Abstract:
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A 67 year-old man with paraplegia and depression presented with self-inflicted evisceration and small bowel injury. Damage control surgery was undertaken at emergency laparotomy with definitive anastomosis performed at second-look laparotomy following 24 hours resuscitation in ICU. He had an uncomplicated post-operative course and was discharged to an inpatient psychiatric unit.

Introduction

Part of the bushido honour code of the Japanese samurai, seppuku (colloquially more familiar as hara-kiri) is a form of ritualised suicide by disembowelment carried out by samurai warriors after suffering a dishonour or as a form of capital punishment. It is extremely rare in modern-day Japan.

Case Report

A 67 year-old man was brought to the emergency department with a self-inflicted abdominal wound. Forty years previously he had sustained a gunshot wound to the back while serving as a teenaged soldier, resulting in paraplegia. He had more recently developed a severe depressive illness and had twice been admitted for management of his depression, once after a suicide attempt with a medication overdose. He had stabbed himself in the insensate left upper abdominal quadrant with a kitchen scissors, extended the incision medially, pulled out multiple loops of small bowel and separated a substantial length of bowel from its mesentery.

On arrival to the emergency department he was shocked with a blood pressure of 64/33, a heart rate of 120, temperature 36°C (which dropped intra-operatively to 33). Haemoglobin was 7.8g/dL. He was transferred to the theatre for aggressive resuscitation and emergency laparotomy. The wound was extended to a rooftop incision. The eviscerated small bowel had been devitalised, there was profuse abdominal wall bleeding, multiple stab wounds in the sigmoid mesentery and a lcm enterotomy in the distal sigmoid colon. As the patient was shocked, hypothermic and coagulopathic, the principles of damage control were engaged. Identifiable bleeding points were controlled, the infarcted small bowel was resected, the sigmoid colotomy was repaired (Figure 1), the viable ends of bowel were stapled off and the abdomen closed. The patient was then transferred to the intensive care unit for further resuscitation and correction of coagulopathy. The total duration of anaesthesia was 90 minutes.

When fully resuscitated and normothermic, with acidosis and coagulopathy corrected, he was brought back to the theatre 24 hours later. At reoperation there was no further bleeding and the remaining 150cm of small bowel appeared healthy. Jejunum and terminal ileum were anastomosed (Figure 2). He developed a superficial wound infection and required loperamide to control diarrhoea, but post-operative course was otherwise unremarkable. He was then transferred to the inpatient psychiatric unit.

Discussion

Damage control surgery is increasingly recognised and applied as an important concept in the management of the severely injured trauma patient. The objective is to stabilise or temporise immediately life-threatening injuries at initial operation, avoiding prolonged procedures on unstable patients and enabling correction of systemic or end-organ dysfunction prior to definitive procedures at an appropriate interval, such as in this case, bowel anastomosis. This is in respect of the high mortality in surgical patients who develop the lethal triad of hypothermia, acidosis...
and coagulopathy. This begets a vicious cycle of hypothermia, worsening platelet dysfunction and coagulopathy, which exacerbates bleeding and hypothermia leading to ischaemic organ damage and acidosis, further intensifying coagulopathy and the likelihood of irreversible end-organ injury and mortality.

Pringle and Halsted both described packing liver injuries in the early 20th century in preference to immediate definitive surgery. Stone in 1983 described intra-abdominal packing for intraoperative clinically apparent coagulopathy with expedient termination of laparotomy to enable correction of coagulopathy prior to definitive procedure and observed a 35% mortality rate in patients who had undergone a staged, damage control approach compared to 93% in those who had undergone definitive surgery ab initio. The term "Damage Control Surgery" was coined in 1993 by Rotondo et al who found in a series of major trauma cases that in the subset of patients with major vascular injury and two or more visceral injuries the survival rate was 77% with Damage Control Surgery versus 11% with Definitive Laparotomy. While thankfully very rare, patients who have attempted seppuku are more likely to have small bowel injuries in conjunction with major vascular injuries compared with self-inflicted simple abdominal stab wounds and correspondingly have a significantly higher mortality.

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