

# COMPLICATIONS

## Recommendations

Where perioperative complications contribute to the cause of death, these should be recorded on the death certificate.

Complications may arise following endoscopic surgery. Protocols should be available to deal with these and remedial actions should be rehearsed and involve senior experienced clinicians.

## INTRODUCTION

The incidence and nature of perioperative complications are directly related to the preoperative condition of the patient and the magnitude of the surgery. Careful preoperative preparation can help to reduce these complications. Surgical judgement, operative expertise and intra-operative decision-making, the nature of the disease and the site of surgery will all influence the complications that are specific to a procedure. In addition, many complications are the result of comorbidities and can be anticipated and thus treated early should they occur.

It could be expected that the incidence of postoperative complications would be highest for emergency procedures. Whatever the type of surgery, the incidence of all complications can be minimised with good perioperative care; it is often worthwhile spending some time to stabilise and improve the

patient's condition if time allows. It is a matter of judgement as to how long should be spent optimising a patient's physiology (see chapter 3). Complications specific to a particular operation are reduced as a result of careful surgical technique, experience and awareness of the possible problems. However, when reviewing the deaths occurring after anaesthesia and surgery, there are frequent examples of complications that might have been prevented or detected and treated earlier, possibly with a different outcome. So, why do complications get overlooked?

One of the more frequent unforeseen complications was intra-operative haemorrhage, which occurred in 4% of this sample. We demonstrate examples across the surgical specialties, where better preoperative assessment and treatment planning, more experienced operators and better inter-disciplinary team working might have prevented problems. When operations go wrong, they are seldom cited as contributory factors on the death certificate (see chapter 7).

## SURGICAL JUDGEMENT

Decision-making in surgery is not an exact science and is influenced by training, previous experience, knowledge, the individual patient's circumstances and the physical and psychological health of the surgeon [34]. On occasions, the decisions will be questionable but difficult to analyse. Some such decisions are illustrated by the case histories given below.

The decision to repair the hernias in this emergency situation seems questionable but the clinicians involved have not provided the requisite information to allow in-depth analysis of their management of this case.

**Careful patient selection (where possible), preoperative preparation and anticipation can avoid or diminish postoperative complications.**

### Case Study 59

*A 67-year-old female suffered a ruptured abdominal aortic aneurysm. The surgeon was not aware of the fact that there was known, marked renal impairment. A long and complex emergency operation involved a repair of the aneurysm plus repair of a renal artery aneurysm. Twelve hours after surgery there was evidence of intra-abdominal bleeding and a decision was made to re-operate. At this point, the family informed the surgeon that the patient's quality of life had been extremely poor and that she was housebound. After further discussion, and with the family's agreement, the second operation was cancelled. Resuscitative measures including correction of clotting defects continued but the patient died approximately 24 hours after the initial surgery.*

Would the initial operation have taken place if the surgeon had been aware of the patient's past medical and social history? In the event, surgery did proceed but was it wise to prolong emergency surgery with the additional procedure to repair a renal artery aneurysm?

### Case Study 60

*A 75-year-old male presented with a ruptured abdominal aortic aneurysm. He was a heavy smoker with a known history of ischaemic heart disease. Two irreducible inguinal hernias were also noted. An emergency repair of the abdominal aortic aneurysm was done. Bilateral inguinal hernia repairs were also done. The patient suffered a massive myocardial infarction and died the same day. No autopsy was done. Neither the surgeon nor the anaesthetist returned the requested operation notes and charts.*

## INTRA-OPERATIVE COMPLICATIONS

There were a total of 411/2114 (19%) cases in which unanticipated intra-operative complications occurred. This is an improvement on the 25% reported by NCEPOD in 1994/95.

### Haemorrhage

**Intra-operative haemorrhage was an unforeseen complication in 4% of operations.**

There were 83 cases in which unanticipated problems arose due to intra-operative haemorrhage (Table 6.1). In 42 cases operative haemorrhage was cited as contributing to death. However, in only 17 cases could operative haemorrhage be identified as a contributory factor from the transcript of the death certificate.

| Table 6.1            | Intra-operative haemorrhage by specialty |
|----------------------|--|
| General              | 16                                       |
| General (Vascular)   | 4  |
| General (GI)         | 13                                       |
| General (Colorectal) | 6  |
| General (Other)      | 2  |
| Cardiothoracic       | 11                                       |
| Vascular             | 11                                       |
| Neurosurgery         | 5  |
| Orthopaedic          | 5  |
| Otolaryngology       | 3  |
| Gynaecology          | 3  |
| Urology              | 2  |
| Oral & Maxillofacial | 1  |
| Paediatric           | 1  |

Consultants performed 73 of these cases and in only six cases was a consultant not present in theatre.

#### Case Study 61

*A SpR1 with only 10 month's experience took an 88-year-old male, with a bleeding nasal melanoma, to theatre. A general anaesthetic was administered by a consultant anaesthetist, who stated "I did not think the surgeon had sufficient experience to achieve anything worthwhile with regard to haemorrhage control".*

*Haemorrhage could not be controlled and the patient succumbed to airway obstruction. The death certificate recorded I (a) Upper airway obstruction, I (b) Melanoma of nose (operated), II IHD. No mention was made of massive operative haemorrhage causing the acute airway obstruction.*

An experienced surgeon should have been able to firstly control the haemorrhage and secondly to prevent airway obstruction, if necessary by utilising a definitive surgical airway.

#### Case Study 62

*A 77-year-old male underwent a neck dissection and partial glossectomy, despite having neither a preoperative MRI nor CT scan. The patient was not discussed in a multidisciplinary team. At surgery the tumour was found to have invaded the carotid artery, and bleeding could not be controlled. The patient died of hypovolaemic shock. The death certificate recorded I (a) DIC, I (b) Malignancy; it failed to mention the operation, despite an autopsy which confirmed extensive haemorrhage in the neck.*

Proper preoperative assessment might have indicated other methods of palliation as being preferable to a fatal operation. Experienced head and neck or vascular surgeons can usually control intra-operative carotid bleeding.

#### Case Study 63

*An 81-year-old female with multiple trauma was admitted to a general surgery ward in a hospital with no ICU beds. The patient was taken to theatre for closed reduction of fractures of radius, ulna and humerus together with debridement and suturing of leg lacerations under general anaesthesia. No preoperative chest radiograph was taken. The patient was initially returned to a general surgery ward, but subsequently transferred to ICU in another hospital where she died of respiratory failure the same day. Fractured ribs and a haemopneumothorax were eventually diagnosed.*

Should patients with multiple trauma be admitted and operated upon in hospitals that do not have sufficient orthopaedic beds or any ICU beds? Basic "ABC" principles of assessing and managing trauma should be adhered to, in hospitals that have adequate multidisciplinary facilities and expertise.

**Case Study 64**

*A 63-year-old male presented with massive recurrence of a previously operated and irradiated oral squamous cell carcinoma. The patient had not been considered by a multidisciplinary team. A palliative resection was undertaken and massive intra-operative haemorrhage encountered. A free latissimus dorsi flap was used to reconstruct the defect, but postoperatively the flap failed. The patient was returned to theatre and attempts to achieve flap revascularisation included infusion of streptokinase. The attempted salvage procedure took 11 hours and the patient died 12 hours later. Cause of death was recorded as a CVA. No mention of surgery was made on the death certificate.*

Careful multidisciplinary planning is required for this type of patient. Heroic surgery is not always in the best interests of the patient, and skilful judgement is required in deciding when to stop operating particularly if unforeseen complications arise. Was the use of streptokinase advisable in a patient who had recently had massive haemorrhage, coagulopathy and transfusion?

**Case Study 65**

*A 70-year-old male underwent anterior decompression and posterior spinal fusion for an infected lumbar discitis. The patient was ASA 4 and had recently suffered from hepatic encephalopathy and bleeding peptic ulceration. The consultant had only performed one similar procedure in the previous 12 months. Despite blood loss of over 4 L during the posterior approach, the procedure was continued and bleeding from damage to the iliac vein could not be controlled. The procedure lasted over 6 1/2 hours and the patient died of uncontrollable hypovolaemia later that evening. The death certificate in this case accurately recorded blood loss following surgery.*

Only surgeons who are able to maintain sufficient levels of expertise should perform this type of surgery. Where damage to major vessels might be anticipated, surgery should be planned with the co-operation of a vascular surgeon.

**Case Study 66**

*A 67-year-old female underwent bilateral oophorectomy, total abdominal hysterectomy, sigmoid colectomy and omentectomy for ovarian malignancy. Surgery was performed by a consultant gynaecologist.*

*During surgery the bowel was perforated and the splenic capsule torn. The patient died of multi-organ failure secondary to haemorrhage. The death certificate recorded the cause of death as I (a) Multi-organ failure and I (b) Ovarian cancer. Neither surgery nor haemorrhage were mentioned as causes of death.*

The cases above are drawn from most of the surgical specialties. Intra-operative bleeding can be a frightening complication. The causes are multifactorial, and often start with poor decision-making or treatment planning. Lack of experience also appears to be a common theme coupled with a reluctance to involve more experienced colleagues.

The failure to mention the complication of haemorrhage as a contributory cause of death on death certificates is of concern. Does this reflect a culture of denial, or a feeling of guilt or failure on the part of the clinician? Surely we must recognise that openness is a vital element in the learning process, and we must acknowledge that intra-operative bleeding is often only the final chapter in a flawed system of care.

## DELAY DUE TO LACK OF EQUIPMENT

The commonest causes of delays to operation remain lack of theatre space, theatre personnel or critical care facilities. However, we noted a new trend in reporting delay due to lack of equipment in this year's sample.

There were six orthopaedic cases where delays occurred because of lack of appropriate equipment. In four cases, appropriate prostheses were unavailable because of poor stock control and, in two cases, no sterile instruments were available. Two cases were elective joint replacements where a lack of preoperative co-ordination appeared to have occurred, and the remaining four cases were trauma patients.

### Case Study 67

*An 80-year-old female with a comminuted supracondylar fracture of the femur, waited seven days before surgery because the equipment to perform a closed retrograde intramedullary nail was not available and had to be obtained from the manufacturer. The patient suffered a cardiac arrest on the table and a coroner's autopsy determined the cause of death as pulmonary embolus, despite appropriate anti-thromboembolic prophylaxis having been undertaken.*

Hospitals that accept trauma patients must have sufficient stocks of equipment available on-site to prevent unnecessary delays occurring. There should be standardisation of theatre equipment and in particular, prostheses, based upon clear evidence.

## ENDOSCOPY AND LAPAROSCOPY

Endoscopic and laparoscopic surgery has many advantages for patients and clinicians. There has been an enormous increase in the numbers of such procedures, most of which are highly successful, so it is not surprising that minimally invasive surgery is now featuring amongst the 30 day postoperative deaths reported to NCEPOD. Some of these deaths are in the current sample, as the death occurred within 3 days of a procedure.

There is no fundamental difference in the requirements to deliver safe care to patients undergoing endoscopic techniques compared to those undergoing open surgery. Patients undergoing endoscopic procedures and laparoscopic operations (either diagnostic or therapeutic) may not be high-risk patients and may come from any age group. Unfortunately these procedures are often regarded as routine, straightforward and safe. Indeed these 'minimally invasive' interventional and corrective procedures are often thought to be of particular benefit and safer in high-risk patients; as a result there may be less vigilance and a failure to detect problems. However, there are risks to these less invasive techniques and sensible, careful patient selection should form part of their judicious application [35].

Whatever the risk involved and whatever the patient's age group, the surgery and supervision of the aftercare should only be undertaken by those who have undergone specific periods of training in the procedures, so that they are adequately skilled. These skills must then be enhanced by clinical experience. The postoperative care, in particular, needs close supervision as many complications have an insidious onset and presentation. It is an old adage in surgical teaching that 'common things are common'. Therefore, when a common complication may be present, clinicians must guard against the 'anything but that' syndrome which will lead them into a false sense of security and cause them to overlook the obvious. This can be particularly true with biliary leakage after laparoscopic cholecystectomy and ureteric damage during laparoscopic pelvic surgery.

The prudent surgical team will have a plan for the management of well-recognised complications that might occur during or after surgery. These will have been developed on the basis of evidence and experience, discussed amongst the members of the

team and rehearsed (either practically on patients/simulators, or theoretically).

The cases described below illustrate some of the problems seen during the review of deaths occurring after endoscopic or laparoscopic procedures.

### Case Study 68

*A 60-year-old male was having a staging procedure for a malignant mesothelioma. This involved a bronchoscopy and then a mediastinoscopy. A staff grade thoracic surgeon, assisted by a locum SpR (year 1) performed the procedure. There was a consultant observing the procedure. An attempted paratracheal lymph node biopsy during mediastinoscopy resulted in massive haemorrhage, which could not be controlled by tamponade. A median sternotomy revealed a tear in the right main pulmonary artery. Despite attempts to control the bleeding, the patient died on the table.*

This case was well managed despite a catastrophic complication of an endoscopy. There was an experienced surgeon immediately available and supervising the operator. This complication was obvious and immediate and appropriate steps were taken to deal with it.

**Some patients are too ill for anaesthesia and surgery.**

### Case Study 69

*An 89-year-old female was admitted for an elective laparoscopic cholecystectomy following one prior admission with upper abdominal pain. There was a solitary gallstone. The patient was known to have periods of confusion and a brain scan had shown cerebral atrophy. She was falling at home, walked with a Zimmer frame and was doubly incontinent. The hospital notes were so chaotic that the 18-year history of ischaemic heart disease, hypertension and heart failure was unknown to the surgeon and the anaesthetist. The laparoscopic cholecystectomy was uneventful but postoperatively, during the first 24 hours, the patient became hypotensive, confused and developed a chest infection. By the third day after surgery the patient was admitted to a HDU but refused supportive therapy. There was a cardiac arrest and treatment was withdrawn. It was only after death that the long history of cardiovascular problems came to light. An autopsy found no problems at the operation site.*

The initial indication for surgery in this patient seems questionable and injudicious. In addition, it could have been predicted that any surgery on this patient would have been associated with considerable morbidity. Careful, appropriate assessment was hampered by a 'chaotic' set of hospital notes.

**Anticipation and early recognition of complications might have improved the outcome.**

### Case Study 70

*A 66-year-old female was admitted for an elective laparoscopic cholecystectomy. Seven months before this she had presented with obstructive jaundice, which had settled after an ERCP. The laparoscopic procedure was difficult due to adhesions and lasted one hour and forty-five minutes. The following day the patient suffered a fatal pulmonary embolism. No pharmacological thromboembolic prophylaxis was given during the perioperative period and no mechanical measures, such as intermittent calf compression, were used. This was in breach of the unit's prophylaxis protocol.*

Did the surgical team adopt a rather *laissez-faire* approach to this case, as it was a 'routine' minimally invasive procedure? Venous thromboses are well known to occur after laparoscopic surgery.

### Case Study 71

*A 62-year-old female had a laparoscopically assisted vaginal hysterectomy, sacral colpopexy and a laparoscopic colposuspension for urinary incontinence and vaginal prolapse. Surgeons of varying experience did the operation; the laparoscopic part appears to have been done by a consultant. Following this procedure she never recovered fully although she was discharged from hospital. Two weeks after the surgery she was readmitted for three days and treated with antibiotics (the indication for this is unclear but may have been a presumed pelvic infection). No investigations were done because the consultant radiologist said that he did not think it was an urgent problem. The patient was discharged.*

*She continued to be unwell with abdominal distension, diarrhoea, lethargy and pyrexia. She was readmitted under a medical team and a pleural effusion was drained. 'Ascites' was noted. A further course of antibiotics was administered. A gynaecological opinion was sought. The gynaecological registrar who saw*



her wrote, "...overall picture is puzzling. While her symptoms date from the time of surgery, it is not immediately clear how this could be secondary to a gynaecological complication. If any of the investigations show a non-medical problem, we would be delighted to accept her back".

Eventually, two months after the initial surgery, an IVU was done. This demonstrated a unilateral hydronephrosis with a leak from the ipsilateral ureter. The following day a consultant urologist operated. A SHO (year one but with considerable experience abroad) gave the anaesthesia. The surgeon did a retrograde pyelogram and demonstrated a large leak from a ureter. The plan was to reimplant the ureter using a Boari flap. There was a large urinoma with dense fibrosis. Considerable bleeding from the pelvic and internal iliac veins occurred during the dissection. This was controlled and the surgery continued. However by this time eight units of blood, 2500 ml of colloid and 2000 ml of crystalloid fluids had been given together with fresh frozen plasma. A consultant anaesthetist was summoned. There was a cardiac arrest and the patient died on the table.

This case illustrates several points:

- # The initial operation was appropriate and the laparoscopic element done by a consultant (whom we assume was experienced). However the patient was not well afterwards. Ureteric injury is not uncommon after hysterectomy, by whatever route, yet no one appears to have considered this possibility. This is the type of complication where a well-rehearsed sequence of investigations should be in place in order to help confirm or exclude the problem. Did the consultant gynaecologist know about the problems?
- # No investigations were done because a radiologist decided the problem was not urgent.
- # Even when the patient was clearly quite ill and required re-admission, the specialty registrar did not consider the possibility of ureteric injury, does not appear to have consulted the consultant and left the care of the patient to physicians.
- # Once the penny had dropped, an appropriate referral to an urologist was made.
- # The proposed surgery was clearly going to be difficult, yet a single-handed anaesthetic SHO, with no higher qualifications, was deputed to manage the case.

Readers with experience in this field may like to consider how they would have managed this case in their practice.

### Case Study 72

An 83-year-old female was admitted for endoscopic biopsy of a tumour of the sphenoid sinus. Unfortunately the carotid artery was breached and catastrophic haemorrhage ensued which could not be controlled by packing.

This is a recognised complication. Could the occurrence of such events be reduced by radiological or other spatial guidance? Maintaining accurate orientation during endoscopic procedures requires good training and sufficient ongoing experience to maintain clinical skills.

### Case Study 73

An 86-year-old female was referred from a district hospital to a cardiothoracic centre, following a flexible bronchoscopy which had demonstrated what was believed to be a foreign body in the left upper lobe bronchus. Three rigid bronchoscopies and biopsies were undertaken under GA at the centre over the following two weeks. On the third occasion, a massive blood loss of 2.5 L occurred following the sixth biopsy. An autopsy revealed pulmonary TB. Histology from the three biopsy procedures was unavailable. Death certificate recorded I (a) Haemoptysis and I (b) Pulmonary tuberculosis. There was no mention of operation or haemorrhage.

Why were a total of four bronchoscopies undertaken? Why was no histology available? Was a Heaf test performed? We do not know the answers and no histology was submitted to NCEPOD, but it seems strange that this patient underwent so many bronchoscopies in such a short period of time, and that so many biopsies were taken for what was believed to be a foreign body.

### Case Study 74

A 77-year-old male was admitted with stridor due to an advanced stenosing carcinoma of the larynx. Endoscopic biopsy and debulking of the tumour was undertaken and the patient returned, with an endotracheal tube, to the ICU after surgery. Following extubation on ICU the patient suffered a respiratory arrest and died.

Debulking of tumours can cause significant postoperative oedema. Should a tracheostomy have been performed?



## OPERATIVE COMPETENCE

This is clearly an area where the individual surgeon and the surgical team can influence the outcome. The manner in which this competence manifests itself will vary between specialties. In the specialty of General Surgery, there were several examples where a patient died following surgery that involved an incidental injury to the spleen. This mainly followed colonic surgery.

### Case Study 75

*A 77-year-old male presented with a perforated colonic tumour (rectosigmoid). A registrar operated (with the knowledge and agreement of the consultant surgeon). A subtotal colectomy, small bowel resection and ileostomy was done. During this procedure there was splenic bleeding (approximately 4 L) due to surgical trauma and a splenectomy was required. Postoperative care was delivered in ICU but the patient died from sepsis and heart failure.*

It is impossible to guarantee avoidance of splenic damage, especially when mobilising the splenic flexure. However, experienced surgeons use several techniques to protect the spleen. Firstly, a moist pack can be placed behind the spleen to lift it forward, having first ascertained that there are no adhesions between the spleen and diaphragm. This helps to reduce tension on the splenic pedicle during mobilisation of the colonic splenic flexure. The tissues should always be handled with the utmost gentleness. The next technical point is to mobilise the colon, both from below and across from the transverse colon, rather than from one direction only, and to approach the spleen in this manner. Finally, and most importantly, an inspection of the splenic area should always be made at the end of the operation. By doing this, inadvertent splenic damage will be detected and corrected at the time of the initial operation.

Some intra-operative complications are due to inept surgery.

### Case Study 76

*A right hemicolectomy was planned for an 85-year-old male with a caecal carcinoma. During surgery on the right colon the inferior mesenteric and splenic veins were torn. The surgeon suggested that the veins were congested due to hepatic cirrhosis. All attempts to stop*

*the bleeding failed and the patient died on the table. There had been a blood transfusion of 50 units. An unhelpful autopsy gave the cause of death as carcinoma of the caecum. The liver was said to be normal.*

It is difficult to conclude anything other than the fact that surgical trauma caused the haemorrhage.

## INTRA-OPERATIVE DECISION-MAKING

The planned operative procedure may need to be varied due to changing circumstances such as pathological anatomy, reassessment of the pathological process, deterioration in the patient's condition, intra-operative mishaps etc. What is required is the ability to change direction and technical versatility. Blinkered adherence to the proposed surgical treatment, albeit based on sound principles, may lead to disaster.

### Case Study 77

*A 58-year-old male was listed for an elective coronary artery bypass. His surgery was expedited due to unstable angina. The triple bypass went well but there was a tear in a mammary artery that was repaired before use. The patient developed ventricular fibrillation as the chest was being closed; cardiopulmonary bypass was re-established and the heart examined. There was a significant myocardial infarct and bleeding from the repaired internal mammary artery. The artery was repaired and re-implanted. The patient was returned to ICU but continued to show evidence of myocardial ischaemia. He was returned to theatre and the heart was re-explored. There was evidence of further myocardial damage and an additional vein graft was inserted. The patient returned to ICU but developed fatal biventricular failure.*

The surgeon wished to use the internal mammary arteries because of the better long-term outcome. However once the artery was damaged an alternative might have been sought.

### Case Study 78

*A 46-year-old male was referred for cardiac surgery because of unstable angina and a possible myocardial infarct. He was an insulin-dependent diabetic. Surgery consisted of seven coronary artery bypass grafts using either reversed vein, mammary artery or radial artery. The surgery went well but there was spasm of the radial artery graft leading to myocardial ischaemia and haemodynamic collapse. Despite maximal inotropic and intra-aortic balloon pump support, the patient did not survive.*

This was a high-risk case with extensive coronary artery disease. Here too, the surgeon was using an arterial graft for better long-term patency but once the spasm was appreciated, an alternative strategy might have been considered.

## POSTOPERATIVE COMPLICATIONS

The postoperative complications reported to NCEPOD are listed in Table 6.2. These relate to the sample of 2114 patients who died within three days.

| Table 6.2                                       | Common postoperative complications (n=2114 cases) |
|---|---|
| Cardiac failure (IHD/arrhythmia)                | 29  |
| Respiratory                                     | 27  |
| Cardiac arrest                                  | 26  |
| Renal failure                                   | 19  |
| Generalised sepsis                              | 17  |
| Postoperative haemorrhage requiring transfusion | 8   |
| Stroke or other neurological problems           | 5   |
| Thromboembolic                                  | 4   |
| Persistent coma                                 | 3   |
| Hepatic failure                                 | 3   |
| Other organ failure                             | 3   |
| Bleeding at another site (e.g. GI)              | 2   |

In 12% (255/2114 cases) nothing was done (apart from anaesthetic room management) to improve the patient's condition. In only 4% of deaths (90/2114 cases) did surgeons think that preoperative manoeuvres might have prevented these complications.

The majority of surgery is safely concluded with satisfactory outcomes. Many procedures are associated with recognised complications and these can be dealt with in an appropriate manner should they occur. Occasionally, common, well-recognised complications occur yet the surgeon appears to deny the possibility. Perhaps this is an example of surgical optimism?

### Case Study 79

*A 74-year-old male who was a diabetic had an anterior resection of the rectum for a carcinoma of the rectum (Dukes A). The following day he required a further laparotomy for intra-abdominal bleeding from a mesenteric artery. All was well until the seventh postoperative day when his diabetes became unstable and he developed fast atrial fibrillation. The patient was transferred to HDU. An anastomotic leak was suspected but a contrast study did not show a leak. He remained unwell but it was a further 13 days before a laparotomy was done because of his deteriorating*

*condition and overwhelming sepsis. There was an anastomotic leak and a Hartmann's procedure was done. He was nursed in ICU where he developed a bleeding diathesis, respiratory failure and a wound dehiscence. He died three days after the laparotomy. An autopsy confirmed peritonitis. The autopsy report contains contradictory statements. Firstly that the leaking anastomosis cannot be attributed to the original surgery and then that a late breakdown of an anastomosis is a recognised complication of surgery.*

A leaking anastomosis following an anterior resection is a well-recognised complication and, despite a negative contrast enema, the surgeon should have entertained a high index of suspicion in the face of a deteriorating patient. This is a classic example of the 'anything but that' syndrome.

#### Case Study 80

*A 25-year-old female was re-admitted in hypovolaemic shock as an emergency with secondary haemorrhage following an elective tonsillectomy. A SpR 1 in ENT took the patient to theatre. Two and a half hours later the bleeding had apparently been controlled, and the patient was returned to the recovery area. On extubation by the SHO anaesthetist, massive haemorrhage was encountered and further intubation proved impossible. The patient died of respiratory arrest and an autopsy confirmed the cause of death as asphyxia due to inhaled blood.*

This tragic case illustrates the difficulty in dealing with secondary haemorrhage. Clearly the SpR had difficulty arresting the haemorrhage and it would have been prudent to seek help from an experienced colleague. The importance of airway management cannot be stressed enough where upper aero-digestive tract bleeding is concerned, and the airway must be protected until the patient is adequately recovered.

It is not known what type of diathermy equipment was used in this case.

