

This issue of *Feedback* contains further cases of inadvertent vascular injury sustained at laparoscopy. The importance of maintaining a high index of suspicion if a patient fails to progress following laparoscopic intervention is emphasised.

The role of early carotid endarterectomy in preventing stroke in patients with symptomatic significant internal carotid artery stenoses is well recognised. Increasingly, operations are undertaken under local anaesthesia. Cervical plexus blockade is not without potential morbidity. The two cases reported here serve to warn surgeons and anaesthetists of potential risks of local and regional anaesthesia in association with carotid surgery.

As ever, we are grateful to the clinicians who have provided the material for these reports. The on-line reporting form is on our website [www.coress.org.uk](http://www.coress.org.uk) which also includes all previous Feedback Reports. Published contributions will be acknowledged by a "Certificate of Contribution" which may be included in the contributor's record of continuing professional development.

### VASCULAR INJURY DURING LAPAROSCOPIC PROCEDURE (1) (Ref: 70)

I was due to undertake an elective laparoscopic cholecystectomy on a routine operating list. A keen ST3 trainee had recently joined the firm, and told me that he had undertaken some basic laparoscopic training on a surgical skills course. He asked if he could place the laparoscopic ports. The patient was a slim, fit, 56 year old man. The trainee made an infra-umbilical incision and inserted the 10mm disposable port with retractable trocar, through a small incision in the linea alba, with some difficulty.

Postoperatively the patient returned to the ward but six hours after surgery his blood pressure dropped, requiring fluid resuscitation and he became tachycardic. Urgent CT scan revealed a large retroperitoneal haematoma. Emergency laparotomy ensued and the retroperitoneal haematoma was explored with eventual discovery of a small, actively bleeding, tear in the anterior aortic wall, incurred as a result of injury from the laparoscopic trocar tip.

Direct repair was undertaken with 3.0 prolene and two teflon pledget buttresses.

#### **Reporter's Comments:**

Whilst all trainees should be encouraged, early on in a trainee's career, it is essential that experienced assistance is provided for operative techniques in which the trainee has not yet demonstrated full competence.

#### **CORESS Comments:**

This apparently straightforward case was complicated by trocar injury to the aorta, necessitating re-operation. Placement of the port in this case should have been undertaken as an open procedure under direct vision. Undue force should never be necessary to introduce a laparoscopic port. Early recognition that a patient is failing to progress normally following laparoscopic surgery should encourage a high level of suspicion of an untoward intra-abdominal event.

### VASCULAR INJURY DURING LAPAROSCOPIC PROCEDURE (2) (Ref: 71)

As on-call vascular surgeon, I was called to theatre by an experienced general surgical trainee who had been undertaking laparoscopic appendicectomy on a 42 year old man. On placement of a suprapubic 5mm port under direct vision by the camera, which had already been introduced uneventfully, the trainee encountered moderate resistance requiring some force to introduce the 5mm port. This inadvertently penetrated the right pelvic retroperitoneum. The trainee noted immediate development of an expanding retroperitoneal haematoma and converted the procedure to an open procedure by low midline incision. He was unable to localise the source of bleeding and, since the patient had already lost approximately one litre of dark blood into the pelvis, he applied pressure and called for assistance.

Extending a peritoneal incision over the right pelvic vessels confirmed a trocar-sized hole in the right iliac vein. Bleeding was controlled by two rolled swabs in sponge holders applied firmly to either side of the laceration, which was repaired with three 4.0 prolene sutures. Gentle exploration for the ureter revealed this to be undamaged, but only 2 mm from the site of injury. The patient made an uneventful recovery and, after detailed explanation, was grateful for his (normal) appendicectomy.

#### **Reporter's Comments endorsed by CORESS Advisory Committee:**

Even when introducing a laparoscopic port under direct vision, care must be taken not to use inappropriate force. The skin incision should be large enough for the port to be introduced without resistance from the skin. Having recognised bleeding, the trainee made the right decisions, converting to an open procedure, controlling bleeding and calling for assistance. For any vascular injury in the pelvis, the peritoneum must be opened to visualise the vessels. Venous bleeding, due to the insidious but often copious nature, may constitute a greater threat than arterial bleeding and must be identified. Concomitant ureteric injury should be excluded.

#### **CORESS Comments:**

The Association of Laparoscopic Surgeons of Great Britain and Ireland's (ALS) guidelines on *Recognition, Management and Prevention of Abdominal Complications of Laparoscopic Surgery* can be found at:

<http://domain1686280.sites.fasthosts.com/uploads/ALS%20Complications%20Management.pdf>

## (NOT SO) LOCAL ANAESTHESIA FOR CAROTID ENDARTERECTOMY (1) (Ref: 72)

A 58 year old lady was referred to the vascular surgical department with a history of transient ischaemic attacks and a 90% stenosis of the right internal carotid artery. Urgent carotid endarterectomy under local anaesthesia was planned.

In theatre, a single-shot deep cervical plexus block was performed using a 22-gauge, 50mm bevelled needle to inject 40mls of 0.25% bupivacaine and 1% lidocaine with epinephrine, posterior to the sternal portion of the sternocleidomastoid muscle at the C3/C4 vertebral level, via a horizontal approach.

Two minutes after the injection, the patient's oxygen saturation fell to 67% on 4L oxygen /minute. She became unresponsive and systolic blood pressure dropped to 60mmHg. The right pupil, followed by the left, became fixed and dilated. The patient required immediate intubation and ventilation with 100% oxygen. Boluses of

ephedrine and metaraminol were needed to raise the blood pressure and she was transferred to the intensive care unit. Within 90 minutes the patient recovered without any neurological deficit and was extubated. Initial confusion and agitation resolved within two hours, and the patient left hospital the next day, to return two weeks later for a successful operation.

### Reporter's Comments:

Eye signs, rapid onset and swift resolution of symptoms suggest likelihood of inadvertent intrathecal injection of local anaesthetic. This may occur due to direct injection into the subarachnoid space via the intervertebral foramina; centripetal spread to the subarachnoid space or injection into a cuff of dura accompanying a peripheral nerve, the latter being most likely in this case. Early recognition of the cause of the problem, with immediate supportive measures, allowed eventual successful resolution of this case.

## (NOT SO) LOCAL ANAESTHESIA FOR CAROTID ENDARTERECTOMY (2) (Ref: 73)

A 78 year old right-handed man presented with transient right hand weakness and expressive dysphasia. Carotid duplex scan confirmed a 75% stenosis at the origin of the left internal carotid artery. The patient was placed on the next available operating list for carotid endarterectomy under regional anaesthesia. Routine local anaesthetic practise for this procedure, in this hospital, involves deep and superficial cervical plexus blocks and local infiltration.

The anaesthetist undertook a deep cervical plexus block in the anaesthetic room, using 0.25% bupivacaine. On injection of approximately 1ml of local anaesthetic, the patient lost consciousness and blood pressure dropped. The patient was immediately intubated and ventilated. He regained consciousness within one hour. Surgery was aborted, the patient was extubated and sent to the HDU where he was observed overnight. Uneventful carotid endarterectomy was undertaken on an elective list the following week.

### Reporter's Comments:

Immediate onset of general anaesthesia with injection of bupivacaine suggested intra-arterial injection, in this case into the vertebral artery.

Pull-back on the syringe plunger, prior to injection, might have reduced the risk of inadvertent intravascular injection. Immediate recognition of the effects of the injection, with intubation and ventilation, allowed support of the patient's vital cardiovascular functions until the bupivacaine wore off.

### CORESS Comments:

Carotid endarterectomy is frequently undertaken under local or regional anaesthesia. Whilst potential neurological complications of surgery, including stroke, remain in the forefront of the minds of vascular surgeons and anaesthetists, there is lesser perceived risk from local anaesthesia. However, complications arising from cervical plexus blockade include intrathecal and intravascular injection, local anaesthetic toxicity and respiratory problems related to phrenic nerve palsy.

Reversible anaesthetic complications, particularly in association with deep cervical plexus blockade, should be kept in mind as a possible cause of rapid deterioration in neurological function. Immediate ventilatory and cardiac support may avert iatrogenic disaster.

## FINALLY...

### SURGICAL SAFETY CHECKLIST

The National Patient Safety Agency (NPSA) has issued a [patient safety alert](#) requiring all healthcare organisations to implement the WHO Surgical Safety Checklist for every patient undergoing a surgical procedure. The final implementation date is February 2010. The WHO Checklist and supporting documentation can be downloaded from the following site:

<http://www.npsa.nhs.uk/nrls/alerts-and-directives/alerts/safer-surgery-alert/>

### SUCCOUR!

MHRA has received several reports of staff reducing the length of an endotracheal tube with scissors and inadvertently cutting through closed endotracheal suction devices left inside the endotracheal tube, the distal portion passing down into the trachea requiring interventional removal.

Ensure that all manipulation of endotracheal tubes is done according to their instructions for use and after appropriate training.

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