SAFE ANAESTHESIA LIAISON GROUP

PATIENT SAFETY UPDATE

1 April 2022 – 30 September 2022

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LEARNING POINTS FROM REPORTED INCIDENTS

Incidents reported between 01 April 2022 and 30 September 2022, reported to the NRLS by 28 September 2022

Interhospital transfer of critically ill patients

Case 1

"… the patient presented to [District General Hospital] … with chest pain. They had an ECG performed around this time. They were found collapsed in cardiac arrest around [2 hours later]. I believe the ECG performed earlier showed an MI. Following a very prolonged period of resuscitation, a cardiac output was restored. The patient needed an intercostal drain after resuscitation. They were accepted for PCI in [tertiary centre] and it appears that the transfer was undertaken by a CT2 anaesthetist (patient was on 100% oxygen prior to leaving [DGH], I believe they had a significant metabolic acidosis). The plan initially was for the patient to go back to [DGH], but the bed was filled and they subsequently were transferred to [an alternative DGH] (the same CT2 undertook this transfer I believe). Prior to leaving [the tertiary centre] his condition deteriorated significantly, he was on adrenaline and noradrenaline for transfer. When he arrived in [the alternative DGH] he was peri-arrest in cardiogenic shock. Despite maximal support, his condition declined overnight. At the time of writing, the patient is still alive, but will certainly die in the next few hours (pH6.9, MAP 30 on maximal support)…"

Case 2

"Patient transferred from --- hospital… (CCU) with no medical or nursing escort and no monitoring scoring a EWS 11 and 02 10L/60%. Notes that came with patient had no drug kardex, recent blood results and no notes from [evening of transfer]. Delayed commencing ABX treatment for ongoing endocarditis."

In case 1, the reporter identified concerns with the decisions to transfer (both to the tertiary centre and then from the tertiary centre) and with the experience of the doctor undertaking what was a complex transfer of a very sick patient. The subsequent enquiry provided more detail. It confirmed an in-hospital STEMI shortly after arriving at the first DGH. The patient was subsequently found in the toilet, collapsed. Approximately 90 minutes of CPR followed, including thrombolysis during. A chest drain was inserted for haemopneumothorax due to CPR. On arrival at the tertiary centre, the patient was requiring 100% O_2 with escalating adrenaline and noradrenaline requirements. A successful PCI was performed to LAD coronary artery. Blood pressure stabilised with MAP of 70, but requiring 0.4mcg/kg/min noradrenaline + 0.4mcg/kg/min adrenaline. Suitability for transfer was discussed and it was felt if BP and oxygenation were now more stable then it was acceptable, but with the knowledge that prognosis was extremely guarded and ongoing management was unlikely to be successful.

Although not essentially an anaesthetic incident, anaesthesia was responsible for transfer and this story reminds us of some of the most important questions to weigh up when considering transfer of a critically ill adult. The Faculty of Intensive Care Medicine and the Intensive Care Society provide very comprehensive guidance on this topic.[1,2] FICM recommends: "*Critical care networks and provider trusts should consider whether the development and use of dedicated transport teams would be appropriate to best meet the transfer needs of their patients*" and this system is increasingly being adopted.

Little more needs to be said about case 2. This transfer would have failed to meet FICM and ICS recommendations on several counts.

1. FICM Guidelines and Resources. Faculty of Intensive Care Medicine.
2. The Guideline for the Provision of Intensive Care Services. Intensive Care Society.

Tracheostomy

Case 1

"Patient returned following neck dissection and tracheostomy... Wean complicated by increased oxygen requirements, but patient on CPAP via vent. Significant facial and neck swelling noted post-op but appeared to be settling. Problems with ventilation [in early morning]. Immediately attended by ITU Middle Grade. Unable to ventilate. Trachy clearly mal-positioned. Externally no different, still sutured in place, but tip of trachy not in trachea. Attempted intubation from above but no mouth opening (and subsequently noted to have significant tongue swelling). Unable to ventilate / oxygenate. Subsequent bradycardia and asystolic cardiac arrest [at +6 minutes], CPR continuing for 16 mins alongside synchronous attempts to re-establish airway and oxygenation. Subsequently established with 6mm COETT via trachestomy. Further brief arrest [from +23 to +26 minutes] with subsequent ROSC. Tracheostomy refashioned / formal trachy inserted again in theatre. 2.5 days post event, not waking off sedation but remains on opiate. Planning CT and EEG after further formal replacement of tracheostomy."

Case 2

"Tracheostomy tube dislodged during patient positioning. The ICU reg in attendance as crash call triggered due to loss of ETCO2 trace and inability to ventilate or pass suction catheter through the tracheostomy. Trache cuff deflated and patient was ventilated orally through BVM. Anaesthetic team was called in to help with airway management. Patient was orally intubated with size 5.5 ETT and airway control established. During the procedure, patient lost cardiac output and immediately received chest compressions and adrenaline. ROSC achieved. Urgent tracheoscopy done on

bedside by the team and revealed a completely obstructed tracheostomy tube with what looked like a blob of tissue. Urgent chest X-ray requested to rule out pneumothorax and subcutaneous emphysema around the site of the trache. Patient was stabilized and put on mechanical ventilation. ENT surgeons were called in. Discussion among ENT, ICU and anaesthetic team regarding best approach to definitive airway and whether emergency neck exploration was an option. Consensus was to wait until morning as the patient has a stable airway control and haemodynamics. It was agreed to transfer patient to theatres for emergency neck exploration/reinsertion of tracheostomy if they deteriorated overnight. CXR happened after 2 hours of the event despite asking for an urgent one. Family was updated by the team. Everything was documented appropriately and bedside nurse was debriefed about the plan."

Case 3

"Emergency tracheostomy case following major aspiration event and emergency Front of Neck Access. Hypoxic patient requiring larger calibre and more secure airway to facilitate rescue of ongoing hypoxia due to aspiration event (front of neck 6.0 endotracheal tube in situ, ventilation problems, sats 80% on Fi02=100%). Theatre immediately prepared to receive patient. Consultant transfer to theatre uneventful. Dual consultant (for both anaesthetics and surgery) management in theatre. Challenging procedure to site tracheostomy requiring several tube exchanges. No ventilation improvement once tracheostomy sited. Prolonged hypoxia eventually ischaemic ECG changes and PEA arrest."

The National Tracheostomy Safety Project (NTSP) is a collaboration that provides guidelines on this topic.[1] NTSP has produced guidance on emergency management of tracheostomies, including "head of bed" signs and these may have helped in the acute situation. The sign should include details of any upper airway that clinicians can expect to find.

It is not clear where case 1 took place, but given the history it is likely to be in a place of higher-level care. There is a risk of tracheostomy tubes risk being dislodged and falling into the (normally pretracheal) tissues although the tube in this case was stitched in by the surgeons. Care should ensure that pulling from the breathing system tubing does is minimised (this requires flexible extension connectors, tubing supports to prevent drag and scrupulous bedside nursing observation. Even stitched tubes can pull out of the trachea and fall back into the tracheal tissues and this may not be apparent at the skin stoma. It is possible that in this case, the surgical emphysema worsened the mispositioning of the tracheostomy by lifting it further out of place. If tracheostomy tube manipulation is not rapidly successful, the emergency tracheostomy management algorithm[2] should be followed. Intubation attempts are commented upon but not the assessment, escalation, or primary emergency oxygenation attempts: breathing attempts, facemask and stomal oxygenation attempts, inner cannula removal, cuff deflation, airway adjuncts, supraglottic airways (although problematic possibly with neck dissection/ swelling), stoma ventilation. For secondary emergency oxygenation, endotracheal intubation was appropriate, with stomal intubation when not rapidly successful. With a neck dissection endotracheal intubation would predictably be difficult. It seems likely that the patient had had an oral tracheal intubation during the operation and so had a potentially patent upper airway. In this circumstance, attempts at oxygenation via the upper route and stoma should be pursued whilst rescue efforts are being made. An important take home message is that if significant neck swelling is noticed from subcutaneous emphysema or indeed fluid, tube position should be checked as soon as possible – this may permit elective replacement of the tracheal tube with an appropriately sized alternative.

In case 2, the emergency tracheostomy algorithm was effectively followed, although it is not stated if the printed guideline was present or not. The story portrays good team approach, decision-making and planning.

In case 3, it is not clear if the tracheostomy tube was patent and in the trachea. Ventilation may have been compromised by bronchospasm and/or massive consolidation after aspiration. The team could have considered endotracheal intubation with senior expertise and difficult airway equipment to beyond the stoma to facilitate the surgical operative field, but there may not have been time to achieve this.

1. National Tracheostomy Safety Project, Basic Care (Adults)
2. National Tracheostomy Safety Project, Patient Airway Algorithm

Aspiration in a child

"[Early adolescent child] presented with vomiting, abdominal pain and sepsis requiring fluid resuscitation in ED. They were listed for a laparoscopic appendicectomy (+/- laparotomy). Patient came to theatre from ED, fully monitored and with iv fluids running accompanied by ED nurse and a tearful mother. IV fluids disconnected. Patient had no NG tube in situ despite being sited in ED, had vomited them out. Responded to questions in the anaesthetic room, very flushed cheeks and red, but observations stable. Oxygen by mask was not tolerated so placed in front of their face without touching. Anaesthesia was induced with iv drugs, mother left the room, patient head up, gentle BMV became difficult and SpO_2 started to fall (85%) so decision for immediate laryngoscopy, copious volumes of dark brown regurgitant stomach contents noted in oropharynx and into the airway, suctioning did not help much due to the volume, head down

and intubated. Large volumes of aspirate suctioned from the trachea, ETT pulled back into trachea from bronchus. NGT inserted and suctioned, HR started to fall so adrenaline given and called for theatre help, surgeons arrived. no response to adrenaline, HR continued to fall and BP also low with no improvement in pulse oximetry (65%), hard to feel pulse, immediately asked surgeons to commence CPR [+ 8 minutes from induction], further adrenaline given and call for 2222. Larger IV access gained and fluid bolus given along with further adrenaline. crash trolley brought into theatre and cardiac arrest team arrived, ongoing good effective CPR with pulse oximetry and capnography (2-3 kPa) throughout until frank pulmonary oedema via ETT, in PEA arrest. PEA algorithm followed. PICU consultant took lead on arrival and informed of acceptance for ECLS. [At +43 minutes from induction] moved into theatre to start the process for ECLS. Eventually started ECLS... Stabilised on ECLS, had ECHO, urinary catheter and CVC inserted. Transferred to PICU…"

This case is a salutary reminder of the real likelihood of full stomach in cases such as this, despite apparently adequate starvation times. It also highlights the importance of properly applied cricoid pressure. The degree of regurgitation in this case and the patient's reaction to it are extreme but nonetheless should remind us of a worst case scenario if regurgitation and aspiration should occur, and why we go to such lengths to minimise exposure to this risk.

Fractured neck of femur

Case 1

"[Octogenarian] listed for hip hemiarthroplasty… ASA 4 – Frail, recent stroke. On treatment antibiotics for pyrexia. Femoral nerve block preop then GA, i-gel and propofol infusion. Severe hypotension SBP 40's after transfer into theatre prior to the start of surgery despite being on a phenylephrine infusion. Required adrenaline and approximately 30 seconds of CPR for cardiovascular collapse. Procedure abandoned and patient woken up (after discussion with orthopaedic consultant and ICCU consultant). Family called in to explain above. Plan – care of the dying if continues to deteriorate."

Case 2

"The patient was undergoing a total hip replacement. Midway through the procedure the ODP alerted the surgical team that the patient was dropping their BP and that we needed to get them on to their back so we could establish an airway and access. Five swabs were packed in to the wound and covered. Drapes were removed and the patient turned on their back. A second anaesthetist was called to assist and the crash trolley was brought in. An airway was established and the patient became asystolic. CPR was done for around 15 minutes and the patient regained output. Due to the patient high BMI it proved very difficult to get a line in but eventually this was successful. Once the patient stabilised it was agreed that the best plan would be to finish the hip replacement and organise transfer to [tertiary centre]. We redraped, completed the operation in around 20 minutes and the ambulance was called. The Anaesthetist believed the asystolic arrest was due to lack of patent airway."

Case 3

"Patient presented for a total hip replacement as a result of a fall (trauma list). The anaesthetic plan was spinal and sedation. Propofol infusion was started by the anaethetist and the help of an extra ODP was sought for positioning on right lateral. Whilst the spinal was being placed, we noticed jaw thrust was required to maintain airway (which was performed by the second ODP). The anaesthetist requested an LMA and inserted it with the patient in lateral position. We noticed a large amount of coffee grain (GI bleed) coming through the LMA and the anaesthetist requested we change to a tube... Bradycardia and 30 seconds of asystole ensued, we performed CPR on lateral position initially, then position the patient on their back. Normal parameters established, the team continued with the operation… medical examiner scrutiny done and coroner referral made - inquest mandated as cause of death listed as aspiration pneumonia secondary to anaesthesia"

Patient Safety Update rarely goes to press without one or more reminders of how frail patients for fixation of hip fracture can be and how the course of anaesthesia can take a turn for the worse with little warning. This is often underappreciated and so the message bears repeating.

As in case 1, even if patient ambulation is not an aim, fixation of the fracture improves pain and facilitates nursing care if nothing else, so the decision to abandon (or not embark on) surgery demands multidisciplinary discussion.

Case 2 reiterates the frailty of these patients and presents a number of questions. It appears that the case was being done under a neuraxial block. It is not clear how the patient's airway become compromised or whether they were being sedated. The most recent Association guidance is clear: "*Procedural sedation requires minimum monitoring of ECG, SpO_2 and NIBP. Capnography should be used during procedural sedation whenever there is loss of response to verbal contact. (recommendation 4)*". However, capnography is useful even If sedation is not given, as verbal contact may be lost without it. These patients often have impaired responses beforehand and in any event will often fall asleep once surgery is underway even without sedation. Capnography adds an additional layer of safety.

LEARNING POINTS FROM REPORTED INCIDENTS

Case 3 illustrates the risk of assuming an empty stomach in these patients and of managing the airway with a supra-glottic device. These patients may have multiple risk factors for aspiration of gastric contents.[2] If the airway is so impaired that it requires instrumentation to maintain it, many anaesthetists will choose a tracheal tube for this very reason.

In all cases, the patient and/or their families and carers should be aware of the immediate and post-operative risks associated with their with frailty and should make sure appropriate advance care plans have been put in place; the Association has guidance on this.[3]

1. AAGBI recommendations for standards of monitoring during anaesthesia and recovery 2015. Association of Anaesthetists.
2. Aspiration under anaesthesia: risk assessment and decision-making. BJA.
3. Implementing advance care plans in the peri-operative period, including plans for cardiopulmonary resuscitation. Association of Anaesthetists.

Ownership of handover

"Patient came post op BKA from theatre scoring 6-8 [pain score], very swollen, pale, cold and clammy, and not conversing. Theatre Nurse didn't hand over plan post op and just said to check post op note from ortho. Escalated to on call Reg and patient was seen immediately. Ortho doctor came to the ward post op and said pt should have at least 2 units of PRBC as they didn't transfuse during procedure and lost considerable amount of blood and didn't even go to Recovery. Pre-op, I handed over to Anaesthetist/ODP? while doing the checklist that patient's plan from last week was to send patient to HDU if becomes unstable post op. Anaesthetist said that it shouldn't be the case, that there should be a clear plan where the patient is going post op. I emphasised that it's not for me to decide as anything can happen during procedure or post op. Someone intervened and said that they will see if patient will be stable post op then they will bring patient back to us."

Although the story is only a sketch of what happened, it does not speak of the detail, quality and ownership of handover that we would hope for at each stage of the theatre journey.

Monitoring

"Patient's monitor alarmed and upon entering room HR was 39bpm. Patient was pale and cold to touch. Call for help to ACCP. No radial pulse felt, and only a very weak central pulse could be felt. Patient was unresponsive to verbal or painful stimuli. Agonal breathing observed, and unable to obtain a trace on the sats probe. Heart rate continued to drop. Atropine administered by ACCP but in under 30 seconds patient began asystolic and unfortunately patient passed away. DNACPR in place at time of death. On further investigation - Sa02 probe had been removed, and no trace was present for 30 minutes prior to patient's death."

This patient was a neonate, so the untold story is liable to be complex, but the question remains why was monitoring not present and why was its absence not recognised until a critical alarm sounded. Although the patient had a limitation on care, fuller monitoring may have enabled a more controlled scenario at end of life.

Oesophageal intubation

"Patient transferred to ED with deliberate self-poisoning - Mixed overdose. On arrival to ED had saturations of 65% on 15 L, concerns regarding airway and risk of aspiration. ICU contacted for urgent review and likely intubation. ICU attended ED and patient for intubation, escalated to ICU colleague who also attended ED to supervise the intubation. Patient intubated and immediately started vomiting. Patient became hypoxic and went into cardiac arrest. Escalated to ICU Consultant who attended ED and assessed patient - ET tube found to be in oesophagus (undetected oesophageal intubation). Patient reintubated with CPR ongoing. Return of spontaneous circulation and improvement of saturations. Estimated down time 5-6 minutes. Patient transferred to ICU and remains in ICU. An MRI brain shows: There is evidence of ischaemia involving both cortical and deep grey matter secondary to global hypoxia."

Undetected oesophageal intubation should be a thing of the past. It is not stated whether or not capnography was used in this case, but it should be ubiquitous now wherever tracheal intubation takes place. The need to understand the resulting waveform, and to understand the meaning of an absent or abnormal waveform has been made anew in the wake of the Logsdail case (see last issue of Patient Safety Update). If in doubt, the tracheal tube should be removed or its place confirmed using some other means, such as a bronchoscope. A comprehensive consensus guideline from the Project for Universal Management of Airways (PUMA) has recently been published [1]. They highlight the utility of videolaryngoscopy and advocate for a two-person, verbalised verification of capnography waveform.

1. Preventing unrecognised oesophageal intubation: a consensus guideline from the Project for Universal Management of Airways and international airway societies. Association of Anaesthetists.

Complication of CVC insertion

"… laceration to junction of RIJ and subclavian resulting in massive haemorrhage & loss of cardiac output."

This case was in an infant, and serves as this issue's reminder of the perennial hazards of CVC insertion.

Neuromuscular blockade

"Patient on ITU admitted from theatres… Sudden distress, felt unable to breathe, then became cyanotic and apnoeic. ITU team attended, resuscitated patient and given 2nd dose of 200mg sugammadex… as medical opinion was that

patient had possibly been re-paralysed post operatively. After sugammadex, patient began spontaneously ventilating again and moving. Regained consciousness, talking and following commands. Rocuronium infusion was run 60mg/hr intra-operatively – total 366mg over 8 hours. [In theatre dose of] 200mg sugammadex given at end of procedure [documented as 40 minutes before this episode].”

The second dose of sugammadex, administered on ICU, was given 1 h 40 mins after the first dose had been given in theatre. It is not clear exactly what the reporter means by “possibly been re-paralysed post operatively”. From the long timescale and the description of sudden onset, and despite the large total dose or rocuronium given, the story is not typical of re-curarisation and perhaps it is more likely that a bolus of unflushed or back-tracked rocuronium was flushed into the patient’s circulation. It is also perhaps possible that they were incompletely reversed at the end of the procedure and simply tired on ICU. Unfortunately for a report essentially about neuromuscular blockade, it is not mentioned whether or not the train of four was quantitatively measured during or at the end of anaesthesia or at any other time. It is not stated whether the line was flushed or the giving set changed or whether any one-way valves were present to stop back-tracking of drugs. In any event, this is a useful opportunity to remind readers of previous alerts about the dangers of unflushed lines (including a harrowing first person description)[1] and of the recent Association guidelines recommending use of quantitative neuromuscular monitoring whenever neuromuscular blockade is used.[2]

1. Patient Safety Alert: Confirming removal or flushing of lines and cannulae after procedures. NHS England.
2. Recommendations for standards of monitoring during anaesthesia and recovery 2021. Association of Anaesthetists.

Complication of pleural aspiration

“… pleural aspiration performed on patient to facilitate weaning following considered discussion between ICU and pleural consultant… Rapid re-accumulation of effusion following aspiration. [Four days later] patient diagnosed with large haemothorax on side of aspiration, compromising ventilation and requiring emergency large bore drain insertion, however potential for further deterioration. The haemothorax may well have been caused by the pleural aspiration [four days previously]. The patient was on therapeutic anticoagulation at the time of the aspiration. Guidelines (BTS pleural disease guidelines 2010) state that non-urgent pleural aspiration should not be performed in anticoagulated patients. I am not clear if the pleural aspiration was urgent – it was done to facilitate weaning, and hence potentially could have been undertaken more safely if therapeutic anticoagulation held off. However, if it had to be done at the time, then this would represent a known complication of the procedure and an acceptable risk.”

The report-writer has summarised the issue here: was the chest drain really urgent? It is portrayed as a manoeuvre to facilitate weaning, so it potentially could have waited. The reason for anticoagulation is not given, so there may have been an additional risk-balance assessment to be made in withholding it.

Lines and babies

Case 1

“Baby came back from theatre with radial arterial line in his L hand, as put in by the anaesthetists at the start of the procedure. On examination of the baby, when putting onto the ventilator, noticed fingers and palm of hand were white with no capillary refill time (over 4 seconds). Notified medical team who were in the room at the time… came to examine and noticed forearm was turning white too and also that the heparinized saline used to keep the arterial line patent was running at 1ml/hr. It was told to the theatre staff before baby went to theatre that it should be run at 0.5ml/hr and can even go to 0.2ml/hr if needed. Prescription was sent down with the infusion that was made up and ran through the kit on the unit. Stopped the infusion immediately and the doctor removed the arterial line and the cannula sited in the same hand. Perfusion came back to the forearm within 30 mins and as I left after my shift his hand was pinking up. 12 hrs later, the baby's fingertips are now black/necrotic and half of thumb is too. Parents notified about this but not sure if they know about severity as it was explained to them that they should pink up throughout the day.”

Case 2

“… baby came from [referring hospital] with a cannula in left foot it was noted the foot was swollen and becoming really discoloured it was passed on that in hospital of origin the baby had a calcium infusion via the cannula.”

Although these two stories relate to babies, they serve as a recurring reminder of the risks associated with venous and arterial lines.

Nasogastric tubes

Case 1

“Patient had a CTPA this evening following his cardiac arrest, we received a phone call from 'out of hours' radiographer following review of the images, to inform us that the NG tube (which was sited [3 hours earlier] and had been x-rayed and confirmed that it was in the correct place to use) was actually in the right main bronchus - patient had been fed through this tube for two hours - a total of 60mls, prior to cardiac arrest.”

Following detailed investigation by the organisation, they determined that the maximum volume of feed that could have been administered was less than 30mls, but this was still clearly enough to cause harm.

Case 2

"Nasogastric tube inserted into a patient who had undergone oesophageal reconstruction. Possibly causing an oesophageal perforation. This required an oesophageal stent and significantly prolonged hospital stay."

These stories are a regular fixture in Patient Safety Update and that is why we repeat them. The NHS has provided guidance on safe checking of NG tube placement.[1]

1. Patient safety alert: Nasogastric tube misplacement: continuing risk of death and severe harm. NHS England.

Complication of sickle cell disease

"[Young adult] patient with sickle cell disease (Haemoglobin SC - mild sickle phenotype) and high functioning autism recently transitioned to the adult service admitted to [treatment unit, early afternoon]. First admission to [this hospital]. Reviewed by SHO [two hours after admission] and discussed with SPR on-call. Received on haematology ward [eight hours after admission]. Consultant on-call not aware of patient. Working diagnosis of vaso-occlusive crisis, possibly precipitated by chest infection, treated for sepsis of unknown source as per Trust protocol. Reviewed again by night SHO [on arrival on the ward], noted bilirubin was high, arranged investigations for this and added cover for possible biliary sepsis as per Trust protocol. Patient reviewed and felt a little better and discussed with SpR. Cannula had tissued, attempts to re-cannulate failed. SHO not aware (?issues with wifi/bleep). Patient discussed at handover [the next day], results reviewed, obs stable. Consultant attending reviewed immediately after handover. Despite obs being stable, from the bedside patient looked unwell. Examined patient, slightly confused, abdomen distended, bowel sounds quiet, chest clear. Noted no peripheral access, discussed escalation of antibiotics with micro, asked for urgent ITU review, further imaging and vascath insertion. In interim asked SpR to do blood gasses and insert cannula which was unsuccessful. Patient reviewed by ITU consultant on ward [at lunchtime], accepted for transfer to ITU after CT scan. Decision to red cell exchange in view of patient's status. Consultant attending discussed with mother in AM and PM as concerned about clinical status. Transfer to ITU [early evening], red cell exchange commenced. Became unstable and arrested. Prolonged resuscitation which was unsuccessful. Patient passed away [late that night]."

There are potential questions around the time taken to review by consultant, although the patient was not initially grossly unwell and review did happen at the time of deterioration. The junior staff may have been very experienced in managing sickle cell crises. The fact that the (medical) consultant was not informed may reflect local practice or local protocol. Many colleagues will rarely or never encounter sickle cell disease so this is a useful reminder that it can have extremely significant presentations.

Advance care plans

"High risk surgical patient. Multiple MDT discussions about whether to proceed with surgery or not. Patient fully informed of the risks and wished to proceed with surgery. DNACPR in place and suspended for surgery as per hospital policy and patient informed. PEA arrest during surgery secondary to likely cement reaction with evidence of cardiogenic shock and acute RV failure. 1 x cycle of CPR with ROSC but continued deterioration and worsening acidosis. Therefore, further MDT discussion between surgical, anaesthetic and ITU teams that further attempts at resuscitation would not result in a good outcome and so should not be attempted. Surgical site closed... Next of kin informed and patient moved to ITU so that NOK could attend and see her."

This is presented as an example of good practice. Prior planning and MDT working helped ensure this situation was anticipated and handled according to the patient's wishes. The Association has detailed guidance on this.[1]

1. Implementing advance care plans in the peri-operative period, including plans for cardiopulmonary resuscitation. Association of Anaesthetist.

Problems after an epidural

"Blood cultures taken on A&E [on day 0] are reported as Pseudomonas aeruginosa. Had epidural as a day case under pain management team on [day 7]. Since then progressive ongoing back pain. Two presentations to A&E [on days 15 and 16] when admission was required due to sepsis and signs of meningism - headache, vomiting, neck stiffness and photophobia. Investigations so far eg CXR, MRI and MSU have not shown any source for this infection. No skin tears, ulcers or wounds. CSF fluid- no organisms reported but CSF WCC extremely high at 6720. Will need further investigation by the Trust to explore the circumstances of this bacteraemia."

The exact circumstances of this case are not clear, particularly why the patient had an epidural performed a week after a positive blood culture for an uncommon blood pathogen. It is not clear that the problems are related to a neuraxial infection, but the timeline is compelling. There are risks of seeding a systemic infection by performing a neuraxial procedure. This is also a good opportunity to remind readers of the guidance on asepsis for neuraxial procedures.[1] It is old (2014) but remains in force. Having used the right agent and documented its use clearly is important when cases such as this one are reviewed.

1. Skin antisepsis for central neuraxial blockade. Association of Anaesthetists.

Complications associated with spinal anaesthesia

"Difficult spinal done for Cat 2 LSCS, multiple attempts by ST4, followed by an unsuccessful block. Multiple attempts again in left lateral position, failed, so SR called over - multiple attempts by SR that eventually led to successful spinal and surgery. Patient then presented back … with 2 week history of intense headache. Urgent CT head showed large subdural collection with significant mass effect - immediate transfer to [tertiary centre] for expedited neurosurgery for burr-hole and evacuation of haematoma. Radiology reported that one likely cause could be low-pressure from difficult spinal attempts."

It is not stated whether this patient had a post-dural puncture headache or any symptoms suggestive of low CSF pressure. Serious complications of obstetric neuraxial procures are rare and serious complications of unintended dural puncture are also uncommon.[1] However, they may include ischaemic and haemorrhagic strokes, thromboembolic phenomena, vasoconstrictive syndromes, pre-eclampsia and incidental tumours. Consequently, when they do occur, it may be easy to miss them from the list of differential diagnoses. This is a good opportunity to advocate for systematic and robust mechanisms for the follow-up of women and for structured follow-up when headaches do occur, including mechanisms to detect rare complications.

1. Postpartum headache. International Journal of Obstetric Anesthesia.

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