

Peer Review File

Article Information: <http://dx.doi.org/10.21037/ccts-20-145>.

RESPONSE TO REVIEWERS

We thank the reviewers for their time and suggestions. To address the reviewers' comments, we have revised the manuscript accordingly. Please find below our specific responses to each reviewer and details about the changes we have made to the manuscript.

Response to Reviewer #1

We thank the reviewer for the comment.

1. This case is well presented and it is very interesting to learn about this challenging situation.

Response: Thank you for the appreciation.

Response to Reviewer #2

We thank the reviewer for the suggestions and comments. Please find our response as follows:

1. Did she have any previous symptoms such as hemoptysis, chest or back pain?

Response: The patient presented with a sudden-onset back pain without any previous symptoms. We have now mentioned the same in the "Case Presentation" section.

Case Presentation (pages 5, line 91-92)

An 86-year-old female patient who was a non-smoker but had a history of hypertension who had been taking cilostazol presented with sudden-onset, severe back pain without any prodromal signs and symptoms.

2. The authors should provide more details about the cardiac arrest. Was this pulseless electrical activity or ventricular tachycardia? How long was she pulseless without a blood pressure? How was she resuscitated? Was she in the lateral decubitus position? Was the pericardium opened? Was open cardiac massage performed?

It sounds like she arrested at the time of induction of general anesthesia. Did she have adequate resuscitation preoperatively? Can you detail which fluid and blood products she received preoperatively and intraoperatively? What intravenous access did she have at the time of induction and also during resuscitation?

Response: We thank the reviewer for this suggestion and comments. The patient became hemodynamically unstable just after arrival in our emergency department. We initiated rapid volume replacement with Ringer solution and transfusion of

warmed red blood cells and continuous vasopressor (norepinephrine) infusion through the peripheral veins. Due to the hemodynamic instability, we performed tracheal intubation in the emergency department, and we decided on performing an emergency thoracotomy rather than TAE to achieve hemostasis. Immediately on arrival in the operating room, central venous access through the right jugular vein was created by an anesthesiologist. In addition to red blood cell transfusion, we initiated a transfusion of frozen plasma in the operating room. Despite continuous volume replacement with vasopressor infusion, the patient suddenly went into cardiac arrest with pulseless electrical activity (PEA) during induction of general anesthesia in the supine position. We immediately performed an external cardiac massage by chest compression for 2 minutes, which revived her. We have replaced the term of cardiopulmonary arrest with cardiac arrest because the patient was on mechanical ventilation at the time of PEA. We have mentioned the same in the “Case Presentation” section.

Case Presentation (pages 5-6, lines 98-117)

The patient was urgently transferred to our hospital for TAE. However, she became hemodynamically unstable just after arrival in our emergency department. We initiated rapid volume replacement with Ringer solution and transfusion of warmed red blood cells, and a continuous vasopressor (norepinephrine) infusion through the peripheral veins. Due to her hemodynamic instability, we performed tracheal intubation in the emergency department to initiate mechanical ventilation and decided to perform an emergency thoracotomy to achieve hemostasis rather than TAE.

Immediately on arrival in the operating room, central venous access through the right jugular vein was created. In addition to the red blood cell transfusion, we initiated a transfusion of fresh frozen plasma in the operating room. Despite continuous volume replacement with vasopressor infusion, the patient suddenly went into cardiac arrest with pulseless electrical activity during induction of general anesthesia in the supine position. We immediately performed an external cardiac massage by chest compression for 2 minutes, which revived her. Subsequently, the patient was placed in the right lateral decubitus position.

3. While the authors should be congratulated on the successful treatment of this elderly woman presenting in extremis with a challenging problem, there are examples of ruptured aneurysms being treated with resuscitation and endovascular stenting even in the setting of a hemodynamically unstable patient. This may not have been possible in this case but should be considered further in the discussion. On line 120, they state that an unstable case requires emergency surgery. In this case, it sounds like she was able to be resuscitated after arresting on induction of general anesthesia. If return of spontaneous circulation was obtained, could the procedure still have been performed endovascularly?

Response: We thank the reviewer for this suggestion and comments. We agree that aortic stenting could be an option for the treatment of a ruptured mediastinal bronchial artery aneurysm. In our case, the patient was transferred to our hospital for

TAE. Due to the hemodynamic instability, we decided to perform an emergent thoracotomy. There are several case reports about successful treatment for a ruptured mediastinal bronchial artery aneurysm with a thoracic endovascular aortic repair (TEVAR). Recently, Kikutani et al. reported a case with a ruptured mediastinal bronchial artery aneurysm which led to cardiopulmonary arrest during the TAE procedure. The patient was revived by cardiopulmonary resuscitation with intra-aortic balloon occlusion, and after hemodynamic stabilization, the case was successfully treated with urgent TEVAR. This case reported by Kikutani achieved temporal hemodynamic stabilization probably due to successful intra-aortic balloon occlusion. In our case, an intravascular intervention using angiography was not available in the operating room when the patient went into cardiac arrest; hence, she was resuscitated by chest compression. We performed an emergent thoracotomy to achieve a hemostasis immediately after the resuscitation. However, an emergent TEVAR in the operating room with preparedness for thoracotomy in case of an unsuccessful hemostasis could be an alternative option for an emergent thoracotomy. We have made mentioned the same in the “Discussion” section as follows:

Discussion (pages 7-8, lines 151-172)

However, a hemodynamically unstable case might require an emergency surgery. In our case, the patient was initially transferred to our hospital for TAE. Due to her hemodynamic instability, we decided to perform an emergency thoracotomy. There are several case reports about successful treatment for a ruptured mediastinal bronchial artery aneurysm with thoracic endovascular aortic repair (TEVAR). Recently, Kikutani et al. reported a case of ruptured mediastinal bronchial artery aneurysm, which led to cardiopulmonary arrest during the TAE procedure. The patient was revived by cardiopulmonary resuscitation with intra-aortic balloon occlusion, and after hemodynamic stabilization, the case was successfully treated with urgent TEVAR.[3] This case reported by Kikutani et al. achieved temporal hemodynamic stability probably due to successful intra-aortic balloon occlusion. In our case, an intravascular intervention using angiography was not available in the operating room when the patient went into cardiac arrest; hence, we resuscitated her by chest compression and performed an emergent thoracotomy to achieve hemostasis immediately after the resuscitation. However, an emergent TEVAR in the operating room with preparedness for thoracotomy in case of unsuccessful hemostasis could be an alternative option.

4. The CT images and reconstructions are excellent.

Response: Thank you for the appreciation.

5. Figure 5 does not add much to the manuscript and could be removed.

Response: We have deleted Figure 5, as suggested.

Response to Reviewer #3

We thank the reviewer for the suggestions and comments. Please see our response below.

1. More detailed information regarding the treatment of patients with unstable hemodynamics and its consequences should be provided.

Response: We thank the reviewer for this suggestion. The patient became hemodynamically unstable just after arrival in our emergency department. We initiated rapid volume replacement with Ringer solution and transfusion of warmed red blood cells, and a continuous vasopressor (norepinephrine) infusion through the peripheral veins. Due to her hemodynamic instability, we performed tracheal intubation in the emergency department to initiate mechanical ventilation and decided to perform an emergency thoracotomy to achieve hemostasis rather than TAE. Immediately on arrival in the operating room, central venous access through the right jugular vein was created. In addition to the red blood cell transfusion, we initiated a transfusion of fresh frozen plasma in the operating room. Despite continuous volume replacement with vasopressor infusion, the patient suddenly went into cardiac arrest with pulseless electrical activity during induction of general anesthesia in the supine position. We immediately performed an external cardiac massage by chest compression for 2 minutes, which revived her. In addition, we have changed the term cardiopulmonary arrest to cardiac arrest because the patient was already on mechanical ventilation at the time of PEA. We have mentioned these details in the “Case Presentation” section.

Case Presentation (pages 5-6, lines 98-117)

The patient was urgently transferred to our hospital for TAE. However, she became hemodynamically unstable just after arrival in our emergency department. We initiated rapid volume replacement with Ringer solution and transfusion of warmed red blood cells, and a continuous vasopressor (norepinephrine) infusion through the peripheral veins. Due to her hemodynamic instability, we performed tracheal intubation in the emergency department to initiate mechanical ventilation and decided to perform an emergency thoracotomy to achieve hemostasis rather than TAE.

Immediately on arrival in the operating room, central venous access through the right jugular vein was created. In addition to the red blood cell transfusion, we initiated a transfusion of fresh frozen plasma in the operating room. Despite continuous volume replacement with vasopressor infusion, the patient suddenly went into cardiac arrest with pulseless electrical activity during induction of general anesthesia in the supine position. We immediately performed an external cardiac massage by chest compression for 2 minutes, which revived her. Subsequently, the patient was placed in the right lateral decubitus position.

2. Particularly, was intervention therapy an option if hemodynamics were stabilized after successful resuscitation?

Response: We thank the reviewer for this comment. In our present case, the patient was originally transferred to our hospital for TAE. Due to her hemodynamic instability, we decided to take her to the operating room for an emergent thoracotomy. Several case presentations reported successful treatment for a ruptured mediastinal bronchial artery aneurysm with a thoracic endovascular aortic repair (TEVAR). Recently, Kikutani et al. reported a case with a ruptured mediastinal bronchial artery aneurysm which led to cardiopulmonary arrest during TAE procedure, who was recovered by cardiopulmonary resuscitation with intra-aortic balloon occlusion, and after hemodynamic stabilization, the case was successfully treated with urgent TEVAR. This case reported by Kikutani reached a temporal hemodynamic stabilization probably due to a successful intra-aortic balloon occlusion. In our case, an intravascular intervention using angiography was not available in the operating room where the patient went into cardiac arrest and was resuscitated. Therefore, we performed an emergent thoracotomy to achieve a hemostasis immediately after the resuscitation. However, an emergent TEVAR in the operating room with preparation of thoracotomy in case of an unsuccessful hemostasis would be an alternative option for an emergent thoracotomy. We have made mention of this in the “Discussion” section.

Discussion (pages 7-8, lines 151-172)

However, a hemodynamically unstable case might require an emergency surgery. In our case, the patient was initially transferred to our hospital for TAE. Due to her hemodynamic instability, we decided to perform an emergency thoracotomy. There are several case reports about successful treatment for a ruptured mediastinal bronchial artery aneurysm with thoracic endovascular aortic repair (TEVAR). Recently, Kikutani et al. reported a case of ruptured mediastinal bronchial artery aneurysm, which led to cardiopulmonary arrest during the TAE procedure. The patient was revived by cardiopulmonary resuscitation with intra-aortic balloon occlusion, and after hemodynamic stabilization, the case was successfully treated with urgent TEVAR.[3] This case reported by Kikutani et al. achieved temporal hemodynamic stability probably due to successful intra-aortic balloon occlusion. In our case, an intravascular intervention using angiography was not available in the operating room when the patient went into cardiac arrest; hence, we resuscitated her by chest compression and performed an emergent thoracotomy to achieve hemostasis immediately after the resuscitation. However, an emergent TEVAR in the operating room with preparedness for thoracotomy in case of unsuccessful hemostasis could be an alternative option.