

SURGICAL TRAUMA IN OPEN, MINIMALLY INVASIVE AND ROBOTIC SURGERY

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Most of the trauma of an open procedure is inflicted because the surgeon must have a wound that is large enough to give adequate exposure for safe dissection at a target site. The wound is often the cause of morbidity, including infection, dehiscence, bleeding, herniation and nerve entrapment. Wound pain prolongs recovery time and, by reducing mobility, contributes to an increased incidence of pulmonary atelectasis, chest infection, paralytic ileus and deep venous thrombosis. Mechanical and human retractors cause additional trauma. Body wall retractors can inflict localised damage that may be as painful as the wound itself. In contrast, during laparoscopy, the retraction is provided by the low-pressure pneumoperitoneum, giving a diffuse force applied gently and evenly over the whole body wall, causing minimal trauma. Exposure of any body cavity to the atmosphere also causes morbidity through cooling and fluid loss by evaporation. The incidence of postsurgical adhesions is reduced by use of minimally invasive approaches because there is less damage to delicate serosal coverings. In the manual handling of intestinal loops, the surgeon and assistant disturb the peristaltic activity of the gut and provoke adynamic ileus. While minimal access methods were initially established in elective surgery, the advantages have led to increased uptake for a number of emergency surgical procedures, including perforated viscus repair, such as omental patch repair of a peptic ulcer perforation, lavage of localised perforation of diverticular disease, intrathoracic debridement of empyema and pneumothorax and haemothorax surgery. More recently, some experienced surgeons have chosen to employ minimal access approaches to trauma situations for initial assessment and treatment in stable patients.

Advantages of minimal access surgery

Decrease in wound size
Reduction in wound infection, dehiscence, bleeding, herniation and nerve entrapment
Decrease in wound pain
Improved mobility
Decreased wound trauma
Decreased heat loss
Improved visualisation

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