



AUSTRALIAN AND NEW ZEALAND AUDIT OF SURGICAL MORTALITY

NATIONAL CASE NOTE REVIEW BOOKLET

VOLUME 10 / NOVEMBER 2016



ROYAL AUSTRALASIAN
COLLEGE OF SURGEONS



The Royal Australian
and New Zealand
College of
Obstetricians
and Gynaecologists

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
Australia

Telephone: +61 8 8219 0900
Facsimile: +61 8 8219 0999
Email: gordon.guy@surgeons.org

Website:
surgeons.org/for-health-professionals/audits-and-surgical-research/anzasm.aspx

DISCLAIMER: This booklet is produced for Fellows of the Royal Australasian College of Surgeons. Information is obtained under a quality assurance activity.

The information contained in this case note review booklet has been prepared on behalf of the Royal Australasian College of Surgeons. The Australian and New Zealand Audit of Surgical Mortality, including the Western Australian, Tasmanian, South Australian, Australian Capital Territory, Northern Territory, New South Wales, Victorian and Queensland Audits of Surgical Mortality, has protection under the Commonwealth Qualified Privilege Scheme under Part VC of the Health Insurance Act 1973 (gazetted 23 August 2011).

Contents

Chairman’s Report.....	4
ANZASM Clinical Editor’s Report.....	5
Recommendations	6
Case Studies	7
Case study 1: Inappropriate readmission to a medical ward and consequent lack of input by surgical team	7
Case study 2: Surgical team must take responsibility for postoperative problems even if the patient is under a medical team	9
Case study 3: Delay in diagnosis due to lack of input by senior surgeons.....	11
Case study 4: Lack of senior surgical consultant involvement leads to delay in diagnosis	12
Case study 5: Review the patient and the imaging.....	15
Case study 6: Review by a more senior member of the surgical team needed.....	16
Case study 7: Rural hospitals should be trained to recognise the seriousness of the problem and act urgently.....	18
Case study 8: Consultant assessment and review needed for palliative care decision.....	20
Case study 9: Lack of surgical consultant input in management.....	21
Case study 10: Timely assessment by senior clinicians is essential in postoperative management.....	23
Case study 11: A “Shared” model is an option in complex interdisciplinary cases.....	25
Case Study 12: Nursing leadership needed in head injury care.....	27
Case Study 13: Clinical leadership needed in ED	29
Case Study 14: Blinkered approach to patient presenting in shock	30
Shortened Forms.....	32
Contact details	32

Chairman's Report

This is the 10th National Case Note Review Booklet and it focuses on deficiencies in clinical leadership. All surgeons feel that they are clinical leaders, able to take control and direction of their cases. However, this is not always the case. This booklet certainly highlights a number of deficiencies in senior oversight of complex patients. Many surgeons have commitments at both public and private hospitals as well as remote consulting practices and have to put in place oversight of their patients over weekends and times when they are absent. All of this requires strong leadership and responsibility for the management of our patients. Even when employed on small fractional appointments in public hospitals, close monitoring of complex cases and complications needs to occur, or appropriate senior delegation needs to have taken place.

These cases illustrate experiences which may well have ended in a similar fashion irrespective of the role of the surgeon but, equally, one could imagine different outcomes had senior surgical leadership been present. We have an obligation to our trainees as well as our patients to provide this leadership and make sure that errors are not allowed to occur. This may well inconvenience our lifestyles as well as our work and leisure activities, however we do need as professionals to have these as secondary considerations.

Surgeons do need to reflect on how much work they can manage, what volume of cases they can handle and the complexity of the complications that they have to advise on. Seeking other opinions, ensuring that timely consultations and advice is obtained is all part of contemporary surgical care. We work in a highly complex environment with sophisticated imaging, interventions, pathology and support services. Someone needs to take responsibility for coordinating these and, in the case of the surgical patient, this is the surgeon even if he or she is not necessarily the expert in all aspects of the care being delivered.

Reading these cases is salutary and many of us probably could recognise that the problems that are identified could occur in our practice also. We need to use this as a wakeup call to redouble our efforts to provide the best possible oversight of our patients.

I trust this will be a useful review booklet and we would welcome any constructive feedback that surgeons may wish to make.



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

ANZASM Clinical Editor's Report

The tenth booklet includes cases from all states and territories and forms part of the feedback process that is seen as essential in the quality improvement processes of the audits of surgical mortality. A national booklet is produced to provide a wider readership for cases from various states. It also assists smaller states and territories who do not have enough cases to produce their own booklet and may have difficulty in adequately de-identifying cases. The larger states will continue to publish their own Case Note Review Booklets as well as contribute to the national booklet.

The cases in this booklet are focussed on events that can be described as clinical leadership issues. Many of the cases described are ones in which senior surgical staff did not take appropriate leadership roles in the management of a case. Sometimes there were not able to do so as they had been inadequately informed about events. On some occasions it is the nursing staff who need to take a leadership role in training and supervising staff. There is also a case where the Emergency Department senior staff should have been in a leadership role and a case where the radiology staff needed to take a leadership role.

Some of the cases have been edited to focus on a few points in a complex story or to reduce the length of the report. There is variability in the writing style as the text is, in general, written by assessors and treating surgeons and not by the editor.

There may be cases where readers may not entirely agree with the assessment and comments but if we have stimulated you to think about the case we have succeeded in our aim. Correspondence and questions about specific cases are welcome, and while the ANZASM cannot provide identifying information, we may be able to explain the case in more detail than we have in this booklet.

As the ANZASM office is in the same building as the South Australian Audit of Perioperative Mortality (SAAPM) office, it seemed logical that the final clinical editing process would be done by the Clinical Director of SAAPM on behalf of ANZASM. I must emphasise that I did not write this booklet. The real authors are the treating surgeons, the clinical directors, and the first- and second-line assessors of the various states and territories. To the assessors and the treating surgeons we all owe a debt of gratitude as this publication would not be possible without them. Please learn from these cases.

Glenn McCulloch
Clinical Director, SAAPM
Clinical Editor, National Case Note Review Booklet, ANZASM

Recommendations

In complex cases there needs to be clear, demonstrable leadership in patient management. There should be regular team meetings involving all disciplines to ensure that the treatment plan is understood by all.

Communication remains one of the most critical factors in safe, high quality patient care delivery. Clear communication by the surgeon with patients and family is always a wise investment. Communication between surgeon colleagues, other specialists, junior staff, nursing and allied health staff remains an essential foundation for quality care, especially if transfer of care or interhospital transfer is required in the critically ill patient.

All clinicians should provide clear and relevant records. Some of the cases in this report had record keeping deficiencies.

The surgical case form must contain good and accurate information. It should be completed by a team member who was involved in the care of the patient and has sufficient experience to contribute in a useful fashion to the audit process. In instances where the surgical case form is completed by a junior staff member, a consultant should check the completed form or provide advice in advance on salient points that need to be recorded. Even unpalatable truths should be stated on the form.

All clinicians should keep in mind that the clinical deterioration of a patient, in the absence of a clear cause, may be related to something outside their particular specialty.

Elderly, frail, confused or very sick patients are at greater risk of falls. Caregivers must be vigilant in attending to this group of patients.

Proper deep vein thrombosis prophylaxis is critical in the care of acute surgical patients. Proper care includes the correct dosage, the correct drug and timely commencement of treatment.

Consultants should be actively involved in the care of their patients, including in the decision-making process. They have an obligation to make personal entries in the case record of the reasoning that led to the decision. They should also be willing to obtain other opinions if something is not right.

Case Studies

Case study 1: Inappropriate readmission to a medical ward and consequent lack of input by surgical team

CASE SUMMARY:

A patient in his late 60s with a past history of smoking-related chronic obstructive pulmonary disease, previous posterior stroke with residual right visual field defect, Barrett's oesophagus, depression, heavy alcohol use and previous intravenous (IV) drug use was admitted with a non-ST elevation myocardial infarction. He underwent urgent coronary angiography due to ongoing chest pain despite aspirin, persantin, IV heparin and IV glyceryl trinitrate. The angiography confirmed the presence of critical left main stem stenosis as well as moderate right coronary artery disease.

Emergency coronary revascularisation was performed later the same day with a left internal mammary artery to left anterior descending artery, saphenous vein graft to obtuse marginal artery and right coronary artery. Postoperatively he was coagulopathic, but bleeding was controlled with the use of platelets, fresh frozen plasma, cryoprecipitate and prothrombinex. The patient subsequently developed

an episode of atrial fibrillation (AF) that was treated with amiodarone and beta blockers, followed by commencement of warfarin. He was discharged from hospital on postoperative day six and the discharge medications included warfarin, aspirin and subcutaneous heparin. Clopidogrel was ceased on the day of discharge.

The patient was readmitted via the emergency department (ED) six days later with "irregularities on blood tests" and some degree of exertional dyspnoea. The blood tests confirmed significant elevation of liver enzymes, impaired renal function and a raised international normalised ratio (INR) of 3.8. There was also a significant drop in haemoglobin (114 to 94 g/L over five days), with elevation of the white cell count (WCC) and inflammatory markers. The patient was admitted under the care of a general physician, although he was also reviewed by the on-call cardiothoracic surgery registrar. The admission notes raised the possibility of pericardial pathology and mentioned the need for an echocardiogram, but this was not performed on the day of admission or on the following day.

Warfarin was withheld following the readmission but no attempt

at reversal was made despite INR readings of 4.2 and 4.9 on the day following readmission, and 6.4 on the following day. The patient's condition deteriorated significantly (hypotension, tachycardia, tachypnoea and diaphoresis). A medical emergency team (MET) call was instituted and the patient was assessed as being in a pre-arrest situation. He was urgently transferred to the intensive care ward where the patient in fact arrested. A "quick subcostal transthoracic echo imaging" was performed during the arrest phase and this confirmed a large pericardial effusion with no discernible cardiac contractility. Percutaneous drainage of approximately 600 mL of bloody fluid was performed. The patient died after 45 minutes of attempted resuscitation and the case was referred to the coroner.

CLINICAL LESSONS:

This patient in his late 60s developed a haemopericardium following discharge from hospital. Given the history of heavy ethanol use it would appear that the postoperative anticoagulation regimen for a single episode AF was excessive, and probably contributed to the subsequent event. However, of more concern is the fact that the patient was not admitted under the cardiothoracic surgical unit, despite

having been seen by the registrar, and that the surgeon involved was apparently unaware of the readmission (according to the notes). Furthermore, the delay in obtaining a transthoracic echocardiogram right up to the time of the patient's cardiac arrest, despite the notes indicating at several points that an echocardiogram was to be performed, contributed to the patient's clinical deterioration and likely accounted for the patient's subsequent demise. Of further concern is the fact that, even after the haemopericardium was diagnosed, it was treated by paracentesis rather than by reopening of the sternum, despite the presence of the cardiothoracic team during the arrest.

It must be noted that perusal of the hospital notes was extremely difficult. The photocopy of the notes was virtually illegible owing to "poor quality original" stamped over many of the pages. In particular, this made assessment of any medication charts extremely difficult.

Case study 2: Surgical team must take responsibility for postoperative problems even if the patient is under a medical team

CASE SUMMARY:

A patient in his late 80s, otherwise independent and healthy, presented with an incarcerated right inguinal hernia and underwent an emergency repair with mesh.

The case notes provided by the hospital were adequate, but the documentation was somewhat brief and lacking in detail. Preoperative assessment, the decision for operation, the choice and conduct of surgery and the anaesthetic consult were adequate, and indicated a healthy independent patient with good pre-morbid function. Biliary regurgitation occurred during intubation and was suctioned satisfactorily with no signs of aspiration. Prophylactic antibiotic was given but deep vein thrombosis prophylaxis was not used.

The operation was performed promptly and consisted of a mesh repair. Opening of the sac revealed viable omentum. The operative notes were brief and didn't mention any bowel involvement although this was mentioned retrospectively on later notes. Postoperatively the

patient had extreme pain and was tachypnoeic – 34-47 breaths /min with hypotension. This was reviewed by the anaesthetic registrar and the patient was given more analgesic and transferred to the critical care unit. The surgical registrar reviewed the patient the next morning. There was tender and distended abdomen in the setting of hypotension and a high respiratory rate, but nothing further was done apart from chest physiotherapy and IV fluid. The consultant note was brief and lacked details.

The medical registrar was consulted for presumed fluid management. Adrenaline was started just prior to review but no reason was documented. On review there was decreased air entry at the lung bases and it was also thought that there was small lung effusion. More IV fluid was given as boluses and adrenaline continued to run. A retrospective note was later documented by the surgeon. The note indicated no bowel involvement and no haematoma at the site of operation with a soft abdomen.

On day two postoperatively the medical registrar was called at 5:00 am to review the patient who had persistent hypotension and poor urine output with tachypnoea and abdominal pain. The abdomen was distended but there was no

indication of any rigidity or guarding. The WCC was 2.6. The clinical impression was hypovolaemia from third space loss, abdominal distension and secondary splinting of diaphragm with inadequate pain relief. The recommended actions were more fluid boluses, intubation and central venous catheter for central venous pressure monitoring.

The medical registrar reviewed the patient again at 7:00 am and the oxygen saturation had deteriorated further. The patient vomited and aspiration of the nasogastric tube (NGT) produced red bilious fluid. Mobile chest x-ray showed increased lung marking bibasally suggestive of aspiration pneumonitis. The surgical registrar reviewed the patient and suggested continuous positive airway pressure for a few hours. If there was no improvement the plan by the medical team was to palliate the patient and this was discussed with the surgeon. The patient deteriorated further and palliation was discussed with the family. The patient passed away just after midday.

The major concern was the failure of the surgical team to adequately review the patient, and the delegation of postsurgical care to a medical registrar. The patient underwent a routine emergent inguinal hernia repair, which even in

this age group should have followed a very predictable postoperative course unless a catastrophic event occurred, such as a massive acute myocardial infarction or pulmonary embolus. The postoperative course of this patient was very unusual and this should have caused concern.

The hypotension should have been quickly corrected without the need for starting inotropes. All causes of postoperative hypotension should be excluded, including operative complications such as blood loss, bowel injury, sepsis or myocardial infarction. Frequent surgical review should have been part of the work-up process in this unexpected postoperative course. Investigations such as computed tomography (CT) abdomen and pelvis should be contemplated, even if there was a reluctance to take the patient back to theatre. The management of the patient in the Critical Care Unit (CCU) was also concerning, as the patient's lack of response to the continued use of inotropes should have prompted the team to investigate other potential causes of the failure to progress.

The postmortem demonstrated generalised peritonitis secondary to intestinal perforation at the site of the inguinal hernia repair. There was a circular defect in the small bowel wall.

CLINICAL LESSONS:

There were many missed opportunities in this case that, if they had not been missed, may have made the outcome of this case preventable. The unexpected postoperative course called for frequent surgical review until major surgical complications could be excluded. This patient had one surgical review on day one and day two, and the medical management was wrongly targeted. While the hypotension may have been as a result of hypovolemia the patient had multiple boluses of fluid and albumin with adrenaline infusion. The lack of clinical response would suggest that the underlying pathology was not being treated. The lack of a review of the treatment plan made the outcome inevitable. An early CT abdomen in this case could have pointed to peritoneal sepsis and potentially saved the patient.

Case study 3: Delay in diagnosis due to lack of input by senior surgeons

CASE SUMMARY:

A patient in his 30s was admitted to Hospital 1 with abdominal pain under consultant A. Radiological investigations identified gallstone pancreatitis, which was treated conservatively. It was planned that once the pancreatitis improved the

patient would undergo laparoscopic cholecystectomy. Generalised abdominal pain developed with no evidence of an exacerbation of pancreatitis.

Care was transferred to consultant B over the weekend. On the Sunday the patient deteriorated, with colicky lower abdominal pain and complete constipation. A CxR revealed gas under the diaphragm. The patient was transferred to Hospital 2 under the care of a third surgeon. On admission the patient was moribund with peritonitis, shock and multi-organ failure. An emergency laparotomy was performed after resuscitation. The operative findings were faecal peritonitis and a perforation of the sigmoid colon. A Hartmann's procedure was performed. The patient was managed in the intensive care unit (ICU), however deteriorated and died.

CLINICAL LESSONS:

This patient was transferred between hospitals, between several wards and was cared for by different medical and nursing staff. Discontinuity in care was a factor in the outcome.

The blood investigations suggested a worsening infective process. When the patient deteriorated with abdominal pain on the second occasion the pain was colicky

and the serum lipase did not rise. A further CT scan or AxR would have identified the free gas in the abdomen. There was a delay in diagnosis because of inappropriate interpretation of the results and insufficient investigations, conducted largely by junior staff and without senior clinical input or review.

It may have been desirable to perform the operation at Hospital 1 and then transfer for ICU management. There was an 8 hour delay between the diagnosis of a perforated viscus and the operation at Hospital 2.

Treating surgical teams should try to avoid frequent ward changes and optimise communication between teams when change is necessary. Given the time taken for transferring patients between hospitals, careful consideration must be given to prioritising patient transfer over timely emergency surgery prior to transfer.

Case study 4: Lack of senior surgical consultant involvement leads to delay in diagnosis

CASE SUMMARY:

An elderly, independent patient was admitted with increasing agitation and confusion, offensive smelling urine and lower abdominal pain following a laminectomy complicated by a urinary tract infection. The

patient had undergone an abdomino-perineal resection 10 years previously.

On admission the patient was afebrile, tachycardic and normotensive. Abdominal examination revealed lower abdominal tenderness with no rigidity or guarding. Urine analysis showed leucocytes and blood. The full blood count was essentially normal. The patient was admitted under the care of the ED physician with a diagnosis of urosepsis. Urine micro culture and sensitivity, blood cultures and other investigations were requested, and IV gentamicin and amoxicillin commenced. The next day the patient was still confused and was now febrile.

A nursing entry noted “stoma is not active”. The patient was reviewed by the on-call medical team who noted lower abdominal tenderness, concurred with the diagnosis of urosepsis and accepted the patient to the medical unit. The following day the patient was still complaining of abdominal pain and had tenderness to light and deep palpation. The colostomy bag was still empty. An urgent abdominal CT scan was requested.

The CT scan was performed the following day and showed a distal small bowel obstruction. An NGT was inserted and a surgical review requested. That evening the patient was reviewed by the

on-call surgical registrar A, who noted “nausea, vomiting”, the “stoma stopped working”, the patient “looks fine”, “afebrile” and that the NGT had drained 2L of fluid. The registrar also detailed “lower abdominal tenderness”, the presence of “bowel sounds” and a C-reactive protein (CRP) of 370 but a normal white blood cell count. The registrar documented discussion of the abdominal CT scan with the radiologist and noted “bowel obstruction with a huge stomach and duodenum”, “gas in the lower small bowel wall” and “gas in the left iliac fossa”.

The registrar documented the discussion with the on-call general surgical consultant A, who felt that there was possible bowel perforation and infection, and that the patient would benefit from conservative therapy overnight.

A generally tender abdomen was noted the next day and at laparotomy there were extensive small bowel adhesions in the pelvis from previous radiotherapy and 2 feet of intact gangrenous mid small bowel. The “distal half of the small bowel was matted and fixed in the true pelvis” and “freed with blunt finger dissection”. The gangrenous small bowel was resected and a side-to-side stapled anastomosis performed, some serosal tears repaired and an appendectomy performed. This was

done by surgical registrar B and took 3.5 hours.

Postoperatively the patient was managed in the ICU but failed to progress. The patient had a second emergency laparotomy by surgical registrar B, assisted by general surgical consultant B. There was a small bowel anastomotic leak. The anastomosis was taken down, a proximal jejunostomy formed with an end mucus fistula, as well as a gastrostomy and feeding jejunostomy. Postoperatively the patient experienced considerable problems with malabsorption. A variety of feeding methods were employed including jejunostomy feeds, total parenteral nutrition, gastrostomy feeds, and refeeding jejunal effluent through ileostomy. The patient eventually demised 2 months postadmission.

CLINICAL LESSONS:

There are a number of matters that are of concern in this case. There was a clear delay in diagnosis - while in hospital the patient complained of abdominal pain for 4 days prior to the first operation, and the stoma bag was not active for this period, yet no plain AxR or surgical review was sought by the medical team until day four of admission. The patient eventually died 2 months postadmission.

The first surgical review of the patient was by general surgical registrar A. The subsequent discussions between registrar A and on-call general surgical consultant A are of concern. There was a failure to appreciate that the patient had a high-grade bowel obstruction with focal peritonism, this in turn being suggestive of ischaemic gut. Clinically, the stoma had not worked and the NGT had drained 2L of fluid in under 6 hours.

There was no mention of whether the fluid was bile-stained or faeculent. The documented “lower abdominal tenderness” and presence of “bowel sounds” suggests inexperience, with no mention of percussion or rebound tenderness and guarding. Moreover, the knowledge of a raised serum CRP of 370 and a radiologist’s verbal report of the abdominal CT scan showing a “bowel obstruction with a huge stomach and duodenum”, “gas in the lower small bowel wall” and “gas in the left iliac fossa”, should have raised an alarm. The decision to manage this patient conservatively overnight was an error of clinical judgment.

Supervision was an issue, as was seniority of the operating surgeon. There are doubts as to whether it was appropriate for surgical registrar B to perform surgery of this magnitude without a consultant.

The length of the procedure (3.5 hours), the numerous (4-5) serosal tears, the use of “blunt finger dissection” to take down “matted and fixed” post-radiotherapy small bowel pelvic adhesions, and the performance of an appendicectomy when the pathology was in the pelvis and the left iliac fossa all suggest inexperience. The subsequent small bowel anastomotic leak also supports this, as small bowel anastomoses are usually very forgiving.

This case highlights a major systemic issue in the relationship between registrars and consultants in the acute surgical setting. Consultants can find themselves on-call with registrars whose level of clinical experience and skills they are unfamiliar with. In this case there were two registrars and two consultants involved in the management of a patient with an adhesive proximal small bowel obstruction with compromised small bowel.

There was a delay in diagnosis (four days), a failure to act surgically when the evidence was clear that the patient had ischaemic/gangrenous small bowel, and the first operation was carried out by an inexperienced registrar without a consultant present. While it is easy to blame poor outcomes on inexperienced

registrars, ultimately the responsibility must always lie with the supervising consultant surgeon. The onus is on consultants to make sure they know the competencies and limitations of the registrars with whom they are on call.

Case study 5: Review the patient and the imaging

CLINICAL SUMMARY:

A patient in her mid-70's was admitted through the ED the day after a fall in which she injured her right wrist. The patient's history included a week of right knee pain, diabetes, chronic renal impairment, AF (on warfarin) and heart failure. The patient was admitted under orthopaedics with medical and allied health care involvement. In the first 48 hours the patient was tachycardic and bradycardic - cardiology was consulted and daily reviews occurred.

On day three of admission a pre-MET review was obtained due to tachycardia. The patient was documented to be eating breakfast at the time. There was no documentation of any abdominal pain. On day four of admission at 11:45 am a MET was called. The patient was tachycardic and tachypnoeic with low oxygen saturation and complained of abdominal pain associated with

tenderness on the right with "guarding and peritonism". Fluid resuscitation was commenced and a CT abdomen ordered. The general surgery team were called. The CT abdomen showed a right sided retroperitoneal collection. A decision was made to place an image-guided percutaneous drain; this drained a small amount of faecal fluid.

The patient went to the ICU post-drainage but deteriorated further and a formal laparotomy and right hemicolectomy with the finding of a large caecal tumour. The operation took place 11 hours after the MET call. The patient returned to theatre the following day for a second look (all bowel was deemed viable) and formation of ileostomy and mucous fistula. Over the next 3 days the patient's condition deteriorated, despite ICU care, and the patient died.

AREAS OF CONCERN:

The decision to place a percutaneous drain in an unwell patient who was clearly deteriorating with documented signs of peritonism is an area of concern. The patient should have gone straight to laparotomy, although the outcome would have been the same. The team missed an apparently large, obstructing colonic tumour on CT scan and were led away from laparotomy to using a drain.

AREAS OF CONSIDERATION:

Within a 12-hour period there were four consultant surgeons making decisions regarding this patient's management. It is useful and sometimes beneficial to seek help, advice or a second opinion but two of the consultants had not seen the patient and were being guided by an (inaccurate) CT report. The grade of experience of the initial surgeon is unknown.

RECORD KEEPING:

The initial ED clerking and documentation was thorough with regards to the fall. Medical history, medications and social history were all documented. There was, however, no documented systems review but the patient didn't appear to have expressed any abdominal symptoms or bowel problems until they started deteriorating. Note-making leading up to the patient's deterioration was good. Pre-MET and MET records were also very good. Unfortunately the general surgical notes surrounding the patient's deterioration, CT results, presumed diagnosis and decision to drain and then perform laparotomy were non-existent. The assessment was based on the surgical case form for this information. ICU notes were dated, timed, typed and very easy to read.

Clinical lessons:

Improvements that could be made:

1. Surgical note keeping
2. Radiology quality control
3. Avoid "too many cooks". If a second opinion was sought, review the patient (and imaging) together.

The initial admission and examination appears thorough. There was no systems review but the patient clearly presented with a mechanical fall with bony injury. The admitting team can be forgiven for not asking about bowel habit.

Case study 6: Review by a more senior member of the surgical team needed

CASE SUMMARY:

This cachectic 50 kg 80-year-old man presented with a conscious collapse. Investigation showed severe anaemia from chronic blood loss. A colonoscopy identified an obstructing lesion in the transverse colon confirmed to be adenocarcinoma. The patient had anaesthetic and dietician review prior to proceeding to an extended right hemicolectomy and ileocolic anastomosis. The patient had appropriate preoperative anaesthetic assessment, intraoperative care and early postoperative care.

The patient's postoperative recovery was characterised by delayed return of gut function and fluid balance issues. Fluids and light ward diet were initially commenced on postoperative day one. The patient opened his bowels on day three postoperatively but had abdominal distension and nausea, and on day four, vomited requiring NGT insertion. With ongoing ileus and vomiting on day five, the patient was noted to have a tender abdomen, but passed wind and tolerated clear fluids by day seven. The patient had low urine output on a number of occasions postoperatively, requiring fluid boluses and medical registrar review. The patient was felt to be intravascularly deplete secondary to hypoalbuminemia. The patient did not manifest overt signs of sepsis during this time, remaining afebrile and with a relatively normal full blood examination. Despite prophylactic heparin the patient was noted to have a tender calf and was found to have deep vein thrombosis, which was treated with full anticoagulation.

On postoperative day eight the patient became hypotensive with blood pressure dropping as low as 82/50 mm Hg, with a tachycardia of 115 and low urine output (30 mL in 4 hours). During this time the patient was reviewed by the surgical-covering hospital medical officer (HMO) but a MET call was

not made. The HMO performed a fairly comprehensive and well-documented review of the patient and felt that the patient was fluid overloaded. A decision was made to administer a small dose of IV furosemide 20 mg at 9:45 pm. The patient demonstrated some response to the furosemide, but was anuric from 4:00 am on day nine associated with blood pressure of 80/50 mm Hg. At 5:10 am the patient's blood pressure dropped to 60/30 mm Hg and a MET call was made. The patient later arrested and was unable to be resuscitated. Although the autopsy was not available for review, the notes record that the patient had an anastomotic leak causing septic shock leading to death.

CLINICAL LESSONS:

This patient was at a higher risk than average for developing anastomotic leak due to their advanced age and very poor nutritional state prior to surgery. The patient's delayed return of gut function might have prompted a CT scan around day five to six postoperatively, but the patient did not demonstrate overt signs of sepsis at this stage. In retrospect, the patient was clearly becoming septic on day eight postoperatively with hypotension, tachycardia and end organ hypo-perfusion. It was not entirely surprising that the covering hospital medical officer who was

reviewing the patient for the first time, was unable to identify this. Review at this stage by a more senior member of the surgical team may have led to more aggressive intervention with a change in outcome. However, given the patient's underlying fragility they may not have survived the laparotomy and exteriorisation of the bowel that would likely have been necessary to control the sepsis. Of note was the fact that this tumour was evident on a positron emission tomography (PET) scan obtained 5 months prior to admission. There appears to have been a significant delay in the initial diagnosis, as the patient had a PET scan identifying the lesion five months previously. This result does not appear to have been pursued. This delay in diagnosis was not associated with the current treating team.

Case study 7: Rural hospitals should be trained to recognise the seriousness of the problem and act urgently

CASE SUMMARY:

A 42-year-old woman who was 26/40 pregnant was admitted mid-afternoon to the ED of Hospital A, a rural hospital, with headache and drowsiness. The CT brain, which was not performed until the early

evening, which was recorded in the surgical case form as showing a cerebral haemorrhage and obstructive hydrocephalus. Hospital A ED referred her to neurosurgery at their usual neurosurgery centre. The neurosurgical team reviewed the scans and recommended intubation and emergency surgery. However, they informed Hospital A that there were no ICU beds and that the patient should be referred elsewhere. At 08:30 pm Hospital A ED referred the patient to a large tertiary centre (Hospital B) neurosurgery department. The patient arrived at Hospital B ICU in the late evening. She was sedated and ventilated. Pupils were reactive. Neurosurgery was informed and immediate theatre transfer arranged.

There was a delay of at least an hour and a half in transferring the patient from the ICU to theatre despite the urgent request. Her pupils had acutely dilated; she was given Mannitol prior to craniotomy. Postoperatively her pupils became sluggishly reactive. Over the coming days she showed no signs of neurological recovery and was diagnosed with brain death. She was electively supported in ICU to allow her foetus to mature.

Two weeks postoperatively necrotic brain material oozed through the wound which was revised. Two

days later worsening instability necessitated caesarean delivery of the baby and organ procurement.

CLINICAL LESSONS:

It was difficult to assess the patient's problem at Hospital A as Hospital B did not have remote access to their images; however, transferring the patient directly to Hospital B theatre, rather than Hospital B ICU could have reduced some of the delay. This patient's care was compromised by delay in a time critical situation.

1. Hospital A ED failed to scan the patient for more than 3 hours after presentation.
2. The other tertiary hospital neurosurgery teams had seen the scans and recognised the urgency, but contributed to the transfer delay by declining admission due to bed pressure. This led to significant delays in referring the patient to Hospital B (the tertiary hospital).
3. Transfer to Hospital B took 5 hours once the diagnosis was established.

At Hospital A this pregnant woman presented with drowsiness with a Glasgow Coma Score (GCS) of 13 and headache. This patient was a higher triage than the nominated rating of category three which meant she should have been seen within

30 minutes. Category four is to be seen within 10 minutes, which would have been a more appropriate triage rating. Presumably this decision was made by a triage nurse.

There was a delay in getting a CT scan when this should have been done urgently. It was noted that the radiographer initially refused to do the scan (presumably because of the pregnancy), and that the radiologist insisted on consent being obtained from a family member. The CT scan was eventually performed and showed a cerebellar haemorrhage (not cerebral as was recorded in the surgical case form). The patient was first seen in the mid-afternoon but the CT scan was not performed until 6:15 pm. This was an unacceptable delay. Her presenting problem meant that she needed the scan urgently and, given her pregnancy, the abdomen could have been shielded to protect the foetus.

The mother's health comes before that of the foetus. Here there was too much delay by the radiographer and the radiologist.

There seems to have been a rather inadequate neurological assessment, as all that was documented is that the patient was moving all four limbs spontaneously. This was not an adequate neurological assessment. The neurosurgical contact from Hospital A advised intubation which

they did prior to transfer. This was a reasonable decision. The patient did not arrive at the Hospital B until just before midnight so a further unacceptable delay took place.

One of the problems here was finding a neurosurgical bed. Ideally the patient should have gone through the adult retrieval system, which would have allowed for a hospital to be allocated quickly if the patient was deemed an emergency. This did not appear to have been done in this case.

Case study 8: Consultant assessment and review needed for palliative care decision

CASE SUMMARY:

An elderly patient in a care home fell on a Saturday afternoon. The patient arrived in a peripheral hospital ED at 5:00 am on the Sunday and was found to have a fractured hip. The background included dementia and hypertension. The patient previously walked with a frame. The admission full blood counts included haemoglobin 80 and WCC of 26,000.

The patient was transferred to a teaching hospital, arriving on the Orthopaedic ward at 7:00 pm on the Sunday. A CxR revealed a left hilar mass and probable left lower lobe infection. The patient was

reviewed by the anaesthetic team shortly after arrival and was thought “unlikely to be fit for operating theatre tomorrow”, “needs medical review” and “needs echo”. The first orthopaedic review appears to have been at 5:00 pm the next day (Monday), some 22 hours after arrival on the ward and more than 48 hours after the injury. There was no written evidence that a consultant was present. Antibiotics were commenced for the chest infection.

The next Orthopaedic note, made at 1:00 pm on the Tuesday (some 40 hours after admission), was by the intern with no evidence of any input by the consultant. The intern wrote “has been cancelled for theatre again today... hopefully tomorrow”. The echo was done that afternoon.

At 6:00 pm that day, 48 hours after admission to the orthopaedic ward, the patient was seen by the orthogeriatric team. There was a note, for the first and only time in the entire folder, that the patient had “known myelodysplasia” and was “transfusion dependent”. Although not precisely stated this appears to be a previously established diagnosis. The note stated that the mass on the CxR was “not for further investigations due to age - likely neoplasm. Plan - review post-op”.

Some 5 hours after that review a MET call was made. CPR was

undertaken and appears to have lasted some 50 minutes before being terminated.

The patient was referred to the coroner due to the fall in the care facility. A postmortem revealed a primary bronchogenic cancer.

CLINICAL LESSONS:

The orthopaedic consultant returned the audit proforma marked “terminal care” and did not complete the rest of the proforma. This does not seem consistent with the care offered to this patient, in particular:

- The patient was clearly being worked up for theatre
- The patient was sent for an echo in anticipation of the surgery
- The patient was commenced on antibiotics for a chest infection
- A not for resuscitation form was not completed
- CPR was commenced and lasted for almost 1 hour.

There was no evidence in the notes that the patient was ever seen by the consultant orthopaedic surgeon. This may explain the disconnect between what was written on the audit proforma (terminal care) and the actual care received. Had the consultant reviewed the patient it is likely that the patient would have been assessed as highly unlikely

to survive any surgery. The patient could then have been offered proper terminal care.

Case study 9: Lack of surgical consultant input in management

CASE SUMMARY:

A frail, elderly man with a known history of transitional cell carcinoma of the bladder was admitted with acute renal failure and high levels of creatinine. Comorbidities included chronic obstructive airway disease, diverticular disease and urinary tract infections. There had been a recent cystoscopy prior to admission. There was no information apparent in the notes about events prior to this admission or whether this was a muscle invasive disease; no pathology report was available.

A CT scan on admission demonstrated bilateral hydronephrosis with an obstructed left system due to a large distal ureteric calculus, and obstructed right system of uncertain cause - possibly related to known carcinoma of the bladder. An attempt was made to gain access to both ureters in a retrograde fashion but failed due to technical reasons. It was unclear whether this procedure was performed by a consultant urologist or trainee. Bilateral nephrostomies and antegrade JJ stents were

inserted over the subsequent weeks of his admission. The patient ultimately died of multi-organ failure.

The case notes were reasonably adequate. More information about the events leading to this admission would have been helpful e.g. details of the original cystoscopy and underlying pathology. The doctors' entries failed to document the time of writing, possibly leading to confusion. This is an area which requires improvement. There was no reference to any consultant urologist input throughout the case.

The patient had problems with fluid balance issues throughout the admission. The resident medical staff seemed to fail to understand the significance of the poor urine output through the right nephrostomy tube following its insertion. It was not until 2 days later that the first medical note was made about this issue. There was no indication that the medical staff understood the significance of this in the context of a patient with acute renal failure. It took nearly a week for this to be addressed with insertion of an antegrade JJ stent.

The resident's assessments and responses to the poor urine output were of variable quality, with some being substandard. The fluid charts would suggest that the patient was in a significant positive fluid balance throughout the admission and this

was not commented on. It was over 2 weeks after presentation before any attempt was made to relieve the obstruction to the left kidney.

CLINICAL LESSONS:

Areas of concern:

The significant delays between recognising clinical issues and responding appropriately in this frail, elderly patient with multiple comorbidities must almost certainly have contributed to the ultimate demise.

Some examples of areas of concern include:

- Although admitted with acute renal failure and evidence of bilateral ureteric obstruction, 48 hours elapsed from the time of admission to the original procedure being performed.
- It may have been more advisable to place a nephrostomy in the left rather than the right kidney. It is likely this would have been the best option given the history of an obstructing calculus compared with malignant obstruction of the right kidney. No notes were made discussing the rationale for initially placing a nephrostomy tube in the right kidney.
- It took 48 hours for the medical staff to note that the inserted

nephrostomy tube was not draining. The implications of this (misplaced nephrostomy tube or reflecting poor function) were not articulated and were possibly not understood by the medical staff. It was not until nearly a week later that an antegrade JJ stent was inserted.

- Most of the notes were made by junior residents, often the covering doctor. There was no clear evidence of consultant urologist input throughout the case.
- When clinical deterioration occurred there was no attempt to clear the left ureter until over 2 weeks after admission.

The quality of care received by this patient was inadequate. Given the considerable comorbidities there was only ever going to be a short window of opportunity to reverse the processes. It took over 2 weeks to clear both ureters by which time multi-organ failure was established and there was little chance of reversal. More timely intervention may have altered the outcome. There was no documented evidence of consultant urologist input.

These comments must be taken in the context of an elderly patient with multiple comorbidities and possibly an advanced malignancy (although absolute evidence for the advanced

malignancy was not provided in the notes).

Case study 10: Timely assessment by senior clinicians is essential in postoperative management

CASE SUMMARY:

A man in his early 80s presented to the outpatient clinic with ischemic ulcers on the right medial malleolus that were failing to heal and complicated by cellulitis. He was on warfarin because of a previous embolus. The past history was of ischemic heart disease, type 2 diabetes, hypertension and hypercholesterolemia. The patient was a non-smoker.

The patient's warfarin was ceased and was changed to Clexane 1 mg/kg twice daily in preparation for interventional radiological procedures to improve the circulation in the right leg to allow healing of the ulcers. This was accomplished by insertion of a superficial femoral artery stent. The ulcer was debrided 3 days later. Warfarin was recommenced 6 days after the angiogram as there was intermittent wound bleeding but the haemoglobin level was noted to have fallen by 2 g/dL over 24 hours. Four hours after this drop was noted a MET call was made because of hypotension, right lower back pain and collapse.

The MET recommended urgent CT and transfusion if ongoing bleeding was clinically suspected, and recommended fresh frozen plasma and admission to the high dependency unit if the CT demonstrated bleeding. Only after another 4 hours did the surgical team book a CT abdomen and after another 1.5 hours the first unit of blood was commenced with a note that the patient was still waiting to have the CT scan (at 9:00 pm). The patient had an asystolic arrest 40 minutes later.

CLINICAL LESSONS:

The patient had a number of risk factors for peripheral vascular disease namely diabetes, hypertension and hypercholesterolemia. With already-known peripheral vascular disease and ischemic heart disease, an experienced clinician would assume that the patient would also have reno-vascular perfusion impairment. The patient's estimated glomerular filtration rate was in the low 60 to 80 range. Whilst some would accept this as being "normal" the laboratory of this hospital accepts that is low (their normal being greater than 90 mL/min) hence by that hospital's standards the patient had renal impairment. Despite this the patient was given a dose of Clexane 1 mg/kg twice daily.

That was just within acceptable levels for full anticoagulation of a fit and well patient with normal renal function, but this patient was elderly with known peripheral vascular disease. Furthermore, the patient had a high probability of significant renal disease and the only indication appeared to be for deep vein thrombosis/pulmonary embolus prevention. The patient was given too much Clexane - half of the provided dose would have been appropriate.

When warfarin was recommenced several days later it was noted that the patient's haemoglobin fell from 9.1 to 7.6 in a 24-hour period. At this time the patient was going through a transition phase from Clexane to warfarin and was being doubly anticoagulated. This should be investigated promptly and aggressively. Four hours later a MET call was put out after the patient was hypotensive and unresponsive on the ward. There was no evidence that anyone at that time thought that the patient might have intra-abdominal or retroperitoneal haemorrhage, and no urgency seems to have been placed on getting a CT of the abdomen to look for a source of blood loss. Four hours after the MET call, on the evening ward round, it was noted that the patient's haemoglobin had fallen even further to 7.2. A CT abdomen was booked,

again without any apparent urgency, and it took a further 1.5 hours before the first unit of blood was commenced.

The patient's death was preventable. It occurred as a result of a combination of over anticoagulation in a patient with borderline renal impairment, who at the time of reverting from Clexane to warfarin had a retroperitoneal bleed with ample warning signs that were not addressed. The hospital needs to look at whether a registrar or senior clinician was aware of the Clexane dose, and whether a member of the surgical team was available to assess the patient when the MET call was made.

Case study 11: A “Shared” model is an option in complex interdisciplinary cases

CASE SUMMARY:

An elderly woman underwent elective tibio-talar fusion with implants. She had a long history of rheumatoid arthritis and was on immune-suppressives. Comorbidities included hypertension, ischaemic heart disease, diabetes and hypercholesterolaemia. She had previously undergone bilateral hip arthroplasties (with multiple revisions) and lumbar spinal fusion with pedicle screw-rod constructs and interbody spacers.

Eight weeks later she presented to a public hospital ED with septic shock secondary to a wound infection. She was admitted for seven weeks (including 10 days in ICU with respiratory failure) and was discharged from hospital to the post-acute care team for wound dressings and intravenous antibiotics. After a further 4 weeks she was discharged to the community nursing service for wound care.

She presented to the ED 3 months later (more than 6 months after the original surgery) with an unhealed, painful ankle wound, fever and decreased Glasgow Coma Score. Over the ensuing 8 weeks the sepsis progressed necessitating admission to the ICU. Ongoing sepsis in the ankle wound not responding to antibiotics required a below-knee amputation and then subsequently a tracheostomy. Despite these measures the patient's condition continued to deteriorate with the development of multi-organ failure and death 3 weeks later.

Comments by the assessors included the following. There was a lack of preoperative liaison with the rheumatologist regarding immunosuppressive therapy in a high risk patient, and the possible implications for a surgical procedure.

The management by the Orthopaedic surgeon was less than satisfactory in the following areas.

The management of patient following discharge from hospital. The General Practitioner undertook the major responsibility of wound management and prescribing of antibiotics.

The patient was admitted under the care of the Rheumatology Team on presentation to hospital with the wound infection. Orthopaedic entry read “happy to consult”. Rheumatologist was contacted and “suggest orthopaedic referral for post-op infection ... and he would be happy to admit patient if the orthopaedic surgeons are unable to admit him “.

Failure of communication between Rheumatology and Orthopaedic Consultants. Notes in charts were contradictory and not clear.

Delay to the operation for debridement of the wound and the consultant surgeon not present at initial debridement but he was present at procedure 3 days later.

Failure to involve Infectious Diseases Consultant until 16 days following admission. This was despite multiple chart entries by junior staff recommending this course of action.

There appeared to be lack of monitoring of the sepsis at the ankle and no consideration of the presence of osteomyelitis e.g. neither technetium, gallium or CT scans were performed.

There was no discussion with the Rheumatologist regarding the option of ceasing immunosuppressives. These were eventually discontinued several months after the infection commenced.

When the patient became unwell it was unclear as to the line of care and as to the seniority of staff seeing the patient e.g. the patient was noted to be jaundiced by the orthopaedic team but no action taken.

CLINICAL LESSONS:

The surgeon has primary responsibility for the care of the patient. Consideration of an operative procedure should always include consultation with colleagues regarding the implications of surgery, especially in the high risk patient with comorbidities.

When complications occur, the surgeon has the responsibility for their management and should oversee and supervise junior staff, consult when appropriate, ensure continuity of care and have personal liaison with the patient, family and/or carers. Supervision of the team should include clear reporting lines and ensuring that the junior staff feel empowered to call when a complication arises.

Communication failures were significant contributing factors in this case. This was apparent at multiple

levels; between consultant staff members, between junior staff and between both.

The importance of a consultant being clearly in charge, and seen to be so, was highlighted in this case. This would have ensured clinical leadership in a patient with complex, interdisciplinary clinical matters and in addition he/she would have been in the position to provide supervision and support for the junior medical and surgical staff.

In summary, a consultant led service is in the best interests of providing specialist medical/surgical care. This can be devolved into a shared responsibility, but with the caveat that there is a clear understanding of the responsibilities of each party with frequent communication.

Case Study 12: Nursing leadership needed in head injury care

CASE SUMMARY:

This young man was transferred from a country hospital. The history provided was that he had allegedly been consuming alcohol and had fallen off the back of a utility. He was found at the scene about 20 minutes later and the first reported GCS was 9/15. He was transferred to a regional hospital. Two hours later he was sedated, paralysed

and intubated because he had vomited and maintaining his airway was becoming a concern. He was transferred to the neurosurgical unit at a public metropolitan hospital where a CT head was done. This showed bilateral frontal contusions and small (2mm) subdural haematomas. His basal cisterns were not compressed and sulcal pattern generally undistorted. There was some localized frontal oedema. He also had occipital and basal skull fractures. He was weaned from the ventilator and allowed to wake in the ICU. It was possible to extubate him the afternoon after admission. He had a GCS of 14/15 when the neurosurgery team were first able to assess him. He remained neurologically stable overnight and was transferred to the neurosurgery ward the next morning.

He was noted to be increasingly drowsy the next afternoon with an increase in his systolic blood pressure. The neurosurgery registrar and consultant were not aware of this until reviewing the notes later. The neurosurgery treating team, who were in theatre with another case, were notified that afternoon at 1600 of an acute decline from GCS 15 to 3 with bilaterally fixed dilated pupils. He had already had a repeat CT head at midday which again the neurosurgery team had been unaware of the

results. This showed progression of the cerebral oedema. Because of the reported acute decrease in conscious level he had a repeat CT head the late afternoon which was largely unchanged from the earlier morning scan. He underwent a decompressive craniotomy but showed no neurologically improvement and was found to be brain dead by independent testing the following morning. All treatment was withdrawn and he died.

CLINICAL LESSONS:

This is a tragic case as it involves a young patient who could have survived a moderately severe head injury but did not because of poor communication regarding deterioration of the level of consciousness. As is so often the case the initial injury was alcohol fuelled and caused by foolish young bravado – riding on the back of a moving utility.

His initial treatment in the ICU was satisfactory. The decision to transfer out of the ICU to the neurosurgical ward was reasonable and took place about 30 hours after the injury and about 24 hours after admission. The case notes suggest that the observations in the ward were no more often than 3 hourly. There is a GCS observation recorded at 1020 hours and another one at a time that is not clear. The next observations

were recorded at 1615 hours, implying 3 hourly observations. That afternoon things went badly wrong. The nursing record states that at 1500 hours he was “confused to time, place and person” but no formal GCS was done. The notes also state that at the start of the shift he was “alert and talking”. At 1600 hours he is recorded as “asleep”. At 1615 he is recorded as “blown pupils and no eye opening to pain”. The neurosurgical team were not aware of these events until 1615 hours. There had also been a CT Scan performed at noon with the appearance of worsening of the cerebral oedema. Again this was not communicated to the treating team.

An emergency bifrontal decompressive craniectomy was done without any improvement and the patient was declared brain dead 60 hours after the injury and 28 hours after having a GCS of 14. This case demonstrates two areas of poor communication. The neurological observations on the ward were inadequate, both in their frequency and quality. A patient with a head injury may be deteriorating due to an intra-cranial mass and not simply “sleeping”. Worsening cerebral oedema in a head injured patient is matter of concern; the radiologist should have informed the clinical team of this significant alteration.

Case Study 13: Clinical leadership needed in ED

CASE SUMMARY:

This very elderly man was admitted from a care facility with a two day history of abdominal pain and a 24 hour history of vomiting. He had a past history of early dementia and coronary artery disease. The patient was managed in the ED for the best part of a day without surgical consultation and without identification of his incarcerated inguinal hernia as the cause for his acute abdomen.

Upon review of the patient by the general surgical team some eight hours after presentation, there were clinical signs of a small bowel obstruction and an incarcerated inguinal hernia. His abdominal xrays showed a small bowel obstruction (SBO). The decision was made to insert a nasogastric tube. Upon insertion of the tube by the surgical interns while in a sitting up position, the patient vomited and aspirated a large volume of gastric contents. He developed immediate severe acute respiratory distress and was intubated and ventilated by ED staff.

He was taken to theatre for repair of the inguinal hernia and reduction of the incarcerated small bowel. He was managed postoperatively in the ICU and despite maximal therapy

including inotropes he continued to deteriorate in his respiratory and cardiac function. Management was changed to palliation. He died on the second postoperative day.

CLINICAL LESSONS:

There is a trend for admissions to the ED to be worked up by the ED staff without any involvement of appropriate specialist clinics. They appear to want to present the case completely diagnosed. However the great danger in this approach is that readily available expertise is ignored and the risk of a diagnosis being overlooked is a real one. In this case this is what happened. A diagnosis of SBO from an incarcerated hernia would be unlikely to be overlooked by a general surgical registrar (and should not be missed by a consultant general surgeon). It was missed by the ED staff and the urgently needed treatment delayed.

The issue of the aspiration of the stomach contents is another matter. An earlier diagnosis may have lessened the risk of aspiration as the volume in the stomach would have been less. In this acute situation a more experienced person than an intern should have passed the NG tube.

Case Study 14: Blinkered approach to patient presenting in shock

CASE SUMMARY:

A woman in her 30's was transferred from a regional hospital to a major metropolitan hospital. The history was that of three days of back pain, headache and vomiting. She was not complaining of abdominal pain and was thought to be seven weeks pregnant. On arrival at the metropolitan hospital, she was now profoundly shocked (systolic BP 66 mmHg, acidotic pH 6.6, lactate 18). A FAST scan in ED did not suggest any fluid in the abdomen.

Because she was known to be pregnant and her abdomen appeared distended it was assumed that she was bleeding from an ectopic pregnancy. A laparotomy was undertaken in the ED on a trolley by the gynaecology registrar. There was no abnormality in the abdomen. During this procedure her aorta was cross clamped. The surgical Fellow was then contacted and arranged transfer to theatre.

The on-call consultant surgeon arrived in theatre. He found the trauma consultant had opened the left chest, the aorta cross clamped and internal cardiac massage commenced. No abnormality to explain the shock was found. It was

felt that further resuscitation was futile and it was ceased.

CLINICAL LESSONS:

Following arrival at the metropolitan hospital ED, her assessment appears to have been very blinkered. Even as it became increasingly clear the putative diagnosis (bleeding from an ectopic pregnancy) was wrong, no alternative was considered despite two normal FAST scans and then a laparotomy.

The mindset appears to have been that she was known to be in the early stages of pregnancy and she was shocked and so she had an ectopic pregnancy. She underwent, what was effectively, an unnecessary laparotomy on a trolley in ED.

Despite no significant blood in the abdomen, the aorta was cross clamped, initially in the abdomen and later in the chest. There appears no indication for this, especially the necessity for a thoracotomy.

This, despite the profound acidosis and very high lactate, none of the junior staff considered septic shock as an alternative diagnosis. How did the three day history of malaise, pain, vomiting, headache and the absence of abdominal pain fit with bleeding from an ectopic pregnancy? She does not appear at any time to have been given antibiotics.

The initial intra-abdominal surgery in ED appears to have been undertaken by registrars without any consultant input – indeed the consultant surgeon appears to have been first advised of the patient after the ED laparotomy and was not even consulted about the thoracotomy. As far as the surgery itself, the main issue was a significant failure of communication between the surgical and gynaecology registrars and their consultants.

A coroner's post-mortem showed that the cause of death was *Streptococcus pyogenes* sepsis.

Shortened Forms

AF	atrial fibrillation	ICU	intensive care unit
ANZASM	Australian and New Zealand Audit of Surgical Mortality	INR	international normalised ratio
CCU	critical care unit	IV	intravenous
CRP	C-reactive protein	MET	medical emergency team
CxR	Chest X-Ray	NGT	nasogastric tube
CT	computed tomography	PET	positron emission tomography
ED	emergency department	SAAPM	South Australian Audit of Perioperative Mortality
GCS	Glasgow Coma Scale	SBO	small bowel obstruction
HDU	high dependency unit	WCC	white cell count
HMO	hospital medical officer		

Contact details

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

Telephone: +61 8 8219 0900
Facsimile: +61 8 8219 0999
Email: gordon.guy@surgeons.org

Website: www.surgeons.org/for-health-professionals/audits-and-surgical-research/anzasm.aspx

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

Telephone: +61 8 8219 0900

Facsimile: +61 8 8219 0999

Email: gordon.guy@surgeons.org



ROYAL AUSTRALASIAN
COLLEGE OF SURGEONS



The Royal Australian
and New Zealand
College of
Obstetricians
and Gynaecologists

