Simultaneous CPR and Surgical Decompression in the Emergency Management of Abdominal Compartment Syndrome in an Infant: A Rare Case Report

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Abstract:

Acute abdominal pathologies constitute a significant proportion of paediatric emergency cases, and volvulus is a critical cause in early infancy. Abdominal compartment syndrome (ACS) is an uncommon but potentially lethal complication arising from progressive intra-abdominal hypertension, leading to multiple organ dysfunction. This report presents the case of a 32-day-old female infant who presented with septic shock and ACS due to midgut volvulus. Despite the implementation of comprehensive resuscitation measures, encompassing broad-spectrum antibiotics, corticosteroids, and augmented vasoactive infusions, the patient's condition persisted in its deteriorative trajectory. Consequently, emergency decompressive laparotomy was performed during cardiopulmonary resuscitation. During the surgical procedure, 120 centimetres of necrotic small bowel were resected. In subsequent surgical procedures, a further 75 cm of ischaemic bowel was removed, and an anastomosis was created between a 19 cm segment of jejunum and an 11 cm segment of ileum, preserving the ileocecal valve and colon. Postoperative management, incorporating total parenteral nutrition, gradual enteral feeding, and meticulous haemodynamic optimisation, culminated in progressive improvement without the onset of short bowel syndrome. The patient was successfully extubated, transitioned to full enteral feeding, and discharged. This case represents the first and only documented ACS case globally where surgical decompression was performed concurrently with CPR. Moreover, this case demonstrates the difficulties in diagnosing paediatric abdominal emergencies, the catastrophic potential of ACS, and the critical role of timely multidisciplinary intervention and surgical decompression—even during active resuscitation—in achieving favourable outcomes.