Transcervical bedside brachiocephalic trunk clamping as a technique to reduce exsanguination from injuries to the upper right torso

David Perez, MD, PhD, Jose Ramon Cano, MD, and Luis Lopez, MD, PhD

From the Department of Thoracic Surgery, Hospital Universitario Insular de Gran Canaria, Las Palmas, Spain.

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Address for reprints: David Perez, MD, PhD, Department of Thoracic Surgery, Hospital Universitario Insular de Gran Canaria, 35016 Las Palmas, Spain (E-mail: dperalo@live.com).

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A 67-year-old woman, who had been admitted to our emergency department with a diagnosis of community-acquired pneumonia, had a massive right hemothorax develop after

Using the finger to identify and bluntly dissect the brachiocephalic artery at its origin.

Central Message

Transcervical emergency clamping of the brachiocephalic trunk is a lifesaving procedure for major torso or upper limb bleeding.

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FIGURE 1. Using the finger to identify and bluntly dissect the brachiocephalic artery at its origin.

FIGURE 2. A long vascular clamp was placed, guided by palpation, in the emergency department.

FIGURE 3. The patient was transported, with the closed clamp in place (A), to the operating room for definitive hemostatic procedures through the thoracotomy (B).

the decision was made to carry out another immediate hemostatic procedure.

During the pauses between chest compressions, access to the superior mediastinum was achieved through cervicotomy, and deep blunt dissection was performed with the surgeon's finger along the anterior surface of the trachea. The brachiocephalic trunk was palpated and bluntly dissected at its origin (Figure 1) to prevent injury to the recurrent nerve, and a Satinsky clamp was blindly placed across the artery to stop hemorrhage, thus allowing time for resuscitation and stabilization (Figure 2). When spontaneous return of circulation was observed, evacuation of blood and pleural clots and hemostasis by manual compression of the bleeding point were successfully car-

ried out through the thoracotomy in the operating room (Figure 3). During the thoracotomy procedure, jet bleeding from the subclavian artery was observed to stop on closure of the clamp, which evidenced the efficacy of this procedure.

Although to our knowledge this surgical maneuver has not been described before, it was successfully applied to achieve temporary hemostasis of the bleeding point in a life-threatening situation. We consider this technique to be safe and easy to apply by surgeons with expertise in general thoracic or cardiovascular procedures. We therefore postulate that it could be a useful tool for trauma surgeons to control bleeding of the upper right thoracic region or upper limb.

EDITORIAL COMMENTARY

Emergency transcervical innominate artery clamping: Is it a real option?

Robert B. Cameron, MD

From the Division of Thoracic Surgery, Department of Surgery, David Geffen School of Medicine at UCLA, and the Division of Thoracic Surgery, Department of Surgery and Perioperative Care, West Los Angeles VA Medical Center, Los Angeles, Calif.

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Address for reprints: Robert B. Cameron, MD, Division of Thoracic Surgery, Department of Surgery, David Geffen School of Medicine, 10780 Santa Monica Blvd, Suite 100, Los Angeles, CA 90025 (E-mail: rcameron@stanfordalumni.org).

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Traumatic hemorrhage from the right innominate or subclavian arteries poses a significant challenge for cardiothoracic and trauma surgeons. Traditional surgical repair involves immediate median sternotomy or selective use of supraclavicular or infraclavicular incisions.^{1,2} During the last 2 or 3 decades, endovascular repair of thoracic vascular injuries has improved outcomes and reduced the number of patients requiring surgical repair.^{3,4} Yet some patients still require acute surgical control of right innominate or subclavian artery hemorrhage.

In selected cases, access to the superior mediastinum may be available from the low central neck (patients with neck injuries or tracheostomy and other incisions). In these patients, digital compression of the innominate artery in the mediastinum anteriorly against the sternum may reduce

Mediastinal anatomy affects the ability to clamp the innominate artery blindly.

Central Message

Control of subclavian hemorrhage can be obtained by blind transcervical vascular clamping of the innominate artery in the mediastinum.

See Article page 1424.

blood loss until a sternotomy can be performed, although in my personal experience maintaining effective pressure for the full time necessary can be challenging. In their article in this issue of the *Journal*, Perez and colleagues⁵ report the case of a woman who developed an iatrogenic right hemothorax after central jugular venous catheter placement and whose repeated cardiac arrests prevented prompt transfer to the operating room for definitive repair. During resuscitative efforts in the intensive care unit, Perez and colleagues⁵ used a novel maneuver that allowed them to