Surgical emphysema of the orbit associated with pneumoperitoneum

Editor—In a recent article, the combination of patient position and pneumoperitoneum on the physiology of the patient during surgery was discussed. We present a case of unusual complication associated with pneumoperitoneum.

A fit and well 45-yr-old lady was listed for elective laparoscopic Nissen fundoplication. After induction of anaesthesia, she had the usual patient protective procedures; eye padding, safe positioning, checking of potential pressure points, etc. She underwent the procedure in a head-up tilt position. The procedure was uneventful from both a surgical and anaesthetic point of view. At the end of the procedure on removing the protective eye pads, it was noted that there was extensive swelling to the left orbit (Fig. 1). There was no history of pressure placed on the orbit intraoperatively and no history of allergy to surgical tape. Palpation revealed crepitus and further palpation in the supraclavicular areas revealed additional crepitus. A chest radiograph showed surgical emphysema with pneumomediastinum, a diagnosis of unilateral surgical emphysema of the orbit secondary to gas insufflation was made.

Surgical emphysema has been reported in patients undergoing laparoscopic Nissen fundoplication, and pneumomediastinum is a recognized side-effect of a pneumoperitoneum. Eye injuries during anaesthesia account for a number of claims against anaesthetists but are mostly due to corneal abrasion or eye movement during ophthalmic surgery. Cases of surgical emphysema of the orbit typically relate to trauma of the medial wall of the orbit and even secondary to vigorous nose blowing.

The patient made an uneventful recovery with the emphysema settling quickly. Findings of unexpected injury post-surgery should alert the clinician to potential unusual side-effects; in this case, the pneumomediastinum was not symptomatic.

Conflict of interest
None declared.

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Conservative treatment of non-occlusive mesenteric ischaemia with temporary vacuum-assisted closure therapy

Editor—We report a case where vacuum-assisted closure was useful in the management of a patient with small-bowel ischaemia. A 61-yr-old male, with no significant medical history other than appendectomy 40 yr before, was admitted at the Emergency Department with an acute abdomen with clinical signs of peritonitis, enzyme elevation, and lactic acidosis. A contrast-media CT scan revealed air-fluid levels and mesenteric oedema. The patient was transferred to the operating theatre where a laparotomy revealed ischaemia (bowel wall oedema, discoloration of bowel, absence of peristalsis) of about 90 cm of ileum, caused by strangulation through a peritoneal scar.

After relieving the bowel strangulation, to avoid a large resection of small bowel, the abdomen was left open under sterile cover and negative pressure aspiration to promote reperfusion and oedema drainage. The open-abdomen also allowed a scheduled ‘second look’ after 24 h of monitoring.

Fig 1 Patient with extensive swelling to the left orbit after removal of the protective eye pads. Photograph taken 3–4 hours postoperatively. Patient consent obtained for images.
and supporting therapy. A vacuum-assisted closure (VAC®) device (KCI, San Antonio, TX, USA) was used. In view of the continuing signs of bowel ischaemia, the patient was transferred intubated to the intensive care unit (ICU). In ICU, intra-abdominal pressure was monitored every 4 h using a urinary bladder pressure gauge, with a maximum value of 10 mm Hg recorded. Clinical/laboratory signs of ischaemia disappeared, and norepinephrine support was progressively decreased. After 27 h, the planned surgical second-look showed a complete recovery of bowel perfusion, and the abdomen was closed without intestinal resection. The patient was discharged from ICU the next day and from hospital 3 days later. Permission for publication was obtained from the patient.

Small-bowel ischaemia carries a high morbidity and mortality (60–90%). Surgical management of mesenteric ischaemia should preserve as much bowel as possible, but correct identification of damaged bowel is usually difficult. A second-look is considered by some to be the gold standard for assessing bowel recovery after ischaemia. The optimal timing (planned or on demand) and technique (laparotomy or laparoscopy) for a second-look is not established, but it is of note that the open-abdomen method allows rapid visualization of bowel perfusion. The open-abdomen method may also promote bowel reperfusion by decreasing intra-abdominal pressure, which can be critical in ischaemia due to wall oedema and fluid extravasation both in peritoneal cavity and intestinal lumen.

Several temporary abdominal closure systems are available for open-abdomen management, some using negative pressure (VAC and vacuum pack) and others with no active aspiration (Bogota bag, Wittmann patch, Dynamic retention sutures, absorbable or non-absorbable mesh or sheet). The VAC® temporary abdominal closure system has been reported to permit better control of intra-abdominal pressure, thus avoiding abdominal compartmental syndrome. The negative pressure application can promote microvascular reperfusion by wall oedema reduction and peritoneal fluid aspiration. However, on the basis of a single case experience, we cannot state that the negative pressure dressing is better than a system with no active aspiration. While other causes of bowel ischaemia (embolism, thrombus) do not appear to be suitable for conservative treatment with this strategy, the possibility of conservative management of non-occlusive mesenteric ischaemia using a vacuum-assisted open-abdomen strategy is worthy of further study.

Conflict of interest
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