

## A CARDIAC ARREST ASSOCIATED WITH DOUBLE LUMEN ENDOBRONCHIAL TUBE: CASE REPORT

Adnan Tufek<sup>1\*</sup>, Feyzi Celik<sup>1</sup>, Orhan Tokgoz<sup>1</sup>, Haktan Karaman<sup>1</sup>, Refik Ulku<sup>2</sup>,  
Zeynep Baysal Yildirim<sup>1</sup>, Gonul Olmez Kavak<sup>1</sup>

1. Department of Anesthesiology and Reanimation, Dicle University, School of Medicine, Diyarbakir, Turkey.  
2. Department of Thoracic Surgery, Dicle University, School of Medicine, Diyarbakir, Turkey.

### Abstract

Double lumen tubes are used frequently in operations of Thorax Surgery Department. This case report presents a cardiac arrest towards the end of surgery in patient with placement of left bronchial double lumen tubes.

Unexplained perioperative cardiac arrest may be due to obstruction of pulmonary artery flow associated with double lumen tube in thorax surgery.

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### Introduction

Although there are alternative pulmonary isolation techniques in thorax surgery, double lumen tubes (DLT) are still frequently used.<sup>1</sup>

This case report presents an immediate cardiac arrest just after surgery in patient with left DLT.

### Case Report

55-year-old, 70 kg male patient had chest pain and dyspnea for 6 months. Right lower lobectomy was planned after diagnosis of lung cancer. Computerized tomography of lung revealed a mass localized to superior segment of lower lobe in right lung. Preoperative examination was normal without any other pathologies.

Premedication was given with iv 0.05 mg/kg midazolam. After standard anesthesia monitorization (ECG, SpO<sub>2</sub>, NIBP), epidural catheter was placed between thoracic 7-8 intervertebral space for postoperative analgesia.

Catheter was fixed with approximately 4 cm inside. Anesthesia induction was performed with 2 mg/kg propofol, 2 µg/kg fentanyl and 0,6 mg/kg rocuronium. After adequate muscle relaxation, intubation was done with 35 numbered left Robertshaw tube successfully at first attempt.

Tube position was confirmed with fiberoptic bronchoscope. Anesthesia was maintained with %2 sevoflurane and %50 O<sub>2</sub>-air intraoperatively. Right radial artery was catheterized then right internal jugular vein was also catheterized for central venous monitorization. Left lateral decubit position was given, then position of DLT was controlled again at this position. Surgery commenced thereafter.

Right lower lobectomy procedure was performed successfully with right thoracotomy. However, suddenly bradycardia and cardiac arrest was observed during closure of pleura. The cardiopulmonary resuscitation (CPR) was performed with internal cardiac massage. Firstly, cardiac tamponade and tension pneumothorax were ruled out.

Arterial blood gas analysis (ABG) was also done. Then, patient was brought to the supine position and external cardiac massage was started. ABG analysis revealed no metabolic disorder to explain sudden cardiac arrest. (pH:7.35, pCO<sub>2</sub>: 50 mmHg, pO<sub>2</sub>: 120 mmHg, HCO<sub>3</sub>: 25 mEq/L, BE: -3). When there was no positive response at the 15th minute of CPR,

#### \*Corresponding author:

Assist. Prof. Dr. Adnan Tufek  
Department of Anesthesiology and Reanimation,  
Dicle University, School of Medicine,  
Diyarbakir, Turkey

Phone: +90 532 5183496  
E-mail: adnantufek@hotmail.com

DLT was exchanged to single lumen tube. When cardiac rhythm turned to ventricular fibrillation (VF), defibrillation was performed with 360 J.

Sinus rhythm was achieved, heart rate was 110/min and arterial blood pressure was 65/40 mmHg. Dopamin infusion (10 µg/kg/min) was started and patient was transferred to Reanimation ICU unit with mechanical ventilation and supportive treatment. At the 12th hour of ICU stay, he gained his consciousness back. At the 4th day, he was extubated when his spontaneous ventilation was adequate. Hemodynamics follow-up was stable and there was no neurological sequelae. At the 7th day of ICU, he was transferred to Thorax surgery department wards.

### Discussion

Thorax surgery cases have highest mortality and cardiovascular complications constitute the second most cause of morbidity after respiratory complications.<sup>2</sup> Adverse events due to DLT are seen mostly during intubation and due to one-lung-ventilation.<sup>1</sup>

Perioperative bradycardia may be seen generally because of central mechanisms, psychological stress, pain or reduced venous return.<sup>2,3</sup>

Unexplained cardiac arrest is rare at the end of surgery. Generally, pericardial tamponade and tension pneumothorax are the main causes of cardiac arrest which are seen at perioperative period and reversible associated with surgical manipulation.<sup>4</sup>

Our case had sudden cardiac arrest; pericardial tamponade and tension pneumothorax are ruled out, ABG analysis was normal. In spite of CPR, there was no electrical activity on ECG. This was interpreted as a complication of DLT. Therefore, DLT was exchanged with single lumen tube and soon, patient's rhythm turned from asystole to ventricular fibrillation.

Douglas G Wells et al.<sup>5</sup> presented a case underwent right thoracotomy because of excision of bronchogenic cyst. After anesthesia induction, sudden cardiac dysrhythmia and cardiac arrest was reported. Left Robertshaw tube displaced the bronchogenic cyst, obstructed pulmonary artery flow. Only after removal of cyst and exchanging of DLT with single lumen tube, cardiac arrest rhythm returned to normal sinus.

Similarly in our case, after 15 minutes of CPR and exchanging of DLT with single lumen tube, cardiac arrest rhythm returned to normal sinus. Therefore, we consider that left DLT compressed the pulmonary artery outflow, this caused cardiac arrest.

### Conclusions

Unexplained cardiac arrest in thorax surgery may be associated with obstruction of pulmonary artery outflow by DLT, therefore CPR should be continued until exchanging of DLT with single lumen tube.

### Declaration of Interest

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