

Queensland Audit of Surgical Mortality (QASM)  
Northern Territory Audit of Surgical Mortality (NTASM)

# LESSONS FROM THE AUDIT

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(*Lessons from the Audit*)

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DISCLAIMER: This booklet is produced for Fellows of the Royal Australasian College of Surgeons. Information is obtained under a quality assurance activity. Details that may identify individuals have been changed, although the clinical scenarios are based on real cases.

# INTRODUCTION

It is my hope that the following Urology cases will highlight a range of important issues for all surgical specialties and for all surgeons in Queensland and the Northern Territory.

To access all past *Lessons from the Audit*, use your College membership login at [www.surgeons.org/qasm](http://www.surgeons.org/qasm)

As always, I welcome your feedback.

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## Case study 1: How delay to surgery impacts the urology patient.

### CASE SUMMARY

A female patient in her late seventies presented to hospital at 00:40 hours with right flank and suprapubic pains associated with dysuria. Prior to her presentation she had been assessed by her general practitioner and commenced on a course of norfloxacin, with the provisional diagnosis of a urinary tract infection and possible pyelonephritis. As her symptoms did not improve, she presented to the emergency department.

Her comorbidities included: chronic kidney disease; Crohn's disease (resulting in a total colectomy); prior renal calculi; ischaemic heart disease; obesity; and prior vancomycin-resistant enterococcus (VRE) on routine screening.

On presentation, it was noted that she was febrile. Her pulse rate was 116 bpm and her blood pressure of 162/72 mmHg. This dropped over the four-hour time frame in the emergency department, with a final recording noted to be 108/60 mmHg and pulse rate of 98 bpm.

She was noted to be acidotic, with a pH of 7.25. She was also in acute on chronic renal failure with an eGFR of 8mL/min. Her WCC was within the normal reference range at 9.6 ( $4.3\text{--}10.8 \times 10^9/\text{L}$ ), though her CRP was elevated at 236mg/L. Pyuria was noted on her urine microscopy.

A provisional diagnosis of urinary tract infection was given, with the concern of right renal obstruction. A non-contrast CT scan was ordered, with demonstrated right hydronephrosis. No obstructing stone was visible, though the lower ureter was unable to be visualised due to artefact from a total hip replacement.

The patient's wishes were recorded. In the event of life-threatening deterioration, invasive measures were to be declined.

The patient was assessed and admitted under the urology team with the provisional diagnosis of urosepsis and an obstructed right ureter. Intravenous fluid resuscitation was commenced, and the patient was started on teicoplanin. This was following the recommendation of the infectious diseases team.

The patient was booked for a cystoscopy, and insertion of a ureteric stent as an emergency case.

This was 10 hours following presentation.

There was a delay of a further 10.5 hours before the patient was taken to theatre. This seemed to be due to the following: no theatre time available; no anaesthetist available and no radiographer available. The patient was also considered for percutaneous nephrostomy, but this was unable to be performed. Once again, this was due to the factors mentioned above.

The admission to theatre was finally expedited after the patient was attended to by the MET after an episode of hypotension with a noted blood pressure of 70/40 mmHg. A cystoscopy, right retrograde pyelogram and ureteric stent insertion was performed by the on-call urology registrar with the urology consultant in attendance. There was a consultant anaesthetist present.

The patient was admitted to ICU for management of hypotension with inotropic support. After two days, she was discharged to the care of the general medical team, with a decision made that she was unsuitable for return to ICU in the event of deterioration. On the evening of discharge to the ward, the patient suffered an acute myocardial event with noted ECG changes and

troponin elevation. Acute pulmonary oedema followed and treatment for a hospital-acquired pneumonia was also commenced.

The patient's status remained stable over the next two days but then deteriorated with impending multi-organ failure. Following discussion with the patient's family, and in view of her comorbidities, a palliative course was adopted. The patient died the following day.

## CLINICAL LESSONS

It appears this patient's management was compromised by the extended delay to theatre to decompress an obstructed, infected kidney. It seems that the patient already had little physiological reserve prior to her presentation and the delay allowed propagation of the inflammatory cascade associated with gram negative sepsis. She never seemed to fully recover from the initial event, ultimately cascading into multiorgan failure.

Access issues to theatre and a radiographer in this case have caused a delay. Referral institutions are anticipated to have adequate provision of resources in these areas.

In summary, the clear issue in this case is the significant delay in decompressing an obstructed, infected kidney in a physiologically compromised patient. Although multiple other factors seemed to contribute to the patient's demise, these may have been ameliorated if the septic inflammatory cascade was not allowed to propagate for such an extended time.

## RECOMMENDATION

Delay must be avoided in the deteriorating patient and priority must be given to these patients with respect to interventions such as seen in this case. Staffing strategies are critical but sometimes poorly implemented.

It is recommended hospitals always review their staffing strategies to ensure adequate coverage of key departments.

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REFERENCE: North JB, Blackford FJ, Wall D, et al. Analysis of the causes and effects of delay before diagnosis using surgical mortality data. *Br J Surg.* 2013, 100, 419-425. DOI: 10.1002/bjs.8986. <https://www.ncbi.nlm.nih.gov/pubmed/23225342>

## Case study 2: Is an indwelling catheter a simple solution?

### CASE SUMMARY

A male patient in his late eighties was admitted following an episode of haematuria. Following a CT IVP and a cystoscopy, an invasive bladder tumour was diagnosed. He had a plasmacytoid variant of bladder cancer which is uncommon and has a universally poor prognosis.

He underwent a TURBT, and then a trial of void.

Areas of concern arose after he had been under the immediate care of the urologists and had returned to rehabilitation. He had a painful retention of urine until the day he died.

There are almost daily entries which describe him as incontinent, confused, grabbing at his suprapubic area, and having at least one urinary tract infection.

During his phase of haematuria, only one bladder scan was performed. This scan indicated a high residual urine volume of 850 mLs.

There was a note in the records 'for bladder scan' but there is no note of the result or scan being done. It appears that at no stage was a catheter considered for this patient.

### CLINICAL LESSONS

This patient's initial urological management was appropriate. However, there should have been an assessment of the patient once the pathology was available and a further plan for urological input. This would perhaps have included an examination for a palpable bladder.

The supervision and guidance of junior doctors in complex cases is important to ensure diagnostic and treatment priorities are appropriate, considered and documented.

In this case, there did not appear to be an inquiring mind, nor a holistic empathetic approach to patient centric care. This is what medicine should really be all about.

### RECOMMENDATION

Clinical examination of every postoperative patient is mandated if an accurate diagnosis is to be made and appropriate interventions instituted.

The case of this elderly patient highlights the importance of training junior doctors to conduct appropriate examination and investigations on patients as well as reviewing the results of the requested investigations. It is recommended that during training of junior staff, the importance of following up on requested investigations and interpreting the findings are highlighted.

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REFERENCE: Indwelling urinary catheter; Competency Tool; Health Victoria; [www2.health.vic.gov.au/api/downloadmedia/{b9e65c1e-3717-43fe-b618-b7a854c6386c}](https://www2.health.vic.gov.au/api/downloadmedia/{b9e65c1e-3717-43fe-b618-b7a854c6386c}) <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Indwelling-Urinary-IDU-Catheter-Competency-Tool>



## Case study 3: The importance of communicating medication errors in the surgical patient?

### CASE SUMMARY

A female patient in her early fifties had end-stage renal failure and the decision had been made to perform a bilateral nephrectomy as preparation for haemodialysis and eventual renal transplantation.

She was admitted one week prior to the elective surgery for adequate preparation. Her anaemia was planned to be treated with a preoperative transfusion of filtered red blood cells. Because of this, it was also planned to administer oral cyclosporin for 14 days, beginning two days preoperatively.

After three doses of the oral medication it was discovered cyclophosphamide had been administered. A nursing entry in the hospital notes reveals the tablets for the patient were labelled as cyclophosphamide. The hospital medication sheet shows *oral cyclosporin 100mg bd* had been prescribed. It therefore seems the wrong medication was dispensed from the pharmacy but was apparently labelled as cyclosporin.

It was not until three doses had been administered to the patient that it was noticed the incorrect tablet had been dispensed and administered to the patient.

The surgery of bilateral nephrectomy was performed without specific difficulty. There were no profound problems in the first two days of the postoperative period. The patient was discharged to the ward on the second postoperative day although on the day of discharge some peripheral swelling and a purpuric rash was noted. The worsening of this problem caused the patient to be readmitted to the ICU after 24 hours.

During the next 16 days, the patient was nursed in ICU with a diagnosis of generalised vasculitis without a precise cause being established. The vasculitis required two laparotomies with ischaemic bowel resected on both occasions. An embolectomy of the right brachial artery was required on two occasions. This problem was attributed to an arterial line which had been inserted in the brachial artery.

After dealing with multiple-organ failure (attributed to the vasculitis), the patient was discharged to the ward. However, for the next six days she steadily deteriorated

with profound ischaemia of all four limbs (again attributed to vasculitis). Quadruple amputation was considered but her general poor prognosis, as well as a poor quality of life following such surgery, led to the decision to treat her conservatively. She died 24 days after the elective bilateral nephrectomy.

## CLINICAL LESSONS

The multiple-organ failure appears to have been properly managed in the ICU. In retrospect, the first discharge from the ICU, after 48 hours, may have been premature.

There was an error in dispensing oral medication preoperatively. The hospital records suggest the correct prescribing of cyclosporin but the incorrect dispensing of cyclophosphamide. This does appear to be an error within the pharmacy department of the hospital.

The error of dispensing was not noted until the incorrect tablet had been administered to the patient on three separate occasions. Hospital notes also suggest the junior staff, in both surgical and medical departments, were informed of the dispensing error. The responsible surgeon apparently was not told

until after the bilateral nephrectomy had been performed. Preoperatively, the responsible surgeon should have been informed of the error.

## RECOMMENDATION

Dispensing errors can only be eliminated by rigid compliance to prescribing principles and robust checking of medication prescribed against medication given.

In this case, incorrect preoperative medication was administered and this was not escalated to the consultant surgeon. Had the surgeon known about the incorrect medication, they may have delayed surgery in this high-risk patient. Did the administration of the incorrect medicine contribute towards the patient developing postoperative infection?

It is recommended that medication errors are reported to all clinicians treating the patient. This reporting is particularly important prior to surgery.

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REFERENCE: Enrico Coiera; Communication Systems in Healthcare; Clin Biochem Rev. 2006 May; 27(2): 89–98. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1579411/>

## Case study 4: How multiple comorbidities impact the urology patient.

### CASE SUMMARY

A male patient in his early fifties presented with acute left-sided flank pain and hypotension secondary to a retroperitoneal bleed due to a large left renal carcinoma.

The notes indicated that this tumour was under surveillance and the patient was not fit for elective surgery due to multiple comorbidities which included morbid obesity, hypoventilation syndrome, COPD and diabetes mellitus.

The prospect of surgical intervention was further diminished by a history of failed gastric band surgery complicated by necrosis of the stomach and small bowel requiring resection due to peritonitis rendering the abdomen hostile.

On presentation to the hospital, his eGFR was 19mL/min. His haemoglobin was 95g/L and falling.

There was considerable consultation with the urological team. There was also consultation with the medical physician, respiratory consultant and ICU staff.

The patient and a family member were involved in consultation and it was agreed that surgical intervention (or embolisation) was not appropriate given the patient's comorbidities. So, it was agreed by all parties that a palliative approach would be followed.

A resuscitation form was completed indicating the patient would not agree to a pacemaker, ICU admission or cardiac resuscitation.

### CLINICAL LESSONS

This patient had a 10cm left renal carcinoma which was under surveillance because he was regarded as not a suitable surgical candidate for elective left nephrectomy.

This decision seems entirely appropriate given his list of comorbidities which included morbid obesity, hypoventilation syndrome, diabetes mellitus, and a hostile abdomen due to complications of failed gastric band surgery.

The patient presented acutely with a deterioration in his status making him completely unsuitable for emergency abdominal surgery.

Consultation was extensive and related decisions were well documented.

## RECOMMENDATION

Patients with pathology, where surgery is deemed futile, always require a multidisciplinary team approach to arrive at best-care process. MDT should be a standard.

This case highlights the appropriateness of an MDT approach and patient consultation. Not all patients are deemed suitable for an operation.

It is recommended consultations with the patient and other treating teams should be routine for all complex patients.

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REFERENCE: Nancy E Epstein, Multidisciplinary in-hospital teams improve patient outcomes: A review; *Surg Neurol Int.* 2014; 5(Suppl 7): S295–S303 <https://www.ncbi.nlm.nih.gov/pubmed/25289149>

## Case study 5: Could obesity have obstructed an objective diagnosis?

### CASE SUMMARY

A female patient in her late forties had chronic renal failure. She had had a failed renal transplant 15 years earlier and had been successfully maintained on chronic haemodialysis. Following the failed renal transplantation, she had successfully undertaken significant surgery including a coronary artery bypass graft, hysterectomy, parathyroidectomy and thyroidectomy.

Four months prior to her elective left nephrectomy, she had undergone a right nephrectomy without any operative or postoperative problems. The decision to perform right and left nephrectomies was based on a diagnosis of bilateral renal cell carcinoma.

The elective left nephrectomy was undertaken with appropriate preoperative arrangements regarding dialysis and assessment (medical and anaesthetic). The surgery was conducted without any specific problem and for the first two days of the postoperative period the patient seemed to make reasonable

progress. She was initially nursed in the ICU before her being transferred to the surgical ward.

During her postoperative management, she was appropriately cared for regarding continuing dialysis. Hospital records show regular reviews by the renal unit, surgical unit and acute pain service. Hospital records also indicate the patient was never free of pain and the cause of her pain was never established.

From the fourth postoperative day, there was also documented shortness of breath but again no cause for this was established.

The medical records confirm the patient was passing flatus but there had been no postoperative bowel motion. On the eighth postoperative day, an abdominal X-ray was performed. The records indicate copious faecal loading, but it was not judged that the patient had any bowel obstruction. A Microlax enema was given on the ninth postoperative day with the records indicating there was no benefit.

Clinical examination of her abdomen on the ninth postoperative day is recorded as 'some mild generalised tenderness but normal bowel sounds'. Mention was made of obesity and assessment of the



abdomen was difficult. Later that day, the patient apparently vomited a large amount of fluid and was vomiting for a period of three minutes. Following this episode, she had an apparent cardiac arrest from which she never recovered. She was resuscitated and admitted to the ICU but died approximately eight hours later.

During that eight-hour period, she remained hypotensive and unresponsive to any stimuli.

## CLINICAL LESSONS

The reading of the medical records leads to the conclusion the patient would have suffered significant aspiration pneumonitis following the prolonged vomiting.

An area of consideration in the management of this patient is the lack of diagnosis of what was probably a paralytic ileus during the postoperative period with the increasing pain probably associated with increasing gastric dilation. Concern about the function of her gastrointestinal tract did lead to an abdominal X-ray and a Microlax enema but neither of these steps led to the correct diagnosis.

A realisation of the significance of the malfunction of the

gastrointestinal tract would likely have led to the insertion of a nasogastric tube, gastric emptying and prevention of a likely terminal event of aspiration pneumonitis.

This diagnosis may have been difficult given the patient's obesity and her underlying chronic renal failure necessitating chronic haemodialysis.

Her worsening pain, shortness of breath and some abdominal distension may have indicated the need for further investigation to clarify the underlying pathology. A CAT scan may have given more clarification as to the severity of any gastric distension.

The need for multiple medical units to care for this patient highlights the need for the surgical team to maintain a leadership role in the general care of the patient during the postoperative period. The hospital records indicate many reviews by medical staff, but no resolution of the pain or shortness of breath was ever achieved.

## RECOMMENDATION

Assessment of the obese patient, with multiple comorbidities, must not distract from all efforts to make an accurate diagnosis.

Clinical recognition is situational awareness. Looking carefully at the patient is vital.

This case indicates the need for surgeons to train clinical staff on how to recognise patients who are at high risk of developing paralytic ileus and aspiration pneumonia.

These high-risk patients need to be managed and supervised closely and possibly not in a general ward.

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REFERENCE: Leslie A. Lenert. Toward Medical Documentation That Enhances Situational Awareness Learning *AMIA Annu Symp Proc.* 2016; 2016: 763–771 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5333306/>



#### SHORTENED FORMS

BMP	beats per minute
CAT	computerised axial tomography (scan)
COPD	chronic obstructive pulmonary disease
CRP	C-reactive protein
CT	computed tomography
CT IVP	computed tomography intravenous pyelogram
ECG	electrocardiogram
eGFR	estimated glomerular filtration rate
ICU	intensive care unit
MDT	multidisciplinary team
MET	medical emergency team
TURBT	transurethral resection of bladder tumour
VRE	vancomycin-resistant enterococci
WCC	white cell count

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