



**B.S.O.A**

*British Society of Orthopaedic Anaesthetists*

*The British Society of Orthopaedic  
Anaesthetists.*

*Annual Scientific Meeting*

*Abstracts for the  
London Meeting*

*Thursday 2<sup>nd</sup> and Friday 3<sup>rd</sup> November 2023*

*Woburn House Conference Centre, Tavistock Square, London, WC1H 9HQ*

# ***THE BRITISH SOCIETY OF ORTHOPAEDIC ANAESTHETISTS.***

*Thursday 2<sup>nd</sup> November 2023*

## **10:30 Registration**

Welcome: Refreshments and Exhibition

## **11:00 - 12:30 Session 1: TECHNOLOGY USE FOR PATIENTS' SAFETY AND BETTER OUTCOME**

- Artificial Intelligence in Ultrasound-Guided Regional Anaesthesia - Dr James Bowness
- Cerebral saturation and perfusion in Orthopaedic practice - Professor Anil Hormis
- Hypotension prediction index - Dr Robert Thompson

## **13:30 - 15:30 WORKSHOPS**

Chair: Dr Mruthunjaya Hulgur

- **Workshop A: Lower Limb Blocks**

Dr Mruthunjaya Hulgur

- **Workshop B: Upper Limb Blocks**

Dr Mruthunjaya Hulgur

- **Workshop C: ESP / Neuroaxial**

Dr Mruthunjaya Hulgur

- **Workshop D: PECS 1 &2, Rectus sheath & TAP blocks**

Dr Mruthunjaya Hulgur

- **Seminar : Regional Anaesthesia Intelligent Ultrasound**

**Refreshments**

**15:50 AFTERNOON SYMPOSIUM : PAION**, Dr David Green

**Posters to be presented**

**16:20 - 17:50 Session 2: CHOOSING THE RIGHT BLOCK FOR THE RIGHT PROCEDURE**

- Regional block for knee procedures – which block is right? - Dr Robbie Erskine, Royal Derby Hospital
- Orthopaedic oncology and novel blocks for joint replacements - Professor Jeys, ROH
- Orthopaedic trauma - Ross Coomber, St Georges Hospital

**18:00 CLOSURE OF THE FIRST DAY AND WINE RECEPTION**

# ***THE BRITISH SOCIETY OF ORTHOPAEDIC ANAESTHETISTS.***

*Friday 3<sup>rd</sup> November 2023*

## **8:00: Registration**

Welcome: Coffee and Exhibition

## **9:00 - 10:30 Session 1: CLINICAL PREDICTORS AND PREPARATION IN PATIENTS' CARE** Chair: Dr Bernadette Ratnayake

- Clinical risk prediction models and patients' care - Professor Ramani Moonesinghe, UCLH London
- Does quality improvement always mean improved value for patients? - Dr Carolyn Johnston, St George's Hospital London
- How does PQIP improves clinical outcomes, or does it? - Dr Rachel Baumber, RNOH

## **Refreshments**

## **10:50 - 12:20 Session 2: REGIONAL ANAESTHESIA , SAFETY IN CURRENT PRACTICE**

Chair: Dr Jan Cernovsky

- Efficacy and safety of regional blocks for spinal surgery - Dr Kariem El-Boghdady, London
- Diagnosis and management of Nerve Injury after PNB - Dr Maria Sebastian, RNOH London
- EJA guidelines for regional anaesthesia in patients on antithrombotic drugs - Dr S West, UCLH London

## **12:20 LUNCH SYMPOSIUM - PACIRA**

## **13:00 Lunch Break, Exhibition and Annual General Meeting**

**Oral Presentations** Chair: Dr Svetlana Galizine

Presentation Judges: Liana Geary, Mruthunjaya Hulgur, Viraj Shah

## **Refreshments**

## **15:20 - 16:50 Session 3: RISK MANAGEMENT, HUMAN FACTORS AND FUTURE**

Chair: Dr Ramesh Vijayaraghavan

- Recognising and managing the risks in anaesthetic practice - Dr Russell Perkins, RCoA vice president
- Death by Complacency - Professor Hugh Montgomery, UCLH
- Minimising the risk with POA optimisation - Dr Henry Murdoch, The Gloucester Royal Hospital

**16:50 REGISTRAR PRIZE AWARDS AND CONCLUSION**

***THE BRITISH SOCIETY OF ORTHOPAEDIC ANAESTHETISTS.***

Oral presentations

**Haemoglobin evaluation using the Rad-67™ co-oximeter® compared to Sysmex XN® Analyzer in preoperative assessment settings-** Abdelrahman Najaim

**Anaemia and fractured neck of femur: promoting early recognition and treatment in the perioperative period.** - Alexander Pereira de Lima

**Neuropathic Pain in a Distribution Consistent with a Peripheral Nerve Block: A Diagnostic Journey** - Deepa Divakar

**Introducing the golden patient initiative to promote safer, more efficient and timely trauma surgery at a busy district general hospital – a quality improvement project.** - Nisha Saini

**A novel regional anaesthesia approach to hip fracture surgery** - Songtum Saltrese

# **Haemoglobin evaluation using the rad-67™ co-oximeter® compared to sysmex xn® analyzer in preoperative assessment settings.**

Najaim a. A, osahan b. S, c. D., gowda d, da silva, e. J.

*The Royal Orthopaedic Hospital NHS foundation trust (roh), Birmingham, UK.*

pre-operative anaemia (hb < 130 g/d) is a modifiable risk factor for morbidity and mortality. Anaemia should be treated prior to surgery due to its ease of detection [1]. Anaemia is responsible for approximately 17% of pre-operative assessment clinic's (poac) cancellation at roh. A non-invasive finger-probe sensor is available that can measure haemoglobin "sphb®" [2]. The aim of this evaluation study was to check if we could substitute formal blood haemoglobin tests for all patients by using the rad-67™ co-oximeter. We audited the accuracy and precision of the rad-67™ co-oximeter against conventional phlebotomy sample analysed using the sysmex xn® analyser.

## **Methods**

The accuracy of sphb in comparison to lab-hb was assessed using bland-altman analysis [3] for a sample of seven hundred and eight (708) patients. The two measurements were collected simultaneously with mean time difference of 30 minutes between the two measurements. All patients attended poac prior to elective surgery. Pearson correlation coefficient was used for correlation between both variables as the data was normally distributed. Following the use of the medical research council and nhs health research authority, this study was not deemed to be research and was registered as an audit (poac/se/2023-24/02) at royal orthopaedic hospital, birmingham. The data was anonymised during entry in audit records.

## **results**

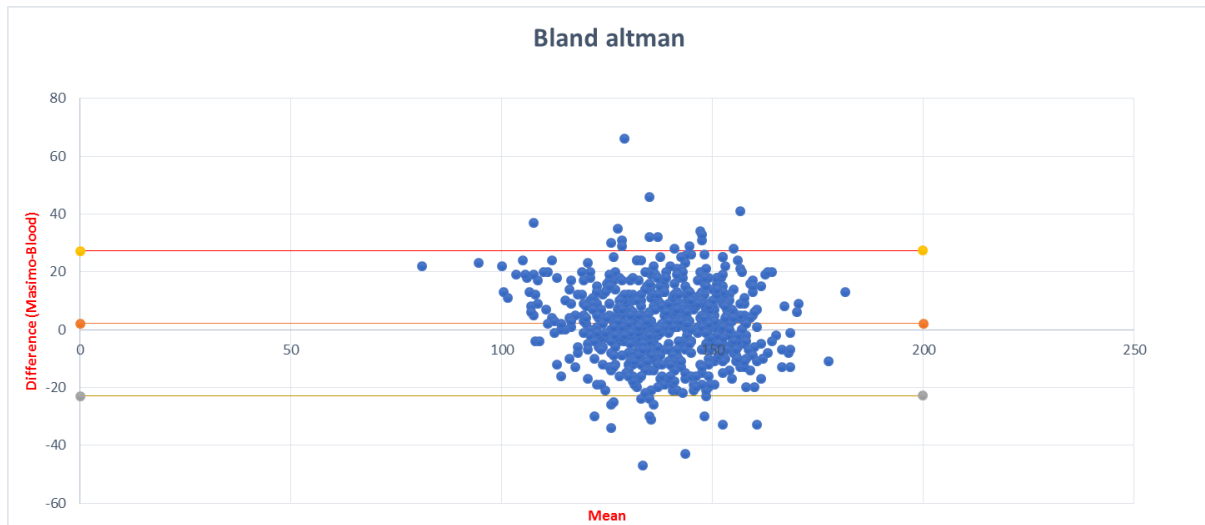
Seven hundred and thirty-nine patients(739) were evaluated. Thirty-one(31) patients were excluded for various reasons. Mean of difference was (2.12), upper limit of agreement was (+27.3) and lower limit of agreement (-23). Although, the two sets of data showed correlation, there was no good agreement between them because the differences are significant. Therefore, we concluded that the masimo rad-67™ co-oximeter was not independently accurate enough for our use in the exclusion of doing formal bloods and patient postponement based on a single reading.

## **References**

1. Munoz et al. (2017) international consensus statement on the peri-operative management of anaemia and iron deficiency. *Anaesth.* 72(2):233-247

2. <http://www.masimo.com>

3. [https://doi.org/10.1016/s0140-6736\(86\)90837-8](https://doi.org/10.1016/s0140-6736(86)90837-8)





# **Anaemia and fractured neck of femur: promoting early recognition and Treatment in the perioperative period.**

A. Pereira de lima; n. Weston-smith; c. Francis

*Morrison Hospital, Swansea, UK*

Perioperative management of frailty fractures remains a significant challenge for the multidisciplinary team. Key aims include remobilisation by postop day one and recommencement of activities of daily living within five days. The national hip fracture database and local audits have identified anaemia as a major factor contributing to failure and delays meeting those targets[1]. Furthermore, restrictive transfusion thresholds of 70-80 g/l have been shown to increase the risk of adverse events frailty fracture patients compared to more liberal targets[2]. This quality improvement project aimed to improve recognition and prompt treatment of anaemia in patients presenting with fractured neck of femur. The expected outcome was that all patients should have haemoglobin (hb) measured in theatre or recovery, and if appropriate, be transfused to a target of 90 g/l in line with national guidance[2]

## **Methods**

Using a pdsa methodology, baseline data points (operation, asa, mode of anaesthesia, hb check in theatre/recovery) were collected retrospectively from patient records. A minimum of 10 data sets per collection window, each collected over seven days. This informed planning and design phases, for which we consulted stakeholders (recovery nurses, surgeons, anaesthetists, orthogeriatricians, physios, haematology) to develop each pdsa cycle (five cycles in total). The same retrospective data points were collected from patient records after each cycle. Initial pdsa cycles focused on raising awareness through posters and then education delivered to anaesthetists, nurses and surgeons in an opportunistic manner (e.g. Morning brief). This campaign aimed to sustain change by presentation of up-to-date data at regular intervals at local clinical governance and hip-fracture meetings. Later pdsa cycles (3, 4) involved recovery nurses who prompted the anaesthetists at handover regarding hb check, as well as formalising discussions of blood loss at the end of theatre cases using the who checklist 'sign out'. Finally in cycle five we included hb check in the recovery discharge checklist.

## Results

Baseline data showed 10% of patients had hb checked perioperatively, improving to 70% in 2nd cycle. 41.7% had hb checked in the 3rd cycle, 75% in the 4th cycle, and 58.3% in the 5th cycle. Each cycle consisting of at least 12 patients over a 7-day-period. Of these patients, most were asa3 (47.2%), and the most common procedure was hemiarthroplasty (44.4%). There was no correlation between asa grade or mode of anaesthesia with hb monitoring. Hb was most commonly checked following hemiarthroplasty or intramedullary nail surgery.

## Conclusions

Developing persistent demonstrable change within a large department is notoriously difficult. A consistent effort is required and involvement of all stakeholders including departmental leadership is essential until a change is formed in day-to-day practice. This project utilised a qi methodology over a period of five pdsa cycles, including a combination of departmental and hospital-wide approaches. poster campaigns, education delivered both ad-hoc in small groups and repeated local presentations at departmental and inter-departmental meetings, utilising who sign out and recovery checklists resulted in improvements which have persisted albeit with variation in efficacy at various points.

1 national hip fracture database. Annual

Report. 2019. <https://www.nhfd.co.uk/20/hipfracturer.nsf/docs/2019report> (accessed 01/07/2020)

2 griffiths, r., babu, s., dixon, p., freeman, n., hurford, d., kelleher, e., moppett, i., ray, d.,

Sahota, o., shields, m. And white, s. (2021), guideline for the management of hip fractures

2020. *Anaesthesia*, 76: 225-237. <https://doi.org/10.1111/anae.1529>

# **Neuropathic Pain in a Distribution Consistent with a Peripheral Nerve Block: A Diagnostic Journey**

Authors Dr D Divakar 1 & Dr R Zarnegar 1,2

## ***Affiliations***

*(1) Royal National Orthopaedic Hospital, Stanmore, UK*

*(2) Institute of Orthopaedics & Musculoskeletal Science, University College London, UK*

## **Introduction**

Prolonged neurological injuries in the perioperative period can cause serious patient distress and disability particularly when associated with neuropathic pain(1). Guidelines have been published by Regional Anaesthesia UK (RA-UK) and the British Orthopaedic Association (BOA) on the management of unexpected post-operative neurological dysfunction (2)

In this case report we describe the diagnostic journey of a patient with moderately severe neuropathic pain in the hand which appeared following ipsilateral shoulder surgery and interscalene brachial plexus block (IS-BPB).

## **Method**

The patient journey including history, examination and treatment pathway was retrospectively reviewed using the hospital electronic patient record. The assessment pathway was compared to the approach suggested in RA-UK guidelines.

The patient was contacted and provided written consent to presentation of the case report.

## **Results**

*Background:* A 44 year old female who was generally fit and well (ASA I) underwent right shoulder subacromial decompression & debridement in beach chair position under general anaesthesia with IS-BPB. The block was done under mild sedation with good verbal contact with the patient throughout the procedure with ultrasound guidance. The plexus was easily visualised and no problems occurred during the conduct of the block.

*Post-operative course:* The lady recovered well from surgery and was discharged the day after the operation.

*Presentation of neurological Injury:* In the 6 week post-operative follow up in the surgical clinic, she described persistent numbness in the tips of the fingers in the right hand since surgery. In addition burning pain had developed in the hand over the 2 weeks prior to the appointment. This pain was worse at night time and interfered with using the hand. There was no motor weakness. The prominent clinical suspicion in the surgical clinic was residual neurological symptoms following interscalene block and their first response was that the anaesthetist who did the IS-BPB should be informed to review the patient.

*Further assessment:* The anaesthetist was able to do a telephone review and booked urgent initial imaging investigations. Access to the chronic pain clinic was possible and a follow up appointment was planned. The main complaint 7 weeks after surgery was severe burning pain in the hand on the operated side. She recalled that her hand was more numb than the shoulder immediately after the surgery but she recovered quickly thereafter except for the finger tips which remained numb. After a few weeks, the burning pain had started and gradually intensified.

On examination, pin prick and touch sensation were affected all over the right hand without any specific nerve root distribution, though this was more prominent in the palm. There was a clear demarcation at the crease of the wrist where the sensory signs abruptly changed to normal. Vibration and cold sensation were intact. Reflexes were intact and symmetrical and there was no motor weakness.

Following a working diagnosis of peripheral neuropathic pain requiring investigation, the GP was asked to start nortriptyline 5mg at night increasing to 10mg if side effects allowed.

*Investigation results:* In line with RA-UK guidance, urgent MRI of the brachial plexus was done and showed no abnormalities. Neck MRI had been ordered at the same time and was also normal. Further investigation with nerve conduction studies revealed slowing of median nerve conduction across the carpal tunnel in both hands.

*Outcome:* A diagnosis of neuropathic pain secondary to right sided carpal tunnel syndrome was made. Numbness in the tips of the fingers was secondary to hand swelling following surgery and resolved completely. Treatment continued in the pain clinic with amitriptyline, hand elevation at night, wrist splint and desensitisation in physiotherapy appointments. The symptoms improved but not enough for return to employment. Good symptom relief was achieved for 6 months after carpal tunnel injection with local anaesthetic and steroid. However, the

symptoms returned and she underwent surgical decompression around 18 months after shoulder surgery.

## **Discussion**

In this case there was an unknown pre-operative risk factor for nerve injury; the median nerves were asymptotically affected in the carpal tunnels on both sides. Post-operative limb swelling affected the finger tips but also resulted in decompensation of median nerve function on the surgical side.

RA-UK guidance was useful in decision making in the initial stages of neurological injury presentation. The investigations recommended by these guidelines were normal. This case demonstrates the importance of access to a clinical setting where detailed neurological assessment and investigation can continue seamlessly. In addition, rapid access to a pain clinic where neuropathic pain symptoms could be managed and followed through, was helpful in reducing the patient's suffering.

## **References**

1. Borgeat A, Ekatodramis G, Kalberer F, Benz C. Acute and non-acute complications associated with interscalene block and shoulder surgery: a prospective study. *Anesthesiology*. 2001 Oct;95(4):875-80. doi: 10.1097/00000542-200110000-00015. PMID: 11605927.
2. Regional Anaesthesia UK. Algorithm for management of nerve injury associated with regional anaesthesia

# **Introducing the golden patient initiative to promote safer, more efficient and timely trauma surgery at a busy district general hospital – a quality improvement project.**

N. Saini, S. Maheshwari, C. Luximon, R. Shah

*Watford General Hospital, Watford, UK.*

The Golden Patient Initiative (GPI) [1] protocol is a strategy where the first patient on list is identified, investigated and optimized in preparation for surgery ideally a day before. The initiative has been shown to improve surgery start times and reduce avoidable delays, deliver better utilisation of resources and theatre lists, and reduce cancellations across different NHS trusts [2]. We conducted an audit to assess current theatre practice specifically in emergency trauma and orthopaedic surgery, launched The Golden Patient Pathway and conducted a closed loop analysis to ascertain improved patient care at Watford General Hospital.

## **Methods**

A prospective analysis was done to ascertain the average time for sending first patient and start of surgery in Emergency Trauma and Orthopaedic lists. A GPI protocol was formulated with an aim to improve theatre timings and utilisation. An initial analysis was done to see if clinical practice had improved by comparing the time to sending for the first patient and surgery start time before and after introduction of GPI pathway. A closed loop analysis was further done, eight weeks since the institution of GPI, to assess compliance with our GPI and ensure there is effective identification, communication, and handover of the Golden Patient in a multi-disciplinary manner.

## **Results**

The average time for sending the first patient in Emergency Trauma and Orthopaedic list was found out to be 09:11 hours and the average time for start of surgery was 10:18 hours in our hospital. Since the introduction of the GPI pathway an initial audit was conducted which showed the mean time for sending the first patient was 08:35 hours an improvement of 36 minutes (p value 0.028). In addition, surgical start time was also significantly improved to 09:38 hours which was earlier by 40 minutes (p value 0.016). A further close loop analysis showed the consistency of the improved timings – 08:32 hours for sending the first patient and 09:37 hours for start of surgery. This was a significant gain in time for sending the first patient and start of surgery by 39 minutes (p value 0.015) and 41 minutes (p value 0.017) respectively.

## **Discussion**

The introduction of GPI pathway has favourably brought down the times for sending the first patient and the start of surgery. The closed loop highlighted the compliance amongst the multi-disciplinary teams to promote effective utilisation of the theatre resources and deliver great care for these patients requiring emergency surgery in a timely fashion.

## **References**

- (1) Javed S, Peck C, Salthouse D, Woodruff MJ. A predetermined first patient on the trauma list can improve theatre start times. *Injury* 2013; **44**: 1528–31.
- (2) Key T, Reid G, Vannet N, Lloyd J, Burckett-St Laurent D. 'Golden Patient': A quality improvement project aiming to improve trauma theatre efficiency in the Royal Gwent Hospital. *BMJ Open Qual.* 2019 Feb 18;8(1):e000515.

# A novel regional anaesthesia approach to hip fracture surgery

Songtum Saltrese\*, Huy Quang Nguyen\*, Muhanad Adam, Nawal Bahal

*Buckinghamshire Healthcare NHS Trust*

*\*denotes both authors contributed equally*

We performed a combination of Pericapsular Nerve Group (PENG), Femoral Nerve (FN) and Lateral Cutaneous Femoral Nerve (LCFN) blocks for patients undergoing emergency hip fracture surgery [1, 2]. All patients received general anaesthesia or sedation. Patients receiving spinal anaesthesia were excluded. We measure the effectiveness of this technique in term of opioid consumption in the post-operative period.

## Methods

PENG+FN+LCFN blocks were performed on 11 patients undergoing emergency hemiarthroplasty, cannulated screws, or dynamic hip screws. Retrospective analysis of peri- and post-operative opioid consumption at 12, 24 and 72 hours was conducted.

### Local anaesthetics used:

PENG: 0.25% bupivacaine or levobupivacaine 10 – 30 ml

FN: 0.25% bupivacaine or levobupivacaine 5 – 20 ml

LCFN: 0.25% bupivacaine or levobupivacaine 5 – 20 ml

## Results

Our results show that a combination of PENG+FN+LCFN blocks can provide effective analgesia up to 72 hours post-operatively in patients who underwent emergency hip fracture surgery:

<b>Time (post-operatively)</b>	<b>PRN strong opioid requirement</b>
<b>12 hours</b>	1/11 (9.1%)
<b>24 hours</b>	3/11 (27.3%)
<b>72 hours</b>	7/11 (63.6%)
<b>Measure:</b>	
<b>Percentage requiring 0mg strong opioid at 12 hours</b>	90.9%
<b>24-hour opioid consumption (MME in mg)</b>	16.1mg



<b>Daily average MME (72 hours average)</b>	14.1mg
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Our data demonstrated that this novel approach for emergency hip fracture surgery is safe, effective, and results in low peri- and post-operative opioid use within 72 hour post-operatively.

This provides an alternative analgesic approach for patients susceptible to adverse outcomes of opioid usage. This study indicates the need of further standardised trials to evaluate the effectiveness of this technique in larger population, with standardised dosages of local anaesthetic required to produce effective nerve block.

## **References**

1. Girón-Arango L, Peng PWH, Chin KJ, Brull R, Perlas A. Pericapsular Nerve Group. Pericapsular Nerve Group (PENG) block for hip fracture. *Reg Anesth Pain Med.* 2018;43(8):859-863.
2. Redouane Mecharnia, et al. A retrospective case series of PENG block combined with femoral & lateral cutaneous nerves block as novel regional anesthesia approach for hemiarthroplasty & dynamic hip screw (DHS) Volume 13 Issue 5 - 2021

# ***THE BRITISH SOCIETY OF ORTHOPAEDIC ANAESTHETISTS.***

## *Poster presentations*

**Pentrox: A retrospective evaluation of use in a major trauma centre– Alex Eeles**

**An Unexpected Airway Finding during an Elective Orthopaedic Case - Angus Tulloch**

**Regional anaesthesia in hip fracture surgery: Our experience developing local educational initiatives - Chao Kowa**

**Case report - Awake anterior lumbar interbody fusion spine surgery - John John / Neil Davé**

**Targeted regional anaesthesia for total knee arthroplasty, a case series - Masseh Yakubi**

**Post-operative analgesia following day-case shoulder surgery – are opiates needed on discharge? - Neelesh Mohan**

**ORAL analgesia premedication in elective orthopaedic surgery- an opportunity to reduce NHS carbon footprint - Pooja Kondath**

**Patient information for anaesthesia.- Shahzeb Zafar**

**Ultrasound probe disinfection audit/QI project - Shivacharan P Rudrappa**

**On the day cancellations in elective joint arthroscopy - Sunil Shah**

**Reducing length of stay for patients undergoing primary hip and knee replacement in an elective centre: a multidisciplinary approach- Zain Malik**

**Pentrox: A retrospective evaluation of use in a major trauma centre.**

Danielle Wight (1), Dr Alex Eeles (2)

*(1) Medical Student, (2) Anaesthetic Consultant, (1,2) St Georges Hospital,  
London, UK*

Pentrox (methoxyflurane) is an inhaled volatile anaesthetic which has been shown to have analgesic effects at low doses [1, 2]. It is licensed in the UK for use in conscious adults for the relief of moderate to severe traumatic pain. Prior to prescribing, guidelines recommend checking for contraindications to Pentrox use using the CHECKALLL criteria and prescribing with caution in those using hepatic enzyme inducers or nephrotoxic agents, such as CT contrast dye. As Pentrox raises serum fluoride levels, it is advised that use of other fluorinated anaesthetics, such as sevoflurane, is avoided after Pentrox use to minimise the risk of fluoride induced nephrotoxicity. Clear communication between the emergency department and anaesthetic staff highlighting Pentrox use is essential to minimise this risk.

## **Methods**

All patients who received Pentrox in 2022 were identified using Pharmacy IT data. Patient records were reviewed to identify characteristics such as age, sex, co-morbidities, renal function, injuries, reason for Pentrox administration and how the injuries were managed. Anaesthetic charts were reviewed to find the time between Pentrox administration and surgery, the type of anaesthesia used and whether Pentrox was noted on the chart.

## **Results**

We studied 290 patients of which 116 were female (40%) and 174 were male (60%). Ages ranged from 15 to 96. 92% of patients presented with a single traumatic injury. Two hundred and eight (72%) patients were discharged within 24 hours. Patient notes were reviewed to identify any contraindications to Pentrox use. A total of 118 contraindications were found, with the most common being kidney impairment (eGFR <90). A total of 104 patients required surgery for definitive management of their injuries, 36 of these needing emergency surgery within 24h of presentation. The majority of these had a general anaesthetic with Sevoflurane (n=18). There was a reduction in renal function in 4 patients who received surgery within 24hrs of Pentrox use. Pentrox use was only noted on one of the anaesthetic charts that was available.

Overall, the use of Pentrox in the ED at SGH appears to be safe as there have been no adverse events. Most patients have successful initial management of their injuries under Pentrox which prevents the need for sedation and facilitates a fast discharge within 24h, saving bed spaces and money. Increasing awareness and encouraging documentation of a risk assessment using CHECKALLL criteria could improve the safety of Pentrox use at SGH. A more reliable hand-over to the

anaesthetics team about Pentrox use is needed. We are now trying to institute an IT pop-up highlighting Pentrox use when the patients' notes are accessed.

## **References**

1. Tomi, K. et al. Alterations in Pain Threshold and Psychomotor Response Associated with Subanaesthetic Concentrations of Inhalation Anaesthetics in Humans. *British Journal of Anaesthesia* vol. 70 <http://bjaoxfordjournals.org/> (1993).
2. Eager, M. et al. Inhaled methoxyflurane (Pentrox) for analgesia in trauma: a systematic review protocol. *Systematic Reviews*, 10, (2021).

# **An Unexpected Airway Finding during an Elective Orthopaedic Case.**

A Tulloch<sup>1</sup>, E Casselden<sup>2</sup>, J Cernovsky<sup>1</sup>

*1. Royal National Orthopaedic Hospital, London, UK. 2. Northampton General Hospital, Otolaryngology department, Northampton, UK.*

Substantial numbers of elective orthopaedic operations are carried out each year with over 200,000 cases per year when just considering hip and knee replacements. Around 5% of generic electives are reported to involve unexpected airway difficulties. However, the rate of encountering previously unknown pathology, such as masses, during laryngoscopy for elective orthopaedic cases has not been described in the literature. Masses involving the supraglottis and oropharynx have the potential to compromise the airway and have the potential for malignancy. Some lesions may be particularly vascular.

## **Clinical Case**

A 71 year old male of middle eastern background presented for elective shoulder arthroscopy and repair. An interscalene block under light sedation was performed unremarkably. Following this, general anaesthesia was induced. On direct laryngoscopy with a Mac four blade, multiple mass lesions were seen: on the vallecular surface of the epiglottis and the lateral pharyngeal wall/lower tonsil pole. See image. The rest of the operation and the recovery was unremarkable. Retrospectively, the patient reported some difficulty with swallowing tablets over the last several years, but no other throat symptoms. On review we considered this mass to be most likely an asymptomatic vallecular cyst which has been reported to have an incidence of 1 in 4,200 patients. [1]

## **Discussion**

Options available when there are unexpected findings of a mass in the upper aerodigestive tract for an elective procedure would include: 1) Abandon procedure and arrange an ENT review prior to further procedure/airway instrumentation. 2) Proceed with anaesthetic but without formal intubation, i.e. with the use of a supraglottic airway device, jet ventilation, depending on the surgical case being undertaken. 3) Intubate with direct laryngoscopy. 4) Use video laryngoscopy and bougie/stylet. 5) Flexible laryngoscopy with the endotracheal tube mounted on the flexible endoscope.

In this case we decided that the balance of risks favoured proceeding with the anaesthetic. We decided that the video-laryngoscopy and bougie option gave us the best control in this situation and would minimise mucosal trauma.

## **References**

MASON, D.G. and WARK, K.J. (1987), Unexpected difficult intubation. *Anaesthesia*, 42: 407-410. <https://doi.org/10.1111/j.1365-2044.1987.tb03983.x>

# **Regional anaesthesia in hip fracture surgery: Our experience developing local educational initiatives.**

Nicholas Walker, Chao-Ying Kowa, Simeon West

*University College Hospital, London, UK*

Education is regarded as being ‘the first and most important tool in the safe provision of anaesthesia’ [1]. A recent audit evaluating trust performance of intra-operative peripheral nerve blocks in the context of hip fracture surgery revealed several areas for improvement including: rates of block performance and knowledge deficits regarding procedural contraindications [2]. Reflecting on the results, we designed and implemented a departmental educational package with the aim of improving knowledge and performance of: femoral nerve blocks; supra and infra-inguinal approaches to the fascia iliaca block.

## **Methods**

Pre-existing barriers to block performance were first identified, including: lack of knowledge/confidence and unfamiliarity with equipment/logistics. Educational interventions were subsequently designed to target new core trainees (CTs) joining the trust in August 2023, and ‘block-ambivalent’ practitioners. We designed and delivered: easily accessible posters with concise relevant information facilitating block performance; trust-specific videos on block performance and equipment access [3,4]; and face-to-face training sessions involving the use of a needling simulator. Information was disseminated widely via emails; trainee WhatsApp groups and during departmental induction. Learner feedback was collected via a survey.

## **Results**

We received positive feedback, especially with CTs reporting increased confidence ( $p < 0.05$  for all three blocks). Informal departmental feedback also indicated a desire for further teaching material in the form of videos. Despite its superior analgesia, CTs were least familiar with the suprainguinal fascia iliaca block; it was associated with the greatest improvement in confidence following our interventions. A significant barrier to our educational programme was the cancellation of department-wide teaching days due to industrial action. To address this, we delivered multiple teaching sessions on different days, and our use of digital technology such as YouTube videos and online posters enabled remote self-directed learning/clinical reference, facilitating the accessibility and sustainability of our interventions. A subsequent audit is underway to evaluate block performance rates and efficacy of our interventions.

## References

1. Weller J, Gotian R. Evolution of the feedback conversation in anaesthesia education: a narrative review. *Br J Anaesth.* 2023;131(3):503-509.
2. Kowa C, West S. Intra-operative Blocks For Hip Fracture Surgery – How Are We Doing At Optimising Analgesia For Patients? (Poster displayed at ESRA 2023)
3. Whiteman, A. “UCLH FICB 1” YouTube, 01 Aug 2023, <https://tinyurl.com/UCLHFICB1>
4. Whiteman, A. “UCLH FICB 2” YouTube, 01 Aug 2023, <https://tinyurl.com/UCLHFICB2>



# Case report - Awake anterior lumbar interbody fusion spine surgery

N. Davé, J. John, B Balain

*The Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, UK*

We report a case of a 43 year old male patient presenting for elective single-level L5-S1 spine interbody fusion via anterior approach. The patient had a preference for avoiding general anaesthesia and had undergone lumbar discectomy previously under a spinal anaesthetic.

## Case description

In this case, continuous spinal anaesthesia was performed via a 21 gauge pencil-point needle and a bolus of 4ml of 0.25% plain bupivacaine and 200mcg morphine was injected. A 25 gauge catheter was then threaded 3cm into the subarachnoid space. The patient was moved into a right lateral position. The initial spinal bolus gave blockade up to T11 dermatomes bilaterally. A further bolus dose of 20mg of chloroprocaine was given to get the dermatomal level up to T6. Surgery commenced approximately one hour after the spinal injection. Two further boluses of 20mg each of chloroprocaine at the two and three hour mark were given. The total operation time was three hours. The patient was sedated with intermittent boluses of dexmedetomidine (40mcg bolus and three further doses of 10mcg every hour).

The patient was able to bend his knees 30 minutes after the end of the operation. Full return of motor function was achieved two hours after return to the ward and the patient mobilised the same evening as the operation. He was discharged on the morning of the following day. Postoperatively, pain was managed with regular paracetamol, celecoxib and nefopam and he did not require any opioids.

## Discussion

Awake spinal surgery in the prone position for lumbar surgery has been well described, with several advantages beyond avoidance of a general anaesthetic. Positioning related complications such as pressure sores, nerve injury and vision loss can be avoided, on top of potentially reducing blood loss. However, the surgical procedures are limited by the duration of a single shot spinal and the discomfort likely to result from positioning. Anterior lateral interbody fusion (X ALIF) is a lateral minimally invasive approach to the anterior lumbar spine. Although minimally invasive, with incisions below the umbilicus, positioning with x-rays can take up to one hour, which uses up 'spinal time'. Therefore, rather than do a single-shot large dose spinal, a catheter technique with top-ups using short-acting local anaesthetic

provided the ability to make the spinal last, while also allowing for faster wear off, resulting in early mobilisation.

# Targeted regional anaesthesia for total knee arthroplasty, a case series

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Regional anaesthesia (RA) is recommended by international guidelines during total knee arthroplasty (TKA), however there is debate about which blocks should be performed [1]. This is in part due to the complex innervation of the knee, originating from branches of the sciatic nerve, femoral and obturator nerves, as well as a move towards early mobilisation and physiotherapy, some centres aim for day case TKA. This has led to an evolution in the approach of RA for these patients from traditional femoral and sciatic nerve blocks to now motor sparing blocks such as adductor canal block which have been shown to preserve quadriceps muscle strength relative to femoral nerve blocks, whilst being non-inferior in terms of analgesia [2, 3]. Furthermore new blocks such as Interspace between the popliteal artery and capsule of the knee block (iPACK) and genicular nerve blocks have been shown to alleviate pain whilst also being motor sparing [4, 5]. Here we describe our current RA approach for patients undergoing TKA and the outcomes of these patients.

## Methods

In this case series we collected data from all consecutive patients listed for TKA during an eight month period. All patients received spinal anaesthesia, followed by distal femoral triangle block, (saphenous nerve and nerve to vastus medialis) then block of nerve of vastus intermedius (NVI) then iPACK followed by four genicular nerve blocks. All blocks described here were performed or supervised by the same anaesthetic consultant.

## Results

There were 50 patients in total. 39 TKA, eight unicompartmental knee replacements (UKR) and three revision TKA. Eight patients were discharged on the day of surgery (Four TKA, four UKR). All patients mobilised within 24 hours. The mean time to require rescue opioid was 17 hours. No patients required urinary catheterisation. All blocks could be performed in less than 10 minutes by an anaesthetic trainee.

## Discussion

Our experience highlights the feasibility and potential advantages of employing a precise and targeted RA strategy for knee arthroplasty. We hope this case series demonstrates that this anaesthetic regime offers excellent pain relief while preserving motor function.

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# **Post-operative analgesia following day-case shoulder surgery – are opiates needed on discharge?**

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Shoulder surgery is notoriously painful postoperatively. Many techniques are used to minimise this pain, including preoperative regional nerve blocks, along with simple oral analgesia supplemented by weak opiates such as dihydrocodeine. Within an orthopaedic hospital, there is varied practice regarding the prescription of opiates for discharge. This raised the questions whether strong opiates were required or if they were excessive for patients undergoing day-case shoulder surgery.

## **Methods**

A selection of 14 patients who had undergone day case shoulder surgery had their notes reviewed. Operations included arthroscopy, rotator cuff repairs and tendon repairs. The number of patients who had had regional blockade, intra and post operative morphine and their discharge analgesia were all recorded. Two patients were not discharged on the same day and were therefore not included in further data collection and analysis. The remaining 12 patients were then called and asked if they had to seek medical attention within the first week of discharge for additional analgesia.

## **Results**

Out of 12 patients, 11 patients had had an interscalene block. Nine patients went home with strong opiates. Eleven patients were discharged with dihydrocodeine. Three patients were not prescribed strong opiates to supplement their analgesia but were prescribe dihydrocodeine. After calling all 12 patients, five answered. Of this five, two patients were sent home with only morphine or oxycodone, two were sent with only dihydrocodeine and one patient was sent with both. None of these patients reported seeking medical attention for additional pain relief within the first week of discharge. Although this was a small cohort, it shows that patients may not need strong opiates on discharge following ambulatory shoulder surgery, as the acute pain is sufficiently managed with a combination of the prolonged action of the interscalene block and simple analgesics along with weak opiates. If confirmed by studying a larger cohort over a longer period of time, this may benefit both the patients by avoiding exposure to the side effects of strong opiates, along with

minimising the risks associated with discharging patients with a controlled drug, known for its addiction and associated morbidity.

# **ORAL analgesia premedication in elective orthopaedic surgery- an opportunity to reduce NHS carbon footprint.**

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Climate change has been defined by the World Health Organisation as the most substantial threat to global health of this century [1]. The NHS Wales has committed to a net zero carbon emissions by 2030 [2]. Operation theatres account for a large portion of NHS waste and greenhouse gas emissions. Peri-operative analgesia can be administered via several routes, the oral route being the most common. Currently there is minimal evidence to suggest that intravenous administration is superior to oral. Moreover, intravenous formulations are more expensive and have a higher carbon footprint compared to its oral counterparts. This service evaluation project aims to review current practice of oral analgesia pre-medication in elective orthopaedic theatres to understand implications on cost and carbon foot printing.

## **Methods:**

Prospective data was collected over a 6-week period at University Hospital Llandough. Peri- operative details of patients scheduled for surgery at the Cardiff and Vale Orthopaedic Centre (CAVOC) was noted. An online survey was handed to anaesthetists to understand local attitudes and barriers to implementing a change in practice.

## **Results:**

Out of 62 patients, 43.5 % received IV 1.0 g paracetamol intraoperatively, 53.2% received a combination of both IV 1.0g paracetamol and IV 75mg diclofenac, and 3.2% of patients received pre- emptive oral paracetamol 1.0g dosage. The survey of 9 anaesthetists demonstrated frequent IV analgesia use with 66.6% of anaesthetists showing positive attitudes to change in practice.

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# **Patient information for anaesthesia**

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Comprehensible, evidence-based patient information about anaesthesia and its risks forms a vital part of informed consent for surgery. Having high quality information helps patients understand the details of the processes involved in their treatment. The Sprint National Anaesthesia Project (SNAP-1) showed that patients reported anxiety as being the worst part of having an operation [1]. Well directed patient information delivered at a suitable level of understanding will not only help reduce anxiety but also enable patients to make informed decisions regarding their treatment. It can also improve patient satisfaction by setting realistic expectations.

The association of Anaesthetists guidelines on consent state that ‘Information about anaesthesia and its associated risks should be provided to patients as early as possible, preferably in the form of evidence based online resource or leaflet that the patient can keep for future reference.’ [2]

The purpose of the audit was to gauge the accessibility and efficacy of the current means of providing patient information at Royal Orthopaedic Hospital NHS Trust, Birmingham, and its impact on patient satisfaction.

## **Methods**

Snapshot data was collected using a questionnaire involving 50 patients who attended a pre-operative assessment to undergo elective orthopaedic surgery at a tertiary orthopaedic hospital. Data was collected on the morning of surgery before meeting with their anaesthetist or surgeon.

Out of the 50 patient responses, 48 were valid.

A staff survey involving 13 staff members was conducted along with the patient survey. The staff involved consultants, registrars, and nurses.

Key questions to be answered were: -

1. Did the staff have training to provide patient information resources?
2. What modalities was the information provided in?
3. Was the patient able to read, understand and able to arrive at an
4. Informed decision owing to the information provided?
5. Is the information/ evidence of information provided to the patient documented in the patient’s notes?

Since no sensitive information was collected, ethics approval was not required.

## Results

Out of the 48 patients, 30 (62.5%) were given a choice regarding the type of anaesthetic they could receive and 44 (92%) found it helpful in making an informed decision regarding their anaesthetic and analgesia options. Information regarding analgesia was offered/ provided to 44 (92%) of patients.

Regarding the modalities of information provided 26(54%) patients received only verbal, 13(27%) were provided with verbal and a leaflet, five (10%) were given three or more modalities of information (verbal, print, digital). One patient (2%) was given leaflet only and three (6%) patients received verbal and digital modalities of information.

None of the patients had any specific needs or language problems in understanding the information and therefore 47(98%) of patients could fully understand and one (2%) could partially understand the information provided to them.

Patient satisfaction was high 38(79%) patients extremely satisfied and 10(21%) satisfied with the medium in which information was provided.

All 48(100%) patients found the depth of information provided to be just right.

Patient anxiety was alleviated with 33(69%) patients describing their anxiety as significantly reduced, 14(29%) found it slightly reduced and one patient didn't have any anxiety to begin with.

Of the 13 staff members interviewed, two were consultants, two registrars, eight Nurses and one advanced clinical practitioner.

Twelve (92%) of staff felt they were adequately trained to access and provide information to the patients.

Common sources of information provided included locally compiled leaflets (33%), online resources (13%), prior experience (13%), trust intranet (11%), RCOA (7%), Posters and QR codes (7%) and miscellaneous/not provided (16%).

Out of the 13 staff, nine (69%) stated that either the information or evidence of information provided was documented in the patient's notes.

Majority of staff had training in patient information, but the survey suggested that there was a significant variability in their approach to provide patients the information they need. Large number of patients were given only verbal information which is poorly retained.

Although the most common source of information provided, according to the staff, was leaflets, there is a discrepancy when looking at the patient survey which suggests that most frequent modality was verbal. Perhaps there is a logistical issue which needs investigating further?

We recommend:

- Training of all Pre-Operative Assessment Clinic (POAC) staff with same material to help provide relevant information which has a common source.
- Patients to be provided multi-modal information for e.g., print, online resources or videos so that they can retain and understand the information better, thereby helping them to arrive at an informed decision.

- Patients who are anxious to be individually assessed for the cause of anxiety and management plan made accordingly.
- Changing the time of collecting patient data as patients are likely to be anxious on the day of surgery.

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# Ultrasound probe disinfection audit/QI project

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The use of US (ultrasound) machine as a mode of imaging has been utilised increasingly in the current practice of medicine especially for blocks and procedures. With the increase in the utilisation of the US machine, there has been an increased risk of transmission of infection as the ultrasound procedures involves contact between patient skin, mucus membrane or sterile tissue and the transducer probe. The risk of pathogen transmission increases when there is failure to follow minimum infection control standards.

## Methods

The aim of the audit was to investigate the cleaning practice of the US machine in ICU (Intensive care unit) department as it poses an infection risk for highly susceptible group of patients. We created a questionnaire and circulated it among the doctors and critical care practitioners who are working on ICU about their knowledge of disinfection of US probe.

## Results

We had a good mixture of study group which included senior trainees, junior trainees, and advanced critical care practitioners. Only 38% of them would clean the probe before use but 100% would clean after use. 69% could identify the correct method to clean the ultrasound probe (detergent wipe) but 31% answered as alcohol wipe, which are dangerous for the piezoelectric crystals in the US probe. 69% were correct in cleaning all the contact points in the US machine which included probe, monitor and cord. 38% were not following all the steps required for disinfection of US probe. Only 7% of the study group were aware of the manufacture recommended steps. We arranged for the detergent wipes to be available on the ultrasound machine. We made a video for the junior doctors which was a part of mandatory training who were joining the department. We also put reminder leaflet on the ultrasound probe to remind everyone to clean the probe before and after use as per manufacture guidelines.

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# **On the day cancellations in elective joint arthroscopy**

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The Hillingdon Hospitals NHS Foundation Trust scheduled a total of 641 elective hip, knee and shoulder replacements over a 12-month period from 1st March 2022. During this time, 49 (7.6%) procedures were cancelled on the day of surgery. This study aims to understand the causes of the cancellations, which factors played a part and how these may be addressed to reduce the rate of cancellations.

## **Methods**

Patient data was collected using electronic patient records (EPRO, Hillingdon Care Record, iReporter, and Medviewer) and compiled in Microsoft Excel. On the day cancellations were identified and grouped into causes including medical causes, clinical decision making, and operational issues. Patient notes were reviewed by the orthopaedic and anaesthetic team to identify the nature of the cancellations, and determine those that were potentially avoidable.

## **Results**

Of the 49 cancellations, 29 (59.2%) were found to be potentially avoidable, of which 14 (48.3%) patients were deemed unfit for surgery on the day by the anaesthetic team. Of these 14, ten (71.4%) patients had pre-operative assessment (POA) input by a consultant anaesthetist. Five high risk patients were inappropriately listed at the non-acute hospital site, despite clear documentation by the POA anaesthetist. An overall loss of £229,173 was incurred from all avoidable cancellations when taking into account the cost of theatre time [1] and implants. The introduction of an on the day POA review has aided the optimisation of patients; thus aiming to minimise the chance of an avoidable on the day cancellation.

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# **Reducing length of stay for patients undergoing primary hip and knee replacement in an elective centre: a multidisciplinary approach.**

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During the recovery phase of the Covid pandemic the length of stay (LOS) for primary total hip replacement (THR) and total knee replacement (TKR) surgery in our Trust increased considerably as compared with pre-Covid data. According to NHS Model Hospital [2] our Trust ranked in the third quartile for mean LOS. A service evaluation project in 2022 revealed significant variation in our anaesthetic practice and showed the majority of patients had spinal anaesthesia with intrathecal morphine. The publication of the Getting It Right First Time (GIRFT) guidelines [1] in March 2023 suggested defaulting to ambulatory care for primary hip and knee replacement surgery. This provided the catalyst for us to implement changes with the aim of reducing our LOS. A multi-disciplinary focus group was set up with the aim of aligning our practice to these national standards.

## **Methods**

A series of changes were made to our primary TKR and THR pathways. These included pre-operative patient education; standardisation of anaesthetic technique with opioid free spinals, multimodal analgesia and anti-emesis, and loco-regional anaesthesia with adductor canal blocks for TKRs and locally infiltrated anaesthetic for all joint replacements; standardised post-operative analgesia; early physiotherapy and clearly defined discharge criteria. The new pathway was implemented from June 2023. Length of stay data was tracked over an eight-month period from January to August 2023 and included all patients undergoing primary TKR or THR at Ashford Hospital, our elective centre. No patients were excluded.

## **Results**

Baseline LOS data was collected over a five-month period from January to May 2023 (pre-change). Two hundred and sixteen patients in this period had a mean length of stay of 3.21 days (SD 1.60). One hundred and thirty-four patients were operated on from June to August 2023 (post-change) with a mean LOS of 2.41 days (SD 1.15); giving an overall reduction in mean LOS of 0.8 days. Twenty-three (17%) patients were discharged on day one post-op between June and August 2023 (post-change) compared with nine (4%) patients (pre-change). The results show a positive change in reduction of LOS by implementation of GIRFT guidance. The most impactful change likely being the use of opioid free spinal anaesthetics enabling early mobilisation. The result is a reduction in bed days and cost saving for the

Trust. Further work needs to be done to establish the impact on patient reported outcomes and satisfaction with the new pathway.

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