ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

AUSTRALIAN AND NEW ZEALAND
AUDIT OF SURGICAL MORTALITY

NATIONAL CASE NOTE REVIEW BOOKLET

TO OPERATE OR NOT: AVOIDING FUTILE SURGERY

VOLUME 14
NOVEMBER 2018

Royal Australasian College of Surgeons

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Excellence in Women's Health

ANZASM
Australian and New Zealand Audit of Surgical Mortality

Royal Australasian College of Surgeons
Australian and New Zealand Audit of Surgical Mortality
199 Ward Street
North Adelaide SA 5006

Telephone: +61 8 8219 0900
Facsimile: +61 8 8219 0999
Email: wendy.babidge@surgeons.org

Website: http://www.surgeons.org/anzasm

Contents

Chairman's Report

This case note review booklet generated by the Australian and New Zealand Audit of Surgical Mortality deals with the difficult and in many cases challenging problem of futile surgery. The case studies provide considerable pause for reflection of the difficult decisions being made by surgeons, families, patients and anaesthetists.

Case study 6 particularly summarises a number of the issues that need to be considered. Whether surgery is futile and how should this be judged? Will the surgery bring some relief to the patient even if it has no effect on the disease? What is the risk of surgery? What is the morbidity? Will there be a return of acceptable quality of life? What is the expectation of the natural history of the illness? What are the patients' and surgeons' views? Are there any alternatives? One then needs to add to this, the dilemma of the ethics of refusing to perform a procedure and the legal implications of refusing surgical treatment.

With this array of decision processes needing to be made, what mechanisms are available to help deal with disputes about futility or otherwise of an intervention.

Many surgeons deal with these problems on a regular basis and have found that engaging family, colleagues, nursing staff and of course the patient leads to a satisfactory outcome. The difficulty, of course, can be when there is discordance between any of these groups. In many cases, the patient can pose less of a problem in reaching an agreement than their family members, many of whom have issues that are not necessarily directly related to the immediate care of the patient.

This will continue to be a challenge for surgeons practising in the modern era and it is important that these types of discussions are held openly in situations such as Multidisciplinary Team Meetings, Unit meetings and around tea rooms in hospitals within Australia and New Zealand. The answers are certainly not simple. However, to be consuming scarce resources on the remote chance of an adequate outcome is one that needs to be carefully balanced with that of sensible and compassionate palliation.

I trust that this particular case note review booklet is of value to all practising surgeons and would welcome any constructive feedback.

Professor Guy Maddern
Chair, Australian and New Zealand Audit of Surgical Mortality (ANZASM)

Clinical Director's perspective

Patient management towards the end of life has become a prominent part of a surgeon's practice. The question "is this treatment futile?" is one that surgeons consider, weighing up the frequent and sometimes conflicting factors in arriving at a decision. Patients, their families and carers weigh up exactly the same question.

This edition of the ANZASM National Case Note Review Booklet features surgical mortality cases highlighting the issues of end-of-life decisions and futile care.

The cases in the booklet reflect the many factors that are considered when making decisions about the appropriate level of treatment for high-risk or terminal patients.

The concept of futile care is a moving target. There are many ethical questions within a context of changing expectations from the community and patients, societal values, evidence-based medicine, a culturally diverse society together with the advent of new technology and more sophisticated life supporting measures. In addition, the discussions are frequently held in an emotionally charged atmosphere, where decisions, on reflection, may not have been in the best interests of the patient.

The pathophysiology of many patients has changed, with more elderly patients who are often frail and have multiple comorbidities, and thus a greater risk of a poor outcome from treatment. When faced with treatment decisions in these circumstances, the goals of care are increasingly moving to quality over quantity of life.

In making a decision the surgeon, with experience and judgement, considers the burden of the disease and the operation, the definition of a successful outcome, the level of certainty of this outcome, and whether a more conservative approach would be appropriate. Ultimately, the best interests of the patient should always be front of mind.

The correct decision for one patient may not be appropriate for another. Each patient evaluates the risks and benefits of an intervention in the context of their own beliefs and values and should be empowered to be a partner in decisions.

Open and honest communication between the patient and the surgeon remains the key.

The impact on surgeons of their involvement in these decisions should not be ignored. A number of personal reflections appear in the treating surgeons'

descriptions, such as “this has been traumatic for me” or “this was a tough decision for me”.

Perhaps consideration could be given to reframing the language of ‘futile care’ to that of achieving Goals of Care to include regaining of function, improvement in quality of life, and palliation of symptoms rather than prolongation of life.

On behalf of the ANZASM Clinical Directors from across Australia and New Zealand, I hope that you find this case note review booklet interesting and educational. Please distribute it to your trainees and perhaps some of the cases can become the basis for tutorials and discussions.

To the assessors, on behalf of the Clinical Directors of ANZASM, I extend a warm thank you and appreciation for the many hours that you have collectively spent providing your considered, respectful and professional assessments which are provided to the treating surgeons and inform our educational initiatives such as this booklet.

Feedback about the booklet would be welcomed.

Professor Peter Zelas
Clinical Director, Collaborating Hospitals’ Audit of Surgical Mortality (CHASM)

Recommendations

This case note review booklet deals mainly with patients who are approaching the end of their life or patients in a high risk situation. In considering these cases there are a number of important points from which surgeons can learn.

1. The decision to not operate should not be seen as ‘nothing more can be done’, rather the discussion should be reframed with a focus on ‘goals of care’.
2. Consultants should be involved in the decisions regarding end of life care and high risk patients.
3. Compassionate, detailed and frank communication with the patient and family is essential and should include the concepts of ambiguity and uncertainty.
4. An advanced care directive should be respected by the treating team and family.
5. Careful and detailed documentation of the reasoning around the decision-making made is essential.
6. In patients approaching end of life, palliative care close to home is often better than ever escalating care in a tertiary centre.
7. In considering high-risk surgery and end of life issues, surgeons should consider seeking a second opinion and the support of a palliative care specialist. The lack of alternatives is not an indication for surgery.
8. Surgical treatment of patients nearing the end of life may be justifiable under circumstances where there are compassionate, family or social imperatives.

Case Studies

Case study 1: Inappropriate decision to operate on the patient

CASE SUMMARY

This case involves an 89 year old man who was independent prior to admission. Past history included a lung resection performed the previous year by a different surgeon.

This man presented with massive right pleural effusion and respiratory failure. Right video-assisted thoracoscopic surgery (VATS) drainage was undertaken along with pleural biopsy to confirm metastatic lung cancer. The white cell count (WCC) was 70 preoperatively, and this was thought to be leukemoid reaction.

Once the diagnosis was confirmed, the ICU and treating physician decided that it was inappropriate to escalate care. He was palliated and passed away six days after the surgical procedure.

CLINICAL LESSONS

It is highly likely that the decision to operate on this patient was inappropriate.

He was very elderly with known metastatic lung cancer and presented with a large symptomatic malignant pleural effusion with widespread pleural metastatic disease. The appropriate treatment for him would have been intercostal pleural drainage (for symptomatic relief). Following this, if the drainage was ongoing he could have been discharged with a PleurX catheter, which would have enabled him to live out the remainder of his life in a less symptomatic state.

Instead, he was taken to theatre and underwent a bronchoscopy followed by a three port VATS pleurodesis taking one hour to achieve the same result. While he had a terminal illness and limited life expectancy, there is no doubt that this expedited his death.

It is concerning that the surgeon commented in the surgical case form that the overall risk of death was expected. If the risk of death was expected, why was he subjected to surgery and the inevitable distress for both patient and family that accompanies it? It is also concerning that the surgeon recorded the death as an expected, unpreventable outcome. If that was the case, then why perform the surgery? The surgeon also suggested that they would not do anything differently.

Case study 2: Decision to operate despite decision to palliate results in futile surgery

CASE SUMMARY

This woman, aged in her mid-80s, presented with blackouts and was found to have a large posterior fossa meningioma. She was taken to theatre and underwent craniotomy with attempted excision of the tumour. At operation it was found that there was significant dural bleeding. The tumour itself was heavily calcified, resulting in significant difficulty in excising the tumour with the cavitational ultrasonic surgical aspirator. The decision was made to partially debulk the tumour and, if needed, return for further resection of the tumour at a later date.

In the days immediately following the procedure she developed increasing impaired consciousness and confusion that required the insertion of an external ventricular drain (EVD) on day three. The patient's family elected to withdraw treatment and palliate but she underwent placement of another EVD 10 days later. Despite the history up to that point, and the family electing for palliation, the decision was made to return the patient to theatre three weeks after the first operation for excision of the residual tumour. The operation report states that virtually all of the tumour was removed, but the postoperative CT scan suggests that 3.5cm of residual tumour remained.

Histology confirmed that the tumour was a World Health Organization grade I meningioma. Over the next few weeks the patient's general clinical state fluctuated, with confusion and general medical problems, and the palliative care physicians were asked to see her one month postoperatively. The palliative care physician discussed the issue with the family and the decision was made to palliate her. She passed away two days later.

CLINICAL LESSONS

Several questions arise in this case. Treating an elderly woman with such a tumour is difficult at the best of times. The wisdom of attempting resection in someone of this age should be questioned. Given that she was minimally symptomatic, if at all symptomatic, it may have been more appropriate not to have intervened at all.

The decision, however, was to proceed with the intervention and from the first operation it was evident that this was not going to be an easy tumour to manage. Despite the knowledge of the problems with

the cavitational ultrasonic surgical aspirator (CUSA) and the calcified tumour on the first attempt, the operation report states that, once again, difficulties with the CUSA were encountered and excision of the tumour required scissors to debulk the tumour. The peridural bleeding was obviously an issue, as was the heavily calcified tumour. The fact that the tumour could not be resected even after two operations, and that she deteriorated rapidly despite this, confirms the futility of operating in this situation.

Futile surgery is an ongoing issue in Neurosurgery. With an ageing population and the finding of more incidental abnormalities on imaging, it is also an increasing problem. Treating surgeons must be deliberate in their assessments and honest in their discussions with families regarding the futility of intervention in such cases in order to avoid the development of such complicated scenarios. In this instance, an elderly woman died having been subjected to four operations and treated in hospital for two months. This outcome could easily have been predicted given the patient's age and the nature of the tumour.

SURGICAL LESSONS

- This case illustrates the importance of knowing when surgery should or should not be performed, irrespective of whether surgery can be performed. In some situations, as in this case, it is better to not operate than to operate in the first instance.
- It is vital that surgeons be aware of their individual limitations, skill level and experience, as well as the various pitfalls and risks associated with different conditions. Adequate planning for difficult cases is vital. In this instance, adequate planning in relation to the recognised heavy calcification of the meningioma, along with a request for another neurosurgeon's assistance, may have avoided this devastating outcome. As a surgeon, it should never be an issue to ask for assistance or advice.
- Once a decision is made for palliation (following extensive discussions with family members and other staff) there may be a tendency for surgeons to persist with a surgical approach — to try to 'complete' the procedure in the hope that something miraculous will occur. This goes completely against the first lesson learned as medical practitioners, let alone surgeons: we should first do no harm. This case illustrates how the most basic philosophy in medicine may become lost

when a surgeon becomes single-minded about completing the original task, failing to recognise that it is the patient not the disease that is the priority. Unnecessary procedures often lead to further pain and suffering along with emotional stresses on both patients and relatives.

Case study 3: Palliative approach should be considered for a fractured neck of femur in a patient with terminal metastatic prostatic carcinoma

CASE SUMMARY

This case is of an elderly man in his mid-80s with a right neck of femur (NOF) fracture (pertrochanteric) who underwent operative fixation the day after admission with long gamma nail and HydroSet bone graft.

He was in the terminal stage of prostate cancer with extensive bony metastases. He also had multiple comorbidities including atrial fibrillation (AF), congestive cardiac failure (CCF), ischaemic heart disease (IHD) and coronary artery grafts. Medications were warfarin, digoxin, Lasix, bisoprolol and Endone. He was not on any active anticancer treatment.

Prior to the incident, he was living at home with family for palliative care and walked using a four wheel walker. He had an unwitnessed fall after getting out of bed and was transferred to hospital by ambulance with no loss of consciousness. He was admitted and reviewed by medical, orthopaedic and anaesthetic teams.

The purpose for the operation was palliative to decrease pain, although he was not for resuscitation. His initial International Normalised Ratio (INR) was 2.5 but after two units of fresh frozen plasma and vitamin K over two days, had decreased to 1.6 on the day of the operation.

He was under general anaesthesia with an evening 40 minute operation and was transferred to the ward four hours later. Intravenous (IV) antibiotics and anticoagulant (40mg Clexane daily) were commenced. Postoperatively, he had some on/off confusion (Glasgow Coma Scale (GCS) 9-10 to start and eventually GCS 14) but later ambulated to a chair. Although oral intake was started, his urine output decreased on the third day and IV fluid was given. He had cold peripheries, his feet were oedematous and the issue of palliative treatment was discussed with the family.

While the patient was waiting for transfer to a nursing home his level of consciousness deteriorated. His respiratory rate increased to 20-

25 breaths per minute and urine output was still nil overnight. Major deterioration occurred the morning of the next day : the patient was not conscious and developed Cheyne-Stokes breathing. The issue of palliative treatment was again discussed with the family. Eventually, respiration ceased with no heartbeat, dilated pupils unreactive to light and at 8:10 pm the patient passed away.

CLINICAL LESSONS

Considering the multiple comorbidities on a background of bony metastases from prostate cancer, the only justifiable choice of operation (gamma nail) was palliative care, especially given that he was not for resuscitation. There are, however, many surgeons who would have preferred not to have performed this operation due to the considerable and expected risk of death.

Overall, if the idea of surgery as a palliative care measure is accepted, the choice of operation, speed, preoperative evaluation, and postoperative review and care were all adequate and acceptable.

There were discrepancies between the surgical case and medical records, e.g. operation type and the timing of the procedure. The patient had a major risk of embolisation. With a background of AF and warfarin (initial INR 2.5), he received packs of fresh frozen plasma and vitamin K on two days prior to operation, and had an INR of 1.6 when the operation was performed. The balance between therapeutic anticoagulation levels and bleeding risk remains a matter of clinical judgement by the treating team.

Operative versus nonoperative treatment for NOF patients with end stage disease is another unresolved and challenging problem for medical and surgical teams. A proper guideline, confirmed by senior surgical (orthopaedic) authorities, would be a very helpful tool to assist decision-making in future cases.

SURGICAL LESSONS

Careful thought should be given to decisions about surgery in patients with extensive metastatic disease. Surgery is not indicated if the patient presents in a terminal stage, but palliative surgery can be worthwhile in patients expected to survive for a prolonged period. It should, however, be recognised that this is high-risk surgery and the outcomes are not always those that are hoped for. In this case, the surgeon probably made the correct decisions but the outcome was unsuccessful.

Case study 4: Smaller aneurysms in older high-risk patients should be treated conservatively

CASE SUMMARY

A patient in her mid-80s was admitted electively for endovascular abdominal aortic aneurysm (AAA) repair. A 70mL contrast dose was used during the procedure. She had a background of chronic renal failure with a baseline creatinine of 23µmol/L, estimated glomerular filtration rate (eGFR) of 41mL/min, hypertension, osteoarthritis, gout, AF (on warfarin) and gastro-oesophageal reflux disease (GORD). She was admitted the day prior to surgery for IV hydration. Vitamin K was given for INR reversal with an uncomplicated endovascular stent graft. Postoperatively, she developed right iliac fossa pain. General surgery was consulted. Eventually, she underwent two colonoscopies (the first one with inadequate preparation) that showed no evidence of ischaemic colitis. She had a severe drop in renal function postoperatively, and a vascath was inserted for temporary dialysis despite the patient not being a candidate for dialysis.

The patient had persistent and ongoing abdominal pain of unknown aetiology for which a CT abdomen was performed. The CT demonstrated mucosal thickening of the caecum, ascending and possible transverse colon infective colitis. The superior mesenteric artery and coeliac trunk filled normally. She developed respiratory failure and was made not for resuscitation. She died within one month of the procedure.

CLINICAL LESSONS

There was no comment or record about the size of the aneurysm, but in one CT report it stated that it was 56mm in maximal diameter. No comment in the inpatient notes was apparent about a risk-benefit discussion. Baseline renal function was severely impaired, and the treating surgeon would need to think very carefully about subjecting a patient to a procedure that would likely require considerable amounts of contrast medium, as this would certainly cause significant deterioration in renal function even with renal protection measures.

This patient was obviously not a candidate for haemodialysis (long term), and as such the very high likelihood of causing significant renal failure should have been apparent. The relatively small size of this aneurysm and the risk of rupture beg the question of why the operation was performed in a patient who was otherwise living a fairly reasonable quality of life at home. The cause of the gut colitis was not fully known.

While it was unlikely to be directly related to the procedure, it may have been precipitated by this event.

The 'family test' is a useful aid when making decisions; if this was your mother or father, with identical risk factors, would you recommend they have the procedure in light of a significant risk of death, compared with the small risk of rupture with conservative management?

SURGICAL LESSONS

Small AAAs have a low incidence of rupture. This was initially shown in the United Kingdom small aneurysm study.[1] A subsequent study confirmed that endovascular aneurysm repair compared with surveillance showed no difference after a mean 54 months follow up, despite a very low (0.55%) perioperative mortality for endovascular aneurysm repair.[2] In an elderly patient with multiple comorbidities and a 56mm AAA, the decision to treat was not supported by the evidence.

1. Powell JT, Brown LC, Forbes JF, Fowkes FG, et al. Final 12-year follow-up of surgery versus surveillance in the UK Small Aneurysm Trial. Br J Surg. 2007 Jun;94(6):702-8.
2. Cao, P, De Rango, P, Verzini, F, Parlani, et al. Comparison of Surveillance Versus Aortic Endografting for Small Aneurysm Repair (CAESAR): Results from a Randomised Trial. Eur J Vasc Endovasc Surg. 2011 1//;41(1):13-25.

Case study 5: Severe deterioration in status with apparent development of septic shock

CASE SUMMARY

A woman in her mid-70s with multiple comorbidities was admitted electively for surgical excision of a renal inflammatory mass and sinus tract.

Postoperatively she became increasingly unstable, with increasing vasopressor/inotrope support. She was returned to theatre for an exploratory laparotomy. Postoperatively she remained intubated and continued to deteriorate despite antibiotic therapy, adrenaline, noradrenaline and vasopressin. She underwent a period of renal replacement therapy.

A ceiling of care was established by the treating intensivist with 20mcg/min adrenaline, 20mcg/min noradrenaline and 2.4units/h vasopressin; she became increasingly hypotensive. The family and urology team were advised of her worsening condition. Once the family were present and had been apprised of the situation, she was extubated and palliative care commenced. She died soon after. The golden hour had passed while she was in the care of the ICU.

CLINICAL LESSONS

The patient's immune status was compromised by multiple comorbidities, e.g. diabetes mellitus (DM), end stage renal failure (ESRF) and likely chronic sepsis. The main concern arising from this case was the lack of active treatment of septic shock with fluids. Input from the ICU consultant was delayed, but if it had occurred earlier it may have changed the clinical picture from septic shock to severe sepsis and control. Once her organs started failing it was unlikely that she would survive.

The surgeon was very critical of the ICU registrar and junior staff, although documentation of these concerns was lacking.

If the treating surgeon had serious concerns about the treatment being provided, it would have been prudent to have reviewed the patient and responded directly to the ICU consultant. She had limited physiological reserves and was unlikely to cope with going into septic shock.

The surgeon's concerns about running the patient too dry were apparently ignored to her detriment. While it is likely that, in this case, the outcome would have been the same, timely and aggressive fluid and antimicrobial intervention is paramount when treating these patients. A low threshold should have been considered due to this patient's high risk of septic complications due to DM and ESRF (on dialysis), and that she had recently been treated for a sputum-positive chest infection.

There was limited, if any, documentation of in-hospital concerns between the teams, making it difficult to fully assess the case for ICU failure.

SURGICAL LESSONS

From a surgical audit perspective, the patient had timely and appropriate surgical management during her last admission, with early involvement of ICU. However, the fact that the hospital provided only junior cover for this deteriorating patient is a concern.

Clear documentation is important, especially when concerns are raised.

There should be more consultant-to-consultant interaction and less reliance on junior doctors to assess a patient in such distress.

Case study 6: The better decision may be not to operate.

CASE SUMMARY

An elderly man underwent a radical cystoprostatectomy and ileal conduit. He was able to walk 50-100 meters with a stick, and had muscle-invasive bladder cancer, an obstructed left kidney (nephrostomy in place) and was incontinent of urine.

This man had been reviewed in the pre-anaesthetic clinic where the risks of surgery were discussed. The patient was documented as American Society of Anesthesiologists (ASA) 4 and a "very high risk" surgical candidate.

The operation proceeded uneventfully and no blood products were given intraoperatively. Postoperatively, he was admitted to the ICU. Over the course of a few hours he became hypotensive. Ongoing bleeding necessitated a return to the operating theatre where widespread oozing was noted and the abdomen was packed. He was transfused with 22 units of blood. The patient remained intubated. Improvement in his condition allowed a second look laparotomy on day three with closure of the wound. On day nine, he became febrile and developed an enterocutaneous fistula. This was managed conservatively and he was able to be extubated. However, after subsequent deterioration with sepsis, renal failure and pneumonia, the decision was made for palliation. He died on the 19th postoperative day.

CLINICAL LESSONS

The patient was provided with information about the risks and gave informed consent for the surgery. Nevertheless, the decision whether or not to offer surgery as an option when palliation is the goal is associated with many considerations and management dilemmas.

Communication between the surgeon, the patient and his carers or family is the key. Surgeons should consider the following questions:

- Is the surgery futile? How is this to be judged?
- Will the surgery bring some relief to the patient, even if it has no effect on the disease, and what is the likelihood of this outcome?
- What are the risks of surgery? What is the morbidity?
- Will there be a return to an acceptable quality of life?
- What is the expectation of the natural history of the illness?
- What are the views of the patient?

- What is the opinion of the surgeon?
- Are there alternatives to an operation?
- What are the ethics of refusing to perform an operation?
- What are the legal implications of refusing surgical treatment?
- How are futility disputes to be resolved?

It is often helpful to seek a second opinion from a colleague, and multidisciplinary consultation will also assist with decision making. Careful consideration should be given to the 'burden' of an operation in the context of the patient's clinical status, although ultimately it is a decision that needs to be agreed upon by the patient and the surgeon.

Case study 7: Upper gastrointestinal haemorrhage results in death

CASE SUMMARY

An 84 year old woman was admitted to a regional hospital as an emergency with haematemesis and melaena. She had experienced several days of epigastric pain after running out of omeprazole. Past history was of peptic ulcer treated with a vagotomy many years previously.

Intercurrent health problems included CCF with aortic stenosis and mitral regurgitation (ejection fraction 20% at previous admission), chronic obstructive pulmonary disease (COPD) for which she had low-dose home oxygen at night, and angina. She was also malnourished (BMI < 16, weight 35kg) and had a carcinoma of the sigmoid colon that had not been treated due to her comorbidities.

On admission she was haemodynamically stable with pulse rate 84bpm and BP 115/55mmHg. Haemoglobin was 10.4g/dL. There was tenderness in the epigastrium and melaena stool on rectal examination.

The clinical diagnosis was bleeding peptic ulcer and an omeprazole infusion was commenced.

Upper gastrointestinal endoscopy was requested but did not take place as the consultant anaesthetist deemed the patient too frail for the required sedation. This decision was accepted by the treating team, the patient and her family. Conservative management consisting of the omeprazole infusion was continued. She remained stable over the next few days until on the fifth day after admission she became acutely hypotensive and dyspnoeic. She died later the same day.

An autopsy was not performed.

CLINICAL LESSONS

A bleeding peptic ulcer was the most likely cause of the haematemesis and melaena.

The first area of consideration was the anaesthetist's decision to refuse the anaesthesia (in this case sedation) that would have enabled a potentially therapeutic gastroscopy to be performed.

This woman had a high risk of dying at any time from her various intercurrent conditions. She was also a very high-risk patient for anaesthesia which, if performed, may well have precipitated an earlier death. There was no evidence of ongoing bleeding in the ensuing days and conservative management appeared to be successful. The cause of death was not necessarily due to the peptic ulcer and the clinical presentation was consistent with a pulmonary embolus or aspiration.

At the time, the surgeon was accepting of the consultant anaesthetist's decision and abided by it. The surgeon could have obtained a second opinion on the decision, but did not.

It is likely that the anaesthetist's decision was not unreasonable given the patient's health status. The surgeon was in agreement at the time and the subsequent response to conservative management justified not performing the endoscopy.

Admission to the high dependency unit (HDU) was not initially requested, for reasons that were unclear. In the first period after admission the patient appears to have been improving, and did not re-bleed, so there was no indication for HDU. The deterioration on day five was sudden and unexpected, on a background of haemodynamic stability. As the decision was to treat palliatively, HDU was again not indicated. It is unlikely that HDU admission at any stage would have made a difference to the eventual outcome.

The option of transferring the patient to a larger centre was raised but not actually explored. It was noted in her file that colonoscopy at a tertiary centre had previously been refused due to her frailty and comorbidities. The only reason to transfer her would have been for aggressive resuscitation and ICU admission, had she been a candidate for this, in the event of a complication from gastroscopy/sedation. In this case she was not a candidate for ICU admission and as such, there was no indication for transfer to another centre.

Case study 8: Elderly patient with obstructive jaundice

CASE SUMMARY

This frail 85 year old female patient was transferred from another hospital with a history of recent obstructive jaundice and a mass in the head of the pancreas. She had a history of recent weight loss. Her past history included CCF and polymyalgia rheumatic, for which she was on steroids. She had mild dementia and lived in a residential aged care facility.

An early decision was made to proceed with an endoscopic retrograde cholangiopancreatography (ERCP) and stenting. Two days after transfer an ERCP was carried out. After initial cannulisation of the common bile duct and biopsy, posterior extravasation of contrast was noted. An immediate endoscopic ultrasound rendezvous procedure was attempted but resulted in a large perforation of the duodenum. The procedure was abandoned and palliative care was commenced. She died eight days later.

CLINICAL LESSONS

This was a high risk patient with a presumed advanced inoperable pancreatic malignancy. The decision was made to treat her obstructive jaundice with a biliary stent placed by ERCP. This is a well-recognised, common and appropriate way to manage malignant obstruction of the biliary tree, but it is not without complications and risks. Although rare, duodenal perforation is one such risk. In a patient such as this, a duodenal perforation would be regarded as a terminal event.

The iatrogenic perforation is classified as an adverse event and did contribute to her death. She, however, had a terminal condition, the procedure was performed by an experienced consultant, and there was nothing to suggest that the procedure was performed without due care and attention. As such, it is very likely that this was a rare and unfortunate, but recognised, complication of the procedure.

There are concerns, however, about the documentation of the consent process - or more accurately the lack of it - in the clinical notes. She was a high-risk patient with a presumed advanced malignancy. She had significant comorbidities and early dementia. Her likely life expectancy, even with a successful biliary stent, would have been somewhere in the range of 2 to 12 months. The ERCP procedure is not without risk and, as in this case, can result in the death of the patient within a matter of days. In this type of situation it is not

uncommon for the patient and their family to choose palliation rather than proceeding with an ERCP.

The risks and benefits of the surgery, and the associated discussions held with the patient and her family, should have been clearly documented in the clinical notes - at the very least by a registrar if not by the responsible consultant. Within the case notes provided there were no details of the consent process, no documentation of discussions being held with the patient and her family, and no consent form. The documentation associated with this case would likely fall well below the accepted medicolegal standards for clinical documentation.

Case study 9: Extremely frail patient with femoral neck fracture

CASE SUMMARY

A 69 year old woman was taken by ambulance to hospital following a fall that occurred while she was out walking. She was assessed at the first hospital and was found to have a left sided humeral neck fracture, a left sided distal radius fracture and a left sided intertrochanteric NOF fracture. Her background included early dementia, malnutrition, COPD and general frailty, with a body weight of 38kg.

A closed reduction of the distal radius fracture was performed at the first hospital under Propofol sedation. There were no acute complications. A CT scan of her head was performed to exclude acute intracranial pathology.

She was subsequently transferred to a tertiary referral hospital for definitive management of the fractured NOF. At the tertiary hospital she was assessed and planned for intramedullary nail fixation of the NOF fracture. She had a deterioration on the ward while awaiting surgery and a medical emergency team (MET) call was made due to desaturation and tachycardia. At the time of the initial resuscitation and assessment it was thought that she was very dehydrated. After the initial resuscitation efforts, which included IV fluids, there was a subsequent episode in which she went into a ventricular fibrillation arrest. She was transferred to the ICU and was discharged back to the ward the following day. There was no significant deterioration in renal function other than at this time, and there was only one episode of significant dehydration documented in the chart.

Following her return to the ward from the ICU she was treated in skin traction. She did not get to the point where she was considered fit enough

to tolerate the surgery for the fixation of the NOF fracture. She died on the ward on day 12.

CLINICAL LESSONS

This case demonstrates the clinical conundrum of an extremely frail NOF fracture patient. She was not fit enough to withstand surgery, and not fit enough to withstand not having surgery to her hip fracture. A trial of life approach is quite reasonable in this setting, with a perioperative death in no one's best interest. Even if she had undergone surgery it is likely that the outcome would have been the same.

The issue highlighted by this case is the lack of guidance for the nonoperative management of NOF fractures. There has been an increasing push towards more acute surgery for patients with NOF fractures, but clearly there are circumstances in which the overall condition of the patient makes acute surgery inappropriate. The lack of a guideline on the indications for delaying NOF fracture surgery makes a nonoperatively managed NOF fracture more difficult to justify. This may be more a reflection on the difficulty of producing an accurate and usable guideline, rather than negating the idea that there are some clinical situations in which surgery should be delayed.

Case study 10: Palliative care more appropriate for frail, elderly patient

CASE SUMMARY

A 92 year old man was transferred from a residential aged care facility to an acute hospital with an acute abdomen following a fall. He was in poor general health, suffering from dementia, depression, anaemia, longstanding AF with a background of IHD, and previous coronary artery grafts. He also had type 2 diabetes with poor control (blood sugar > 25mmol/L), hypertension and prostatomegaly.

He was assessed on admission and was suspected to have an obstructing sigmoid colon mass with evidence of perforation. This was evident on a scan. A decision was made not to offer ICU placement for him.

The patient and his family requested surgery. He was resuscitated and transfused. Surgery was performed late at night and consisted of a total colectomy with ileostomy and rectal oversew.

He seemed to be recovering from surgery in the ward setting when he suffered an acute cardiorespiratory decompensation and died three days postoperatively. Apparently a verbal advanced health care directive against cardiac resuscitation and

ventilation had been in place prior to surgery.

CLINICAL LESSONS

There are valid questions that need to be answered in this case, as identified by the first-line assessor.

First is the question of whether nonoperative management was discussed. Indeed, an argument could be made not to transfer such a frail, 92 year old man out of the residential aged care facility in this situation. It is unclear as to whether his local doctor was involved in this decision. As it turned out, palliative care in the aged care setting would have been more appropriate. Based on the notes, the patient and his family were keen for surgery, but the question arises as to whether this was an informed decision.

Once in hospital, more could have been done to involve physicians, including geriatricians and palliative care as available. Postoperative ICU placement was not offered, yet there is controversy as to whether any high mortality procedure should be performed without it.

The second question is in relation to the operation being done late at night, and that it was far in excess of what was needed for preservation of life (both acutely and for symptom control). Given his age and extensive comorbidities, caecal perforation oversew (or tube drain), lavage and ileostomy would have been much less invasive. The only intra-abdominal suture line was a rectal transection and this would definitely have been unnecessary if a more limited procedure had been used.

Sepsis from dehiscence of the rectal stump suture line was perhaps unlikely at this stage, and the only way to image it would have been a contrast enema. This was not done, nor was a scan looking for any possible causes of the man's dysrhythmia.

The third question relates to the man's possible acute decompensation from problems above his diaphragm. Cardiorespiratory problems on a background of suspected aspiration was the most likely cause. It was noted that his troponin rose and there may have been an underlying exacerbation of his IHD, with perhaps even a myocardial infarction (MI) evolving.

As far as aspiration is concerned, it was noted that it had not been possible to place a nasogastric tube preoperatively, and that immediately following the operation he had pulled it out and refused its reinsertion.

The patient was commenced on fluids some 12 hours post-surgery, and enteral feeding started on day two when he complained of nausea.

This is controversial in a man who presented with an obstructing perforated bowel and who almost certainly would have had an ileus afterwards.

There are some additional comments to be made about this case. Clearly, the decision of whether to operate and what to do in this very frail man needed a multidisciplinary approach of an urgent nature and this can be hard to coordinate at short notice. The decision not to place him in ICU in the immediate postoperative setting was not appropriate.

It should be noted that without any treatment for the perforated obstructed colon cancer, this 92 year old man would not have survived beyond a few days, and it seems that his overall care was competent and diligent.

Case study 11: Ischaemic bowel in frail elderly woman

CASE SUMMARY

An 82 year old woman had a sudden onset of severe abdominal pain at 10:00am and presented to the local hospital at approximately 1:00pm. The records from this hospital were not available for review, and so the assessment is based on the second (tertiary) hospital to which she was transferred. CT at the first hospital confirmed a superior mesenteric artery thrombosis and it would seem that it took three or four hours to arrive at this diagnosis. It was then decided that she needed vascular as well as general surgical input and she was transferred to the second hospital.

She arrived at the second hospital at approximately 6:20pm. She was taken to theatre at 8:10pm where it was confirmed that her caecum was infarcted with patchy changes to much of the small bowel. A superior mesenteric artery embolectomy was performed and this somewhat improved the condition of the bowel.

Postoperatively she required ICU ventilation and inotrope support, and it was noted that her renal function declined fairly rapidly. She was also coagulopathic with a raised INR, perhaps related to liver dysfunction.

She was returned to theatre on the second postoperative day for further bowel resection and transverse colon resection. At this point she was in acute renal failure, remained coagulopathic, and the bowel was still looking dusky. Extensive discussions were held with the family and it was agreed that there would be no further surgery. She died the following day.

CLINICAL LESSONS

Given the nature of her condition,

she had a poor outlook from the beginning. If she had undergone her initial laparotomy at the first hospital within an hour or two of admission her chances of survival may have been better; however, the vascular expertise was simply not available at that hospital and hence the decision for transfer. After arrival at the second hospital, her treatment was performed in a very timely and appropriate manner but she still succumbed.

In terms of the audit of this case: it may have been more appropriate to have assessed the admission and progress of the patient at the transferring hospital in order to identify whether a more rapid diagnosis and transfer could have occurred. However, even if expedited diagnosis and transfer were possible, it is unlikely that this would have made much difference to the final outcome.

Case study 12: The importance of preoperative assessment in the decision to operate

CASE SUMMARY

The case is of a 74 year old man who presented with prosthetic valve stenosis and was admitted for the purpose of having a bioprosthetic aortic valve replacement (AVR) and double coronary artery bypass graft (originally completed in 2004) re-done. He had a significant medical history, having been treated for epistaxis, type 2 DM, hypertension and COAD in the years prior. Additionally, he had undergone a cholecystectomy and partial colectomy for sigmoid colon cancer. COAD was probably the most significant comorbidity although there was a discrepancy in the documentation as to whether he was under assessment for home oxygen or was receiving home oxygen. The notes do not indicate that a lung function assessment was undertaken preoperatively; however, the documentation indicated that he was known to a respiratory physician.

Preoperatively, he had moderate pulmonary hypertension and a left ventricular ejection fraction of 40%-45%. Intraoperatively there were no major issues. The cross clamp and cardiopulmonary bypass times were appropriate for a redo sternotomy case. The notes mention that the superior vena cava and inferior vena cava were cannulated due to difficulties in cannulating the right atrium. The operation was uneventful. He was admitted to ICU on noradrenaline and low dose vasopressin, indicating some degree of vasoplegia.

Postoperatively, pneumonia developed over the next two days and this escalated into full-blown

sepsis syndrome with respiratory and renal failure in addition to the negative inotropic effects on the heart. He deteriorated over the next 24 hours and succumbed to the sepsis.

CLINICAL LESSONS

Overall, the admission and operative notes were adequate and clearly document the events. However, there were a couple of queries arising from the documentation.

Firstly, the treating surgeon indicated on the surgical case form that there were no definable postoperative complications, yet the patient experienced adverse outcomes in the form of postoperative pneumonia and sepsis syndrome, which led to multi-organ failure and death.

Secondly, there was a lack of clarity in the clinical notes indicating whether the patient was receiving home oxygen prior to the surgery. The use of home oxygen would clearly indicate the presence of a prohibitive condition for redo cardiac surgery. There was no preoperative lung function test report, CT scan report or pulmonologist assessment in the documentation.

The preoperative assessment and decision to proceed are the only points of reflection in this case, although the lack of documentation (lung function test report or pulmonologist assessment) means that it is difficult to review the decision-making. If he had been started on home oxygen, as is indicated at one point in the documentation, then the decision to proceed with the surgery should have been reviewed.

It should be recognised that it is difficult for surgeons and anaesthetists to assess respiratory compromise as a predictor of postoperative morbidity, because the commonly used risk assessment systems do not clearly reflect the impact of poor lung function on perioperative outcomes.

In summary, while the conduct of the surgery and postoperative management were entirely appropriate, two adverse events were identified in this case: a) postoperative pneumonia; and b) subsequent sepsis syndrome and multi-organ failure that ultimately led to death.

The primary area for consideration in this case is the preoperative management of the patient. It is unclear what preoperative management and work up steps were undertaken, but thorough lung function testing, assessments by a pulmonologist, and involvement of an intensivist in patient assessment might have changed the decision to proceed. If the lung function tests were poor, the option of

transcatheter aortic valve implantation (TAVI) should have been considered. Presentation of the case for discussion at a multidisciplinary meeting may also have provided additional input and consideration into a decision to proceed with the planned surgery.

This case highlights the importance of accurate detail in the recording of clinical notes and the potential impact that lack of clarity and information has on the final outcome for the patient.

Case study 13: Can futility be predicted?

CASE SUMMARY

A 66 year old man attended the emergency department of a peripheral hospital with left-sided abdominal pain and vomiting. He had an extensive past history including known coeliac and superior mesenteric artery occlusion, peripheral vascular disease, chronic urinary retention, hepatitis and bilateral pitting oedema. CT showed a pneumoperitoneum, and bloods a pH of 7.28.

Transfer to a tertiary centre was arranged after several hours. He arrived there seven and a half hours after his initial presentation but was not seen by the surgical registrar for another 90 minutes. In light of the presumptive diagnosis of necrotic bowel, a consultant review was followed by extensive family and patient discussions and the decision was to proceed to theatre.

At operation, there was found to be a perforation of the terminal ileum with minimal contamination. This was oversewn and he was transferred to the ICU. He slowly recovered biochemically; however, his gut function failed to follow. On postoperative day seven he became more short of breath and tachypnoeic and a MET call was placed. Lactate and bicarbonate were noted to be considerably raised and it was felt that bowel ischaemia was the likely cause. The surgical consultant and ICU staff met with the family and explained the futility of further intervention. He was palliated and died shortly after.

CLINICAL LESSONS

The first-line assessor was concerned about the decision to oversew as opposed to performing a resection. However, there is little doubt that this man was unlikely to survive any intervention, and the minimalist approach to the procedure was appropriate. A resection would have placed extraordinary pressure upon the collaterals and may well have rendered the proximal small bowel ischaemic.

The time to diagnosis, transfer and eventual access to theatre seems extravagant. It is difficult to determine the exact cause of hold up(s) but delay in the circumstances is always associated with a worse outcome.

Prediction of futility is one of the most difficult aspects of surgery. A number of scoring systems exist but they are poor substitutes for sound clinical judgment. Case note reviews only enable commentary based on the recorded discussions and written notes, and in this case the consultant has personally and eloquently documented the decision-making process and meetings that took place.

Case study 14: Operating in advanced malignancy

CASE SUMMARY

A patient aged 62 years was admitted for epigastric pain. He had no vomiting but was constipated. He gave a history of renal carcinoma that had metastasised to lung, liver and bone. The oncologist had earlier ceased chemotherapy and he was being palliated. His medications included OxyContin and Endone.

He was promptly reviewed by the surgical team and found to be febrile (38°C) with tachycardia of 100bpm and BP of 113/64mmHg. His lungs were clear and heart sounds normal, but his abdomen was noticed to be tense with guarding and rebound with scanty bowel sounds. His liver was enlarged and he had what was felt to be a tender irreducible right inguinal hernia. Investigations revealed a white cell count of 17, haemoglobin 100g/dL and lactate 2mmol/L. Abdominal X-ray (AXR) did not reveal any dilatation of bowel.

The consultant surgeon who saw the patient suggested that he needed a laparotomy but had second thoughts and ordered an abdominal CT. This was undertaken within 30 minutes and the consultant surgeon documented that there was loop of bowel in hernia and proceeded to laparotomy. At laparotomy, there was ascites and the inguinal mass was found to be a metastatic node. On postoperative day one, the patient discharged himself against medical advice and subsequently died.

CLINICAL LESSONS

Surgeons often experience a dilemma when trying to decide whether a patient with advanced abdominal malignancy requires surgery. Although this patient was stable, he had abdominal peritonism and what was perceived to be an irreducible inguinal hernia - prompting the surgeon to suspect bowel ischaemia and the need for a laparotomy. Realising that the patient had advanced malignancy,

the surgeon ordered a preoperative CT and interpreted it as showing incarcerated bowel in the hernia sac. It is unclear whether the surgeon consulted the radiologist or reached his own conclusion. At laparotomy, there was ascites and the inguinal mass was found to be due to metastatic nodes. The operation was quickly terminated. The patient discharged himself on postoperative day one and subsequently died.

While the operation was unlikely to have caused the patient's eventual demise, it was unnecessary. The history of metastatic cancer to multiple visceral sites, and the fact that palliation had been initiated by the medical oncologist, would make most surgeons hesitate to operate. The CT was subsequently reported by the radiologist to show ascites, enlarged metastatic retroperitoneal nodes, subcapsular liver metastasis and extensive omental and peritoneal metastatic deposits. In particular, the radiologist documented that the right direct inguinal hernia contained enhancing soft tissue likely to represent metastatic peritoneal tumour deposit (not bowel). It is likely that the surgeon mistook this for bowel.

In retrospect, the surgeon would likely not have operated had he been aware of the findings reported by the radiologist. It is not known whether the surgeon had access to a radiologist to discuss the CT. The cognitive bias caused by the clinical examination and the confounding presence of the soft tissue deposit in the hernia (mistaken by the surgeon as bowel) prompted the decision to operate. A learning point would be that in difficult cases it is prudent to discuss imaging findings with a radiologist if at all possible before proceeding to surgery.

Case study 15: Appropriate palliative care and decision -making

CASE SUMMARY

A 50 year old woman who had previously undergone a Whipple procedure for a primary pancreatic malignancy was admitted with gastric outlet obstruction due to recurrent disease. A decision was made to introduce a feeding tube radiologically, distal to the obstruction. A contrast study confirmed its position as well as two further obstructing points that were traversed and dilated.

Approximately one month later, the tube was thought to be kinked due to poor function and was repositioned. She subsequently became septic and was taken to theatre, where an abscess was found at the insertion site along with advanced local recurrent cancer. The recurrent cancer appeared to have resulted in

a multilevel obstruction rather than an immediate complication from the feeding tube.

Appropriately, the decision was made for end of life care.

CLINICAL LESSONS

The first-line assessor concluded that this episode of care was appropriate. However, the absence of information regarding the previous admission raised the question of whether the original decision to offer a Whipple resection was appropriate given the short elapsed time (five months).

On reviewing the details of the previous admission, it appears that the decision to undertake the Whipple resection was appropriate. This was a relatively young patient, and surgery with adjuvant therapy was the only treatment option with a possibility of cure. The histopathology showed that the primary was fully excised, albeit there was a lymph node, so the surgeon obtained a good operative outcome. Unfortunately, this was not enough to overcome the biology of an aggressive cancer.

The surgeon could not really have been expected to have preoperatively detected the small omental deposit found in the specimen, but this was clearly an ominous portent of what was likely, and indeed did occur.

Case study 16: Palliative care hiatus

CASE SUMMARY

A 92 year old woman was referred to a tertiary hospital approximately three weeks after presenting to her general practitioner (GP) with confusion and abdominal pain. Comorbidities included IHD, chronic AF and mild CCF, but she had been living independently with some family support.

A CT scan initiated by her GP demonstrated a large subhepatic collection and gall bladder changes consistent with perforated cholecystitis. She was disinclined to embark on active treatment, and agreed to be managed at home with antibiotics. A screening troponin level was elevated, consistent with some myocardial damage, but in view of her age this was not pursued. While her condition was initially stable, a gradual decline in her mental state prompted her family to convey her to the emergency department.

On admission, she was in rapid AF, had significant hepatocellular enzyme elevation, and was coagulopathic (INR 2.3). Joint care with a medical and surgical unit was undertaken. Her heart rate was stabilised and correction of her coagulopathy was attempted with Prothrombinex and vitamin K. A repeat CT

demonstrated significant resolution of the subhepatic collection, with a probable fistula to the pylorus or duodenum. A multidisciplinary review of her management was undertaken involving an ICU consultant, physician, surgeon and family members. A nonoperative approach was agreed upon and a not for resuscitation directive was completed.

A follow-up ultrasound confirmed a continuing reduction in the size of the subhepatic collection, but she remained coagulopathic and her general condition continued to deteriorate. Hypotensive episodes leading to MET calls were responded to on two occasions, but each time she was readily stabilised with simple measures. Her condition continued to decline and she died peacefully in the presence of her family four days following admission.

CLINICAL LESSONS

The expected mortality rate of complicated cholecystitis in older patients is very high (approximately 40%). It is doubtful that earlier intervention would have been successful, even if it were deemed appropriate. The management initiated by the GP was entirely reasonable under the circumstances, and her management at the tertiary hospital cannot be faulted.

It is perhaps regrettable that when an independent but frail older person develops a severe illness, the only realistic option is to enter a tertiary hospital after hours via its emergency department. Escalation of treatment is almost inevitable, leading to poor utilisation of resources. Ideally, compassionate palliative care should be available much closer to home. Despite the imperfections in the health service, in this case the system did not fail this patient and her family.

Case study 17: A patient of advanced age and frailty dies despite maximal care

CASE SUMMARY

This case is of a 97 year old man who was living in a residential aged care facility. He was extremely frail and had multiple medical problems. On becoming unwell with abdominal pain and sepsis he was sent to the emergency department of the local metropolitan hospital.

After the initial hospital assessment and escalation of care with CT scan, cholangitis was diagnosed. Despite his advanced age and frailty, the decision was made to transfer the patient to a tertiary teaching hospital for further escalation of care with ERCP and drainage. If it is assumed that such care was warranted, the medical care with IV fluids and IV

antibiotics was appropriate. He was transferred directly to the ward at the tertiary teaching hospital but deteriorated further resulting in a MET call. Non-ST-elevation myocardial infarction (NSTEMI) was subsequently diagnosed in addition to cholangitis and acute renal failure on a background of chronic renal failure.

Discussion between the admitting team, ICU and anaesthesia resulted in the decision to proceed to invasive/advanced care with inotropic support, ERCP and HDU care. ERCP, drainage and stenting were performed. Despite this, he continued to deteriorate with renal failure.

Eventually, it became obvious to his medical attendants that further active care was futile and he was placed on the care for the dying pathway. He died approximately seven days after his initial presentation to the emergency department.

CLINICAL LESSONS

This case is a representative example of the difficulties that medical attendants and surgeons have in avoiding and preventing futile tertiary invasive care and surgery in the terminal phase of life.

An unrealistic and overly optimistic view of potential benefits and an apparent fear of doing nothing, combined to create this situation.

The opportunity to de-escalate care was missed at three points during this patient's final journey within the healthcare system, in relation to the following decisions:

1. To transfer to the emergency department.
2. To investigate, treat and transfer at the first hospital.
3. At the tertiary teaching hospital, to proceed with HDU care and operative intervention despite ongoing deterioration.

Senior clinicians play a vital role in the avoidance of futile surgery and should be taking the lead in preventing this type of situation.

Case study 18: The importance of quality of life in the decision to operate

CASE SUMMARY

A patient in her early 80s presented with a stage 4 squamous cell carcinoma of the right lateral oropharynx.

She had previously had a carcinoma of the tongue treated with radiotherapy 10 years ago and was being treated for diabetes. It was recognised that the previous radiotherapy precluded any further local treatment for the pharyngeal carcinoma as it increased the risk of a major postoperative vascular event.

The patient underwent tracheostomy, right neck dissection, split mandibulectomy, right pharyngeal resection and radical forearm free flap. The operation lasted 13 hours.

Postoperatively, the patient had persistent dysphagia and was commenced on total parenteral nutrition (TPN) until a nasogastric tube was inserted on day 36. On day 40, a major haemoptysis developed. A tracheostomy tube was reinserted to protect the airway.

A CT scan of the neck revealed a right internal carotid artery pseudoaneurysm.

There were ongoing haemorrhagic events from day 40 to day 55.

The patient's condition subsequently stabilised and the tracheostomy tube was removed on day 60 of admission.

She was found unresponsive on day 68 and, according to her wishes in an advanced care directive, further active measures were not undertaken and the patient died shortly thereafter.

CLINICAL LESSONS

The patient was discussed at a multidisciplinary case conference and the decision to proceed with surgery was made there. The patient was involved in the decision-making. It then became a value judgement regarding the potential for quality of life versus morbidity and mortality.

It was very likely that the patient would require high level care even in the most favourable circumstances. The treating surgeon reflected that the vascular event, the occurrence of the carotid artery pseudoaneurysm, was probably not preventable.

This was complex, potentially high-risk surgery in a patient in her 80s and has to be viewed with concern. The decision for curative surgery was considered appropriate although the chances that this patient would swallow again were small. It was highly likely that she would remain with a permanent tracheostomy due to continued aspiration.

Shortened Forms

AAA	abdominal aortic aneurysm
AF	atrial fibrillation
BMI	body mass index
BP	blood pressure
bpm	beats per minute
CCF	congestive cardiac failure
COAD	chronic obstructive airways disease
COPD	chronic obstructive pulmonary disease
CT	computed tomography
CUSA	cavitational ultrasonic surgical aspirator
DM	diabetes mellitus
ERCP	endoscopic retrograde cholangio-pancreatography
ESRF	end stage renal failure
EVD	external ventricular drain
GCS	Glasgow Coma Scale
GP	general practitioner
HDU	high dependency unit
ICU	intensive care unit
IHD	ischaemic heart disease
INR	International Normalised Ratio
IV	intravenous
MET	medical emergency team
NOF	neck of femur
TFN	total parenteral nutrition
VATS	video-assisted thoracoscopic surgery

Contact details

Royal Australasian College of Surgeons
Australian and New Zealand Audit of Surgical Mortality
199 Ward Street
North Adelaide SA 5006

Telephone: +61 8 8219 0900
Facsimile: +61 8 8219 0999
Email: wendy.babidge@surgeons.org

Website: http://www.surgeons.org/anzasm

Notes

Notes

Royal Australasian College of Surgeons
Australian and New Zealand Audit of Surgical Mortality
199 Ward Street
North Adelaide SA 5006

Telephone: +61 8 8219 0900
Facsimile: +61 8 8219 0999
Email: wendy.babidge@surgeons.org

Royal Australasian College of Surgeons

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
Excellence in Women's Health

ANZASM
Australian and New Zealand Audit of Surgical Mortality