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SURGICAL TECHNIQUE

Crash laparotomy with supra-celiac aortic clamping

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Introduction

Crash laparotomy and supra-celiac aortic cross clamping are two techniques that permit surgical approach and control of hemorrhage from intra-abdominal lesions. They are only indicated for patients presenting with hemorrhagic shock who still have preserved cardiac function. The goal is to obtain rapid temporary hemostasis that allows a complete abdominal exploration and a reasoned approach to the inventory and treatment of lesions. Supra-celiac aortic clamping is particularly indicated for management of supra-mesocolic hemorrhage at the level of the hepatic pedicle, celiac trunk or superior mesenteric artery and for complex solid-organ injuries of the liver + kidney or spleen + kidney. Aortic clamping should be intermittent in order to preserve hepatic and renal function that may already be compromised by hypovolemic shock. Ideally, the duration of aortic clamping should not exceed 10 consecutive minutes. If trauma results in cardiac arrest, aortic clamping should be performed through an intra-thoracic approach. The recommended approach is a clamshell bi-thoracotomy, which also provides exposure for internal cardiac massage.

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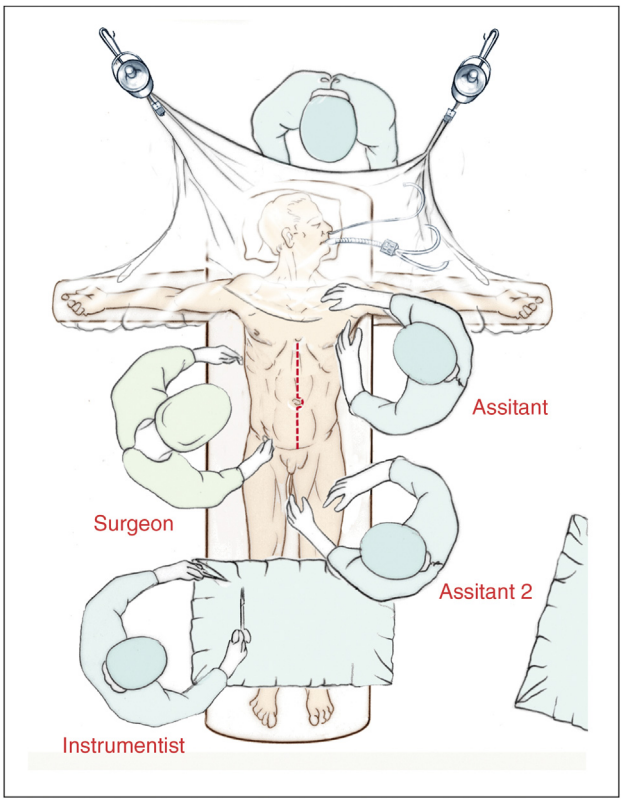
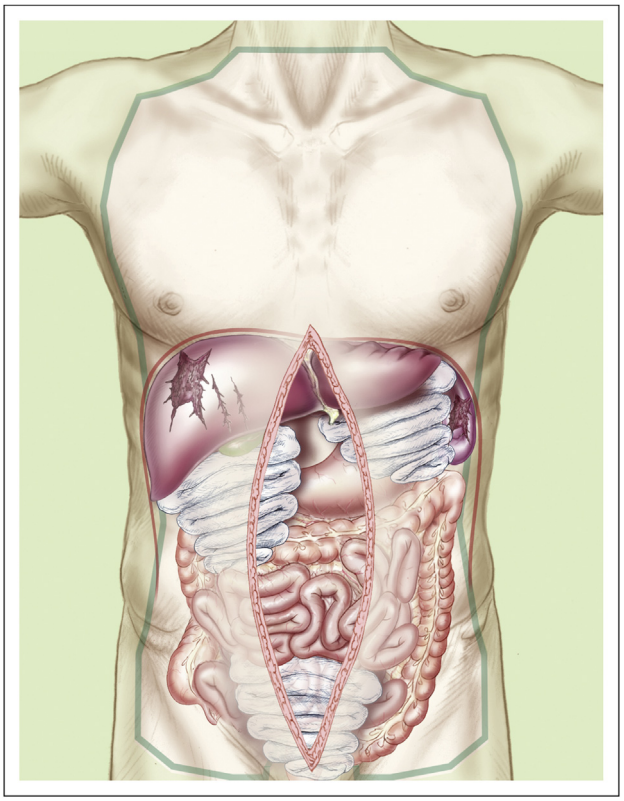
1 Installation

The patient is positioned supine with both arms abducted. Slight Trendelenburg position may be tolerated to improve arterial hypotension. The senior surgeon stands to the patient's right and is, ideally, assisted by two assistants and a scrub nurse. Rapid skin preparation is followed by wide draping to include the thorax, abdomen, and thighs. Two high-volume suctions are prepared along with two dozen laparotomy pads.



2 Patient positioning, incision, and three-quadrant packing

The surgical approach is a midline incision extending from the xiphoid to the pubis. The first passage of the scalpel incises the skin and subcutaneous tissue down to the *linea alba*. No hemostatic maneuvers are performed. The second scalpel passage incises the *linea alba* along its entire length. Finally, the peritoneum is opened with scissors. The abrupt release of intra-abdominal counter pressure results in renewed hemorrhage from venous lesions and a brutal fall in arterial blood pressure. The need for rapid high-volume fluid resuscitation, catecholamine infusion, and transfusions must be anticipated. Pressure and/or packing are immediately applied, even before insertion of retractors. Packing is placed empirically in the right and left upper quadrants and in the pelvis before any eventual dissection or exploration. This provides temporary hemostasis of venous bleeding and prepares the way for performance of supra-celiac aortic cross clamping.



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