: 1-142.
2. Kotoulas C, Lachanis S. Embolism of the pulmonary artery stump after right pneumonectomy. *Interact Cardiovasc Thorac Surg* 2009; 8: 563-564.
3. Chen Q, Tang AT, Tsang GM. Acute pulmonary thromboembolism complicating pneumonectomy: successful operative management. *Eur J Cardiothorac Surg* 2001; 19: 223-225.
4. Sato W, Watabene H, Sato T, Iino K, Sato K, Ito H. Contralateral pulmonary embolism caused by pulmonary artery stump thrombosis after pneumonectomy. *Ann Thorac Surg* 2014; 97: 1797-1798.