



Welcome to the North of England Intensive Care Society Spring 2023 Meeting

Dear colleagues,

A very warm welcome to the North of England Intensive Care Society Spring meeting 2023.

We are hosting this year's Spring meeting in a new venue - Crathorne Hall. Three years ago, we had planned the Spring meeting 2020 exactly here. However, in view of the evolving pandemic we took the difficult decision to cancel this meeting. So it is with gratefulness that we have been able to re-establish our regular NEICS meetings and to have this NEICS Spring 2023 meeting here in Crathorne Hall.

I hope you enjoy the meeting which brings together speakers from the whole UK presenting on a wide range of subjects from clinical topics such as paediatric critical care, fever in ICU, oxygen therapy, ECMO outcomes and cardiac arrests, to ethical issues such as advanced care planning, burnout in health care workers and the limits of the safety culture. Equally importantly, we want to provide an opportunity to bring together all professional groups working in critical care in the North of England.

Thank you for joining us for this Spring meeting. We would like to thank the NEICS committee for their hard work in organising such an interesting scientific meeting. We extend out thanks to Crathorne Hall and the industry sponsors displaying their trade stands.

We hope you enjoy today's programme.

On behalf of the NEICS committee,

Uwe Franke NEICS President Ian Nesbitt
Past NEICS President

Diane Monkhouse NEICS Treasurer

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Programme of Events

08.15 - 09.00	REGISTRATION Tea, Coffee and Trade Stands	
09.00 – 09.10	WELCOME AND INTRODUCTION	
09.10 - 09.50	Session 1 Top tips in stabilising the critically ill and injured neonate, infant and child	Michael Griksaitis
09.50 - 10.30	Fever in ICU	Caz Sampson
10.30 – 10.40	Questions & Discussion	
10.40 - 11.00	REFRESHMENTS & TRADE STANDS	
11.00 – 11.40	Session 2 Oxygen for the critically ill: Is there a Goldilocks zone?	Tony Rostron
11.40 – 12.20	Advanced care planning for end stage renal disease and realistic goals for ICM	Helen Alston
12.20 – 12.30	Questions & Discussion	
12.30 – 13.30	LUNCH, POSTERS& TRADE STANDS	
	Session 3	
13.30 – 14.10	Wellbeing and Burnout in Critical Care	Richard Duggins
14.10 – 15.10	PICS in ICU and VV ECMO: candidacy and outcomes	Caz Simpson
15.10 – 15.20	Questions & Discussion	
15.20 - 15.40	REFRESHMENTS, POSTERS AND TRADE STANDS	
	Session 4	
15.40 – 15.50	Presentation of the Trainee Poster Winner	
15.50 - 16.30	Safety 2 in critical care	Neil Spenceley
16.30 – 17.10	Early insights from NAP7 – Perioperative cardiac arrest	Andrew Kane
17.10 – 17.20	Questions & Discussion	
17.20	MEETING CLOSE	





Speaker Biographies & Abstracts

Dr Michael Griksaitis-Top tips in stabilising the critically ill and injured neonate, infant and child



Dr Michael Griksaitis is a Consultant in Paediatric Intensive
Care Medicine at Southampton Children's Hospital. He is the
clinical lead for the Southampton Oxford Retrieval Team
(SORT) service. He is the national chair of the Paediatric
Critical Care Society Acute Transport Group.

His specific interests include paediatric cardiac ICU, ECMO, stabilisation & transport medicine and point of care ultrasound. He is an honorary senior clinical lecturer at the University of Southampton and heavily involved in medical education from undergraduate to postgraduate levels.





Dr Caz Sampson – Fever in ICU and PICS in ICU and VV ECMO: candidacy and outcomes

After graduating from Nottingham University, Caz dabbled in A&E and Renal medicine before training in Anaesthesia and Critical Care, working in the Midlands and London. She completed fellowships in critical care ultrasound and Extra Corporeal Membrane Oxygenation before taking up a Consultant post in Glenfield in November 2014.

Alongside general and cardiac intensive care duties, being one of 8members of the Adult ECMO consultant team at Glenfield involves retrieving patients with Severe Acute Respiratory Failure both conventionally and using mobile ECMO from units as far away as Northern Ireland and providing a 24 hour telephone advice service for any clinician within Glenfield's catchment area. Her specialist

interests lie in Severe Acute Respiratory Failure and Adult

ECMO alongside medical education and critical care follow-up. She is currently the deputy director for Adult ECMO at Glenfield Hospital and runs the ECMO follow up clinic.

Fever in ICU

Fever is one of the commonest symptoms in critical care occurring in 70% of our patients, but how often is it due to infection and which non-infectious causes are important to rule out? Is fever friend or foe?

Across the world we are increasingly heading towards an antibiotic resistance catastrophe. We must all play our part in antibiotic stewardship, with appropriate timing, choice and de-escalation of antimicrobials particularly when a non-infectious cause for fever is most likely.

This talk will remind the audience how body temperature is regulated and how to define fever and hyperpyrexia. It will cover diagnoses not to be missed and provide clinicians with a framework to approach the febrile critically ill patient. We are all well versed with the commonest sites for infection in our critical





care cohort so this talk will concentrate on the less well understood non-infectious causes of fever and hyperpyrexia syndromes.

PICS in ICU and VV ECMO – candidacy and outcomes

Critical care is not just about saving lives but creating survivors with a quality of life they find acceptable. Year on year we make advances in critical care and push the boundaries of what is achievable both with advanced organ support and the age/frailty of the patients we admit. The adverse effects following critical care do not stop when the patient is discharged to the ward. Any critical care stay can leave scars – physical, mental and psychological.

Respiratory ECMO can be lifesaving but carries significant risks and outcomes are best in carefully selected patients. I will start by explaining the complex decision-making process that goes on behind the scenes when you refer me a patient and how we decide on candidacy for escalation to ECMO then share some of our ECMO outcomes in covid and non-covid patients.

Post Intensive Care Syndrome (PICS) is defined as new or worsening impairment in physical, cognitive (thinking and judgment), and/or psychological health arising after critical illness and persisting beyond discharge from the acute care setting. Understanding the post-ICU problems in our patients is important for any clinician making admission and/or escalation of care decisions in order to provide the best patientcentred holistic care and manage expectations of our patients and their families. This talk will cover all the common problems our survivors face and how we can ensure they are getting the right help to maximise their recovery following critical care.

I have been doing our ECMO follow up clinics for 6 years now. Hearing patient stories of their experiences both during and after critical care is vital to understanding how we can humanise the ICU environment and maximise recovery and potential in our patients. Personally, I find these clinics inspiring, entertaining, sometimes depressing but always humbling and I hope that what I learn from my patients will make me a better ICU doctor. I will share some of their stories with you.





Dr Tony Rostron – Oxygen for the critically ill: is there a Goldilocks zone?

Tony Rostron is a research fellow at Newcastle University and an honorary consultant in anaesthesia and intensive care medicine at South Tyneside and Sunderland NHS Foundation Trust.

Tony qualified from the University of Cambridge in 2000. He has undertaken surgical, anaesthetic and critical care training in the North East and North Cumbria. He completed a PhD in brain death-induced lung injury in 2008whilst he was a cardiothoracic surgical trainee and was one of the first people appointed as a NIHR academic clinical lecturer in intensive care medicine. He has a research interest in the innate immune response to critical illness and its modulation, spanning from basic laboratory research through experimental medicine into clinical trials.

Tony is the NIHR specialty group lead for critical care in the North East and North Cumbria and was a founder member of the NIHR Critical Care Specialty Experimental Medicine subgroup.





Dr Helen Alston –Advanced care planning for end stage renal disease and realistic goals for ICM

Helen Alston is a consultant nephrologist at King's College Hospital, London. Her renal specialist training was in North London, where she completed a PhD, "Psychosocial Distress in Older Renal Patients" at UCL under Professor Aine Burns. Following CCT, she then completed a Geriatric Nephrology Fellowship at Toronto General Hospital under Professor Vanita Jassal. During this fellowship, she gained experience in managing renal patients with significant frailty undergoing rehabilitation, as well as end of life care and palliative care interface.

Following her return to the UK and appointment at King's
College Hospital, she was instrumental in setting up the
Nocturnal Haemodialysis programme there, and is site PI for

the Nightlife study, examining the impact of extended-hours nocturnal dialysis on patient quality of life. She also jointly manages the Supportive Care (non-dialysis) pathway, dialysis frailty pathway, and is a committee member of the UKKA Supportive Care SIG.

Renal patients of all ages have high levels of frailty and multi-morbidity. In this talk, we will discuss health outcomes for renal patients on long term dialysis, review mortality calculators for this patient population, and discuss the current state of art and future directions in renal supportive care/renogeriatrics, and how this influences organ support/ceiling of care discussions for these patients.





Dr Richard Duggins-Wellbeing and burnout in critical care

Psychotherapist working in NHS Practitioner Health and he leads the North East and North Cumbria Staff Wellbeing Hub. He loves to share what he has learnt from 16 years of treating doctors and other health professionals with burnout, depression and anxiety. He has worked with a number of Royal Colleges and national organisations on developments around the health of health professionals, and was recently a lead author of a national online training for Blue Light workers.

This session will look at:

- Exploration of Resilience and Burnout
- Understanding how doctors and other health professionals burnout and how they recover
- How to effectively support a colleague who may be struggling
- Growth





Dr Neil Spenceley - The real price of Swiss Cheese: Has 'safety' had its day?

Neil Spenceley is the Director of Paediatric Intensive Care and Anaesthetics in Glasgow and the former Scottish Patient Safety Lead for Paediatrics. He is originally from The Highlands, trained in Edinburgh but soon defected West to start his somewhat bumpy career at Glasgow Children's. After living in Tauranga, Sydney and Vancouver he bizarrely returned to Glasgow where weather is terrible but the people are positive and funny. His physiological interests include oxygen delivery, this and that but mostly that. However, his

psychological interests, and real passion, lie in workplace behaviours, culture, resilience engineering and being glass half full.





Dr Andrew Kane – Early Insights from NAP7: perioperative cardiac arrest

Andrew is an ST7 anaesthetic trainee based in Middlesbrough and has been an RCoA Clinical Research Fellow for the 7th National Audit Project (NAP7) since 2019. He went through the MB PhD programme in Cambridge, with research focused on cardiovascular physiology. This interest in the circulation is continued with the theme of NAP7-perioperative cardiac arrest. Along with Emira Kursumovic, Richard Armstrong, Tim Cook and Jas Soar, he has been part of the core group leading the NAP7 project. Today Andrew will give us an insight into the results of the NAP7 activity survey and potential implications for intensive care.





Trainee Poster Presentations – Abstracts

Winner of Trainee Poster

Poster: 1

TITLE

INFOGRAPHIC POSTER ON MANAGEMENT OF HIGH BMI PATIENTS IN ITU

Myra Khan Speciality Doctor, Darlington Memorial Hospital

BACKGROUND

An analysis of the ICNARC Data of Darlington Memorial Hospital ICU from June 2021 to June 2022 showed 149 of the 483 admissions being BMI >30 (30.2%). This is a significant proportion of the patients presenting to ITU and highlighting the rising trend of obesity among the general population¹. It was noted that there were no specific Management guidelines or resources in the ITU for the high BMI patients like the SOBA single sheet guidance available in theater². A survey was carried to see if there was a need to develop such a resource and once developed a repeat survey would be done to check its efficacy.

METHODS

A questionnaire was distributed among staff in Darlington Memorial Hospital ICU. The questions included difficulties in management of High BMI patients in ITU and utility of an infographic poster about these patients in ITU.

RESULTS

A total of 15 responses were received. The respondents included Consultants (13.3%), Trainees (33.3%), ICU Nurses (33.3%) and Staff Grade Doctors (20%). 100% of the respondents felt that high BMI patients were difficult to manage in ITU as compared to normal BMI patients. All of the respondents felt there was a need to develop an infographic poster about management of such patients which can be useful tool to their clinical practice. Based on this survey a High BMI Management Poster was made and a repeat survey done with the same respondents as earlier to check if they found it useful to clinical practice. 100% of the respondents found it useful with 80% responses being Strongly Agree and 20% Agree.

DISCUSSION

High BMI patients present a formidable challenge to ITU staff and are more complex to manage as compared to normal BMI patients. They are prone to desaturation, difficult intubation and ventilation but also have issues with imaging, equipment and drug dosing. Having all relevant information on a single sheet makes it easy for reference when faced with management of these patients. Simple wording makes it easy to understand for both nursing staff as well as doctors. QR codes





provide links to online weight calculators and resources of relevance. There was very positive response to this Single sheet guidance in our ICU and it can be utilized in the different ICUs across the region.

ACKNOWLEDGEMENTS

All the staff at DMU ITU with special thanks Dr Carbert

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Poster: 2

TITLE

ICU Management of Patients with Severe Necrotizing Fasciitis – a case series

Dr Anish Dave, MTI Trainee & Dr Swadeep Vellore, Consultant, University Hospital of North Tees

CASE DESCRIPTION

Necrotizing fasciitis is a life-threatening infection of soft tissues spreading along the fasciae to the surrounding musculature, subcutaneous fat and overlying skin areas that can rapidly lead to septic shock and death. We reviewed the clinical presentation and progression of 5 cases of NF that presented to our ICU at North Tees Hospital (2022-23) to elucidate unique characteristics in the management of this group of patients.

- A) 41 year old male admitted in our ICU with suprapubic NF with mutliorgan failure and DKA. He underwent emergency debridement of the suprapubic NF. He was started on tazocin and clindamycin after consultation with microbiologist. He grew Coagulase Negative *Staphylococcus aureus* in his blood culture. He was managed in ICU with invasive ventilation, vasopressor support and DKA management.
- B) 55 year old female, 189 KG and BMI 62 kg/m² with a background of T2DM, CKD, morbid obesity, previous BK Amputation was diagnosed with incarcerated umbilical hernia with transverse colon fistulating to abdominal wall & necrotizing fasciitis of sacrum and she underwent a laparotomy with resection of necrotic transverse colon with anastomoses & debridement of infected grade 4 sacral pressure sore. She was managed in ICU as a level 3 patient post-op and returned to theatre for further debridement. She was started on meropenem & teicoplanin after microbiologist input.





- C) 63 year old male rapidly developing rash over left leg and he was found to be very septic and acidotic. His background was previous DVT in the left leg, asthma, prostate cancer and abdominal hernia. He was diagnosed to have left leg necrotising fasciitis for which he underwent debridment and second look surgery and partial closure after 1 week. He was admitted to ICU for vasopressor support and management of his severe sepsis. He grew *Streptococcus pyogenes* in his blood culture and microbiologist had advised us to give IVIG, tazocin & clindamycin.
- D) 37 year old female with a background of IV drug abuse came into ED found to be very septic, acidotic requiring very high vasopressor support for her NF infection extending from her groin to knee. CT Chest and abdomen showed right lower lobe pseudoaneurysm within a pulmonary abscess with multiple septic emboli and right superficial femoral artery pseudoaneurysm. There was gas in the soft tissues suggesting narcotising fasciitis extending inferiorly from the groin to below knee and superiorly into the retroperitoneum to the level of the diaphragm with infected left DVT. Vascular surgery input from higher centre was obtained and an urgent transfer had been done.
- E) 50 year old female, 145 kg, BMI 53 kg/m2 presented with 3-5 day history of swelling in her right neck which increased in size on presentation to ED. Her background included Fibromyalgia, CKD3, Raynauds and Vitamin D Deficiency. She was allergic to Erythromycin, Doxycycline and Penicillin. CT scan showed extensive oedema and presumed cellulitic changes involving the floor of mouth/neck/face, which was bilateral but worse on the right side. Maxillo Facial surgical team input was obtained from higher centre and their plan was to go ahead with debridment. The microbiologist had advised to start teicoplanin, clindamycin & gentamicin. She was extremely high risk from airway point of view and also requiring double vasopressor support. Successful awake fibreoptic intubation was done with surgeon stand by for tracheostomy. She grew *Streptococcus pyogenes* on her blood culture and further debridement was performed by the surgical team in ICU. 2 doses of IVIG were given. Mottling and early necrosis to all limbs, trunk and breasts was noted and she was transferred to the higher centre for further management.

DISCUSSION

Diagnosis of NF is a challenge to a clinician because it is a rare entity and there may be no obvious pointers favouring its diagnosis. Risk factors include compromised integrity of skin or mucous membranes, diabetes, arteriopathy, alcoholism, obesity, immune suppression, malnutrition, renal failure, and age > 60 years⁽¹⁾. Polymicrobial NF infections are poorly demonstrated on blood cultures which are found positive only in 20-27% of patients⁽²⁾. The cornerstone of treatment for NF is early and complete surgical debridement of the necrotic tissue, combined with broad spectrum antimicrobial therapy.

ACKNOWLEDGEMENTS

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I would like to thank Dr Swadeep Vellore, Consultant for helping me this presentation. This report received no funding in the public, commercial, or not-for-profit sectors. Informed consent was obtained from the patient or next of kin for this presentation.

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Poster: 3

TITLE

Dog bite, DIC and digital necrosis – a case report

Mary Broughton

CASE DESCRIPTION

A 45 year old man presented to hospital with a 24 hour history of severe abdominal pain, nausea and vomiting following a dog bite to his right hand. His background was significant for HIV for which he was on established treatment with an undetectable viral load and normal CD4 count. On initial assessment he was febrile, hypotensive and hypoxic with a blood glucose of 2.4, and a lactate of 5.8. He was also noted to bleed excessively following venepuncture and cannulation. On examination he had two very small 6mm wounds to his right hand. He had full range of movement throughout the hand with only mild tenderness over the wounds and no evidence of necrotising fasciitis or deep tissue infection.

Initial blood tests of note demonstrated raised inflammatory markers, platelets 22, PT 28.4, APTT 62.8, D dimer >20 and a mild acute kidney injury (AKI). A CT scan showed hypoperfusion of spleen only.

Patient was admitted to the Critical Care Unit where his sepsis and AKI improved with fluids and he at no point required inotropic support. He was treated with meropenem and clindamycin. Wound sampling grew Clostridium perfringens and Cutibacterium acnes was isolated after enrichment.

Despite achieving early haemodynamic stability with the above treatment, the patient developed digital necrosis of the fingers bilaterally secondary to purpura fulminans (PF). The patient was commenced on a heparin infusion with platelet cover. Unfortunately, in spite of this, the patient went on to require amputation of 9 digits.

DISCUSSION

This was an unusual case of bilateral digital necrosis secondary to sepsis associated with dog bite with a number of learning points due to diagnostic and treatment challenges. First, the patient's source of sepsis was not initially evident as the dog bite wound did not appear infected and the initial hypoxia, diarrhoea, vomiting and abdominal pain suggested other possible sources. The patient also did not demonstrate severe multiorgan dysfunction that might be expected in a case of disseminated intravascular coagulation







(DIC) caused by septic shock which led to uncertainty as to the cause of the digital necrosis and an initial reluctance to start a heparin infusion.

Clostridium perfringens septicaemia carries a high mortality and can cause acute intravascular haemolysis^{1,2}, though is not typically recognised to cause DIC or PF. However, the organism Capnocytophagacanimorsus is both a known cause of dog-bite associated infections³, though typically in immunocompromised individuals, and is a recognised cause of PF and splenic infarction⁴ but can be difficult to culture⁵. It is important to note that HIV infection can shrink immune repertoire which can result in relative immunosuppression despite adequate CD4 count recovery with anti-retroviral treatment.⁶

Clinicians should be aware of the possibility of Capnocytophagacanimorsus infection following a dog bite, and its recognised complications of DIC and PF, even in the absence of positive microbiology. It is also important to be aware that severe PF with acral ischaemia is an indication for heparin infusion in DIC⁷.

ACKNOWLEDGEMENTS

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Poster: 4

TITLE

An interesting case of severe metabolic acidosis in a young adult.

Mansi Vaidya

CASE DESCRIPTION

Ethylene glycol poisoning is a clinically significant problem due to the potential for severe morbidity and mortality associated with it. A high level of suspicion is required for its early diagnosis especially if the ingestion history is not known. This can delay the correct diagnosis and treatment.

We present one such case of severe high anion gap acidosis where ethylene glycol poisoning which was suspected, promptly diagnosed and managed aggressively in ICU, resulting in a good outcome.

An eighteen-year-old girl was brought into the hospital confused and agitated, hypotensive, tachycardic, and GCS dropped progressively to 8/15. All her bloods were unremarkable except that she was profoundly acidotic on blood gas with a pH of 6.8, HCO3 7.2, BE –25 Lactates 4.7, Chloride 118. She had an elevated anion gap metabolic acidosis with anion gap of 22.3. Subsequently, the patient was intubated and ventilated and admitted to the intensive care unit. CT Head was normal and there was no source of sepsis. Further investigation revealed an osmolar gap of 30 which led to the suspicion of ethylene glycol poisoning. Serum ethylene glycol levels were requested (later came back as 745 mg/dL). Treatment was initiated with fomepizole and CVVH. When pH normalized and ethylene glycol levels were <50 mg/dL, haemodialysis and fomepizole were discontinued. In 48 hours patient was extubated uneventfully. Subsequently patient was stepped down from ICU and got discharged from hospital.

DISCUSSION

Ethylene glycol is a sweet odourless agent present in anti-freeze and de-icing solutions, solvents, etc. The mortality rate of ethylene glycol poisoning ranges between 1-22% depending upon the amount ingested and time between ingestion and initiation of appropriate treatment. Early intervention is the key; however, diagnosis is often delayed. It is important to have a high degree of suspicion based on laboratory findings especially in patients presenting with elevated anion gap metabolic acidosis and elevated osmolar gap. Mainstay of treatment is fomepizole and haemodialysis. Monitoring for the reduction of the anion gap, lactate, and osmolar gaps can guide treatment. With this case we would like to highlight how we can manage ethylene glycol poisoning with good outcome provided we make a prompt diagnosis and give aggressive early treatment.

We propose that all high anion gap metabolic acidosis should have a panel of tests including ketones, osmolarity, lactate and urea and electrolytes to avoid missing a diagnosis.

ACKNOWLEDGEMENTS





North Tees Hospital ICU team

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Poster: 5

TITLE

"Trust no one and believe nothing" – atraumatic splenic rupture (ASR)in a patient treated for suspected PE

Wes Channell

CASE DESCRIPTION

A 38-year-old woman was pre-alerted to the A+E department via ambulance with hypotension, chest and abdominal pain, and syncope. She had attended medical same day emergency care 16 hours prior with a several day history of shortness of breath and a productive cough. A positive D-dimer testled to a weight appropriate treatment dose of enoxaparin and a plan to return for a CTPA in the coming days. Examination in resus revealed a patient in shock with tachycardia and coolperipheries. FICEshowed no LV or RV dysfunction. An immediate CTPA and CTAP with portal venous phase contrast showed bibasalconsolidation and an AAST grade 4 splenic injury, but no pulmonary embolism. The patient was taken for immediate emergency laparotomy and splenectomy, whilst undergoing simultaneous resuscitation with blood products.

Her postoperative stay in critical care was complicated by morbid obesity and pneumonia, but she was successfully extubated 2 days after her operation. She was discharged from hospital a further 5days later with routine post splenectomy care including haematology follow up.

DISCUSSION

Splenic injuries are mostly associated with blunt abdominal trauma: only 25% are atraumatic (1). Trueidiopathic splenic ruptures, defined as atraumatic splenic injury not associated with any haematological or infectious process that results in splenomegaly, are thought to be even rarer.

Abdominal pain, peritonism, and haemodynamic instability may alert a clinician to the possibility of splenic





injury, with the diagnosis being confirmed by CT or at laparotomy. Grading of splenic injury can inform management, with conservative management including bedrest being an option for lower grade injury, provided the patient remains stable. Higher grade (AAST grade 4-5) injuries may be treated with splenic artery embolisation, or laparotomy. Partial splenectomy is preferred if feasible, due to the possibility of overwhelming post-splenectomy infection from encapsulated bacteria.

In our patient's case, profound haemodynamic instability, coupled with the high grade of injury, left laparotomy and splenectomy as the only treatment option, given the distance from a centre with interventional radiology.

Therapeutic anticoagulation may theoretically increase the risk of SSR, but a thorough search of the literature revealed two case reports of ASR following a single dose of therapeutic low molecular weight heparin (2,3). Anticoagulation should be promptly reserved if possible. We hypothesise that the frequent cough of our patient was probably the trigger for splenic injury, but clinicians should maintain a high index of suspicion and low threshold for cross-sectional imaging when presented with an undifferentiated, shocked patient.

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Carole Koenig
Assistant Secretary to Managing Director
Carole.koenig@vygon.co.uk

Tel: 01793748800







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