

DAMAGE CONTROL SURGERY

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Damage control surgery aims to break the 'vicious cycle' of hypothermia, tissue hypoxia, coagulopathy and acidosis before later definitive repair. Anatomy is restored when the physiology is optimised. The principles are in sequence: (i) short operations aiming to control haemorrhage and limit contamination; (ii) ongoing correction of deranged physiology – acidosis, hypothermia, perfusion and organ function on intensive care; (iii) definitive surgical repair. In a trauma laparotomy, a midline incision is made from the xiphisternum to the pubic symphysis. Large clots are removed and the abdomen is packed in all four quadrants with large swabs to tamponade bleeding. If packing does not control bleeding, it is either inadequate packing, and more should be applied, or there is a significant arterial bleed, and so pressure should be applied to the aorta above the liver. Once bleeding is stemmed and the intravascular volume restored, the packs are removed systematically one quadrant at a time to find the source of the bleeding. Control is by vessel repair, ligation or removal of the organ or reapplication of the packs. Contamination is controlled by either repairing a simple bowel injury with a continuous suture or resection of multiple areas of perforated bowel with a clip-and-drop technique (either stapling or tying off the ends but not attempting primary anastomosis). Bile injuries are managed with a drain, and bladder injuries are oversewn and a urethral catheter placed. The abdomen is left open, allowing transfer to critical care for ongoing physiological correction before returning to theatre in the following days for further procedures. Summary box 19.1 Paediatric trauma

Use the Advanced Trauma Life Support (ATLS) guidelines Overextension of the neck can compromise the airway Cervical spine injury can be present without radiographic signs Intraosseous access is helpful in small children Lung contusion can occur without rib fractures In a stable child, abdominal injuries are best assessed by CT Blunt abdominal organ injury can usually be managed non-operatively Damage control surgery aims to correct physiology before definitive repair

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