THE NAUGHTON DUNN CLUB

Regional Trauma and Orthopaedic Research Meeting

Winter 2020 Virtual Meeting

Friday November 20th 2020

Presentation Format

5 minutes presentation (power point – via screenshare)

+ 3 minutes questions

Contents:

About The Naughton Dunn Club

Mr Naughton Dunn was born in Aberdeen in 1884 and was educated in the grammar school and university of that city, graduating in medicine in 1909.

His interest in orthopaedic surgery began with his appointment as house surgeon to the late Sir Robert Jones at the Royal Southern Hospital, some years before the Great War.

At the end of 1917 Sir Robert Jones transferred Major Dunn to Birmingham as surgeon in charge of all military orthopaedic hospitals in the area.
Following his training in orthopaedic surgery, he transferred to Birmingham, where he became associated with the Birmingham Cripples Union.

He was connected with many hospitals in the Midlands, both in an active and in an advisory capacity, and he held a very important post of lecturer in Orthopaedic Surgery at the University of Birmingham.

He played major part in amalgamating both the Birmingham Cripples' Union and the Woodlands with the Royal Orthopaedic and Spinal Hospital to become the first Royal Cripples' Hospital and now the Royal Orthopaedic Hospital.

Wider recognition of the value and originality of his work came to him through his efforts during and after the Great War. He was a founding member of the British Orthopaedic Association of which he was president in 1938/3

Current Naughton Dunn Club Committee

President: Mr H Prem
Secretary: Mr CE Bache
Treasurer: Mr C Docker
Trainee Representatives: Ms S Howles and Mr G Chauhan

Session I – Chair: Mr CE Bache

14:00 – Repeat Revision TKR for Failed Management of Peri-prosthetic Infection has long term success but often require multiple operations: A Case Control Study

H Rajgor, H Dong, R Nandra, M Parry, J Stevenson, L Jeys
Royal Orthopaedic Hospital, Birmingham

14:10 – Is there an argument for implant related cost reduction in Anterior Cervical Decompression and Fusion (ACDF)? A pragmatic single centre retrospective comparative review of complication profile between PEEK cages and Zero-P cage screw constructs.

B Balakumar, F Hassan
Royal Orthopaedic Hospital, Birmingham

14:20 – Proximal femoral fracture 30-day mortality at a UK regional elective centre during coronavirus pandemic contingency management

A Beaven, D Piper, C Plant, Y Agrawal, A Sharma, G Cooper
Royal Orthopaedic Hospital, Birmingham

14:30 – The management of ambulatory trauma via a 'one-stop-shop' T+O led clinic, in response to the Covid-19 pandemic

S Howles, T Mahmood, S Lala, A Pearse, C Docker
Worcestershire Royal Hospital

14:40 – The impact of Major Trauma Centre designation on routine orthopaedic care

J Archer, A Odeh, D Piper, E Moore, A Butt, R Fawdington, P Fenton
University Hospitals, Birmingham

Session II – Chair: Mr C Docker

15:00 – How much does a Medical and Healthcare Products Regulatory Agency (MHRA) medical device alert for metal-on-metal hip arthroplasty patients really cost?

RS Nandra, U Ahmed, F Berryman, L Brash , DJ Dunlop, GS Matharu
Royal Orthopaedic Hospital, Birmingham

15:10 – The Impact of the COVID-19 Pandemic on Trauma Surgery in a UK District General Hospital

G Chauhan, J Kaur, V Dewan, A Habeebullah, G Pemmaraju
New Cross Hospital, Wolverhampton

15:20 – Are we performing unnecessary Knee Radiographs at a Major Trauma Centre (MTC) in the context of the Ottowa Knee Rules (OKRs)

V Menon, A Vasudev, R Prakash, R Jordan, N Smith
University Hospitals Birmingham

15:30 – Experiences of less than full-time training

O Payton
University Hospital Coventry and Warwick

15:40 – Prevalence of Peri-Operative Anaemia and Blood Transfusion Requirements in Patients Undergoing Resections of Bone and Soft Tissue Sarcomas and Metastatic Bone Disease

R Mahoney, U Khattak, Z Djoudi, S Evans, B Smith, K Nyangoni
Royal Orthopaedic Hospital, Birmingham

Session III – Chair: Mr H Prem

16:00 – Is a Cheilectomy Non-Inferior to Fusion in Severe Grade III or Grade IV Hallux Rigidus?

N Pandit, E Jenner, R Wall, M Pereira
Alexandra Hospital, Redditch

16:10 – Acute versus delayed distal biceps tendon repair: Comparison of functional outcomes & complications at average 40 months follow-up

D Thurston, N Green, S Elashry, S Gella, T Singh, S Deshmukh, K Theivendran
Sandwell and West Birmingham Hospitals NHS Trust

16:20 – Management of Native Joint Septic Arthritis - Serial Aspiration vs Arthroscopic Washout During the Covid 19 Pandemic

D.Piper, G.Smith, J.Archer, H.Woffendon, D.Bose
University Hospitals Birmingham

16:30 – 'Positives in a Pandemic' The Birmingham Trauma and Orthopaedic Training Experience during the Covid-19 Pandemic

G Smith, E Battaloglu, R Nandra, A Marsh

16:40 – Evidence based review of safe theatre practice during COVID-19 pandemic: Beyond

M Khalefa, N Khadabadi, T Moores, F Hossain
Walsall Manor Hospital

16:50 – The relationship between operating surgeon's seniority and intra-operative radiation dose in the management of hip fractures

A Bruce, A Habeebullah, R Golmohamad, S Shah, A Gulati
Sandwell and West Birmingham Hospitals NHS Trust

BIRMINGHAM ORTHOPAEDIC TRAINING PROGRAM TRAINER OF THE YEAR 2019-20

Mr C E Bache

Consultant Paediatric Orthopaedic & Young Adult Hip Surgeon
Birmingham Children's Hospital & The Royal Orthopaedic Hospital

Mr Bache qualified from Birmingham University Medical School in 1990. He completed orthopaedic training within the West Midlands programme, undertaking a fellowship in paediatric orthopaedics in Australia at The Royal Children's Hospital, Melbourne. In 2003 he was appointed as a consultant at The Royal Orthopaedic Hospital and Birmingham Children's Hospital, where he has based his practice ever since. A key part of his practice involves management if adolescent and young adult hip conditions, however he also maintains a general paediatric orthopaedic practice, managing conditions including trauma, infections, cerebral palsy and other neuromuscular conditions. Mr Bache also has a strong interest in research, with more than 30 published articles in peer reviewed journals.

Over many years Mr Bache has shown commitment to training within the West Midlands and this is reflected in the large number of nominations he has received for this years' Trainer of the Year. He is well respected by trainees as an excellent surgeon and role model. He is always willing to train operatively, and leads by example, providing fantastic clinical care to patients. He is always calm and polite, even in situations of stress, which, makes him a popular member of the paediatric orthopaedic team. Mr Bache treats everyone with respect, regardless of their job role or position within the team, and his humility and humour make him very popular with staff and patients alike. He has been described by one of the nominating trainees as 'the kind of consultant who if you were in a jam or needed advice regarding a patient, regardless of where you were working, would be happy to help'.

Mr Bache is heavily involved in the delivery of teaching on the Birmingham Orthopaedic Training Programme. He has also been the secretary of the Naughton Dunn Club, for the last 14 years, providing countless opportunities for trainees to present their work at twice yearly regional meetings, and ensuring the continuation of the club.

The registrars of the Birmingham Orthopaedic Training Programme would like to thanks Mr Bache for his commitment to training in our region.

2020 ESSAY COMPETITION – PRIZE WINNING ESSAY

Can trauma surgeons save the world from coronavirus: Lessons from History

(The invigorating folks fighting the pandemic)

No smugness, but trauma surgeons batting in the field out there are sure to infuse in aplomb into the world that is currently squelching with the new bug in town. Hear! Hear! Corona is here! Let us riffle through pages of history and resuscitate our 'decayed hopes'. The dawn of the 21st century witnessed a pandemic gash of high energy trauma injuries (no imagining scenes from Vertical Limit now). Knock! Knock! Come in life-saving measures. Welcome the advent of the golden hour, triaging, ambulances, air ambulances (that saw the upliftment of both man and medical services, literally), fastidious haemostasis advances, limb splinting and the boom of advanced resuscitation protocols. The universal management of trauma gave impetus to the evolution of the ATLS protocol. Liaison between the civilian and military practice transferred knowledge from the battlefield to the doorstep of civilian practice, decimating gaps in trauma care.

The COVID19 fist bumps (while we now do a bemused contactless 'hello') with the multiple pandemics the human race has witnessed. The *Homosapien* boorish pride on the globalization of trade, urbanization, global warming and ad nauseam travel has made a mishmash of the ecology, and hence ensues the emergence of new infectious diseases of pathogens with enormous replication rate and awry genomic dynamics. To tackle the new guest, COVID19 (never responded to our RSVP), who is here on a never-ending holiday would be robust readiness, taking lessons from disaster preparedness in trauma care. Emerging civilian knife crimes, gunshot and blast injuries mandate surgeons to undergo obligatory disaster management training. Now CTRL+C the system to the public health infectious disease arena, and prepare to encounter the pathogen (do not underestimate the few strands of the RNA). To be forewarned is to be forearmed.

COVID19 stares at us with animosity spewing deaths, but a smaller giant compared to the black death of the 14th century. Better science and technology has perhaps invigorated patient management. Interestingly, the universal panacea seems to be quarantine, economically disastrous lockdown (cut the grocery hoarding), herd immunity, no different of what medieval fellow folks followed. Don't forget that medieval barbers were surgeons before the real surgeon was born. Advances in pre-hospital care of trauma cases stem from astute observations of researchers who visited the field during world war and the 1918 Spanish-flu. Better health intelligence services thereby emerged improving the preparedness for major trauma incidents. When effective use of intelligence and communication saved many a life from trauma during the war, can we not incorporate the concept in outbreaks (come in 5G?)?

No obfuscation, yes, trauma surgeons can help save the world grappling with COVID19. Trauma centres worldwide triggered emergency responses, with many surgeons donning and doffing (sweat, sweat) along with intensivists to manage the fracas between humans and COVID19. The unique skills (ahem) of trauma surgeons have proved to be handy in proning as a pivotal cornerstone to improve outcomes of ventilated COVID19 patients! Perhaps did intensivists snip trauma triage system to apportion ventilators/ECMO?!

Restlessness loomed in at large at homes amidst lockdown (corona baby boom on the horizon?). The edginess saw an exponential surge in DIY enthusiasts! Mind the falls from ladders, heights, cut injuries, broken bones and sometimes broken hopes too, which were still tended to by trauma teams during the lockdown. The timely and appropriate surgical attention rendered might hopefully help the economy stay afloat post lockdown, while fellow intensivists are muscles up with COVID19.

Redeployment of the staff, built a greater workforce (more hands donning and doffing though) and trauma teams have been magnanimous donors of junior doctor workforce (flex your biceps up now) across many hospitals on this frontline fight to the bug. Trauma surgeons were omnipresent (amen), be it the emergency, medical wards, intensive care, minor injury units, operating rooms, trauma surgeons simply chipped in. Elective surgeries came to a screeching halt to ensure beds were available for the COVID sick, to halt disease spread and to free up gas machines and oxygen supplies in the hospital. Emergency surgeries were largely restricted to cancer-related and limb/life threatening trauma surgeries. A line being drawn for time-critical trauma surgeries, in a planned manner to contain the spread of the virus is applaudable. Brawn and brain were equally exercised by we trauma surgeons given the situation (hold on, not like we put both to use only during a pandemic). Talking about brawn, the times of Sir John Charnley re-visited, wherein closed management saw stardom amidst COVID19 from orthopods who have quite a thirst for the shimmer on their patients' X-rays! However, surgeons did not stop operating cases that warranted surgery, even if COVID19 positive, with due precautions on time. Not to leave out other specialities (need their timely consults for our patients, better acknowledge them) who too pitched in beautifully.

Finally, trauma surgery and its history have pivotal experiences for public health to mirror. Given that we can expect more such pandemics (looks like physicians and surgeons need to open the Corrigan's secret door more frequently in future), trauma surgeons are going to play even bigger roles on the frontline arena. The immediate deaths that declined during the golden hour with simple pragmatic measures based on the experiences and studies in trauma surgery is a fine example for the public health system that needs to refine emergency steps in a pandemic. Trauma surgeons may not have directly stopped the pandemic or saved the world, but have been pivotal frontline warriors (else would taste like the awful gin without the tonic). The field has indirectly, with their rich history and practical strategies shown the world the way forward in improving care and saving lives amidst a pandemic, destressing the health system to accommodate the response for the COVID19 pandemic. With the easing of lockdown and reopening of the economy, should a second wave surge, the history and experience of trauma are in to guide!

When Corona plunders,
Trauma philosophy bolsters,
With the disease spreading….
And WHO grappling….
Trauma surgeons come in as angels,
Comforting the sick amidst COVID19's mangles!

References:

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By Balakumar Balasubramanian (ST4 T&O), Birmingham Orthopaedic Training Program

1st PLACE - PRIZE WINNING PAPER

Proximal femoral fracture 30-day mortality at a UK regional elective centre during coronavirus pandemic contingency management

A Beaven, D Piper, C Plant, Y Agrawal, A Sharma, G Cooper
Royal Orthopaedic Hospital, Birmingham

Background: COVID-19 led to the reconfiguration of UK orthopaedic trauma services as surgical capacity was threatened in acute centres. We report the mortality of proximal femoral fractures in older adults from an elective orthopaedic centre during March -May 2020.

Methods: All patients over 60 years with a fragility femoral fracture were prospectively identified.

Results: 177 patients were treated in the elective site from a total of 202 emergency presentations. Median age was 88 (IQR83-79), median Charlson comorbidity index (CMI) was 4 (IQR 4-6), median length of stay 8 days (IQR 6-11). Median time from ED admission to operative management was 24.5 hours (IQR 18.8 – 34.7). In-hospital mortality was 8.5% and 30-day mortality 9.0%.

Twenty-nine patients (16.4%) tested positive for COVID-19 during their admission of which 10 died; case fatality rate 34.5%. The median age of patients testing positive for COVID-19 was 87 (IQR 76-91), median CMI was 5 (4-6). There was no statistically significantly difference in age (p=0.33), nor CMI (p=12.6) between those patients who tested positive and those who didn't.

Conclusion: During a pandemic an elective orthopaedic centre can be reconfigured to a cold-site surgical centre for hip fractures with acceptable healthcare quality outcomes.

2nd PLACED PAPER

How much does a Medical and Healthcare Products Regulatory Agency (MHRA) medical device alert for metal-on-metal hip arthroplasty patients really cost?

RS Nandra, U Ahmed, F Berryman, L Brash , DJ Dunlop, GS Matharu
Royal Orthopaedic Hospital, Birmingham

Concerns have been raised about regular surveillance for Metal-on-metal hips. We determined the cost of implementing the 2015 MHRA surveillance in "at-risk" Birmingham Hip Resurfacing (BHR) patients.

All BHR patients subject to the recall were invited for review (707 hips). Surveillance costs were calculated using finance department data, as was the number needed to treat (NNT) to avoid missing one case of asymptomatic ARMD.

The overall surveillance cost to investigate all patients once was £105,922. 31 hips had imaging evidence of ARMD (12 revised). The NNT to avoid missing one case of asymptomatic ARMD was 101 patients, equating to a screening cost of £18,041 to avoid one case of asymptomatic ARMD.

Implementing surveillance for "at-risk" BHR patients was extremely costly. The risk of asymptomatic ARMD was low. Perhaps the 2015 MHRA surveillance is not cost-effective.

We therefore have concerns about the increasingly intensive surveillance recommended in the 2017 MHRA guidance.

3rd PLACE PAPER

Management of Native Joint Septic Arthritis - Serial Aspiration vs Arthroscopic Washout During the Covid 19 Pandemic

D.Piper, G.Smith, J.Archer, H.Woffendon, D.Bose
University Hospitals Birmingham

Septic arthritis remains a surgical emergency which requires prompt diagnosis and management. During the COVID-19 Pandemic, BOAST guidelines dictated that medical treatment (closed-needle aspiration) should be offered to patients as first line management, and operative treatment (arthroscopic washout) be reserved for patients exhibiting signs of sepsis. Literature has previously shown that for native joint septic arthritis operative treatment is not superior to medical treatment.

Between March 2020- June 2020, we prospectively followed the outcome of 6 patients who presented with confirmed native joint septic arthritis. All 6 patients underwent initial medical management following their diagnostic aspiration. Four patients went on to have an arthroscopic washout at an average of 8 days following admission. The decision for operative management was the patient's clinical haemodynamic deterioration. All of the 4 patients that proceeded to operative treatment failed to provide culture yield at the time of arthroscopy. The average time to discharge was 15.6 days. The average time to discharge following operative intervention was 12 days.

Medical management of septic arthritis may play a role in patients unable to undergo a general anaesthetic. We found operative management to be therapeutic clinically and haemodynamically as well as facilitative of a faster recovery.

OTHER ABSTRACTS

Repeat Revision TKR for Failed Management of Peri-prosthetic Infection has long term success but often require multiple operations: A Case Control Study

H Rajgor, H Dong, R Nandra, M Parry, J Stevenson, L Jeys
Royal Orthopaedic Hospital, Birmingham

Aims: Management of prosthetic joint infection (PJI) is associated with poor outcomes and catastrophic complications. The aim of this study was to present the outcomes of re-revision surgery for PJI of the knee following previous failed two-stage exchange arthroplasty.

Methods: We retrospectively analysed 32 patients who underwent re-revision knee arthroplasty, having already undergone at least one previous two-stage exchange for PJI, between 2009 and 2018, with a minimum follow-up of two years(mean follow-up 40 months(2 to 99 months)). Outcomes were compared to a matched control of two-stage revisions for PJI of a primary knee replacement. Primary outcomes investigated were eradication of infection and re-operation. Secondary outcomes were five-year mortality and limb-salvage rate.

Results: Successful eradication of infection was achieved in 50% of patients following re-revision surgery at the first treatment episode, compared with 91% following two-stage exchange of primary knee replacement for PJI (p<0.001). Fourteen(44%) patients required further re-operation compared with three (9%) patients in the primary group (p=0.006). Amputation was performed in one case(3%) with thirteen patients(92%) had infection controlled by DAIR, further revision surgery or arthrodesis. Two patients died with infection (6%) and therefore the long-term rate for infection control was 91%. The mean number of procedures following surgery for the re-revision group was 2.8(0-9) compared with 0.13 (0-1) for the primary two-stage group (p<0.001). Five-year patient survival was 90.6%(95% CI 77.1 to 100). Multi-drug resistant organisms were present in 14(44%) patients in the re-revision group. The limb-salvage rate for the re-revision cohort was 97% at final follow-up.

Conclusion: Outcomes for re-revision knee arthroplasty for PJI have higher re-operation and failure rates, but no worse mortality than in revisions of primary knee replacements for PJI. Failures can successfully be managed by further operation. This supports the move to concentrate expertise for eradicating recurrent knee PJI within specialist MDTs.

Is there an argument for implant related cost reduction in Anterior Cervical Decompression and Fusion (ACDF)? A pragmatic single centre retrospective comparative review of complication profile between PEEK cages and Zero- P cage screw constructs.

B Balakumar, F Hassan
Royal Orthopaedic Hospital, Birmingham

Background: ACDF is a common surgery recommended for symptomatic cervical degenerative disc disease after failed conservative care. There is no consensus on the choice of implants, and it varies between surgeons. This study aims to analyse the early complications following Anterior Decompression and Fusion (ACDF) performed using a standalone cage versus a pricier Zero-P (Cage Screw – (CS)) construct for patients with cervical degenerative disc disease.

Methods: A total of 162 patients underwent an ACDF in between August 2016 to July 2018. There were 83 patients (111 levels) with standalone cage (SA) and 79 patients (111 levels) with cagescrew (CS) fixation. There was no difference between the groups in terms of age, gender, and levels of surgery. The follow-up ranged from 2 months to 24 months. Complications, both clinical and radiological were assessed between the groups

Results: Both the SA and Zero P (CS) groups were subdivided into single and multilevel surgery. Complications encountered in the SA group were temporary swallowing problems 10, hoarseness of voice 3, cage migration 1, delayed union 1, Horner's syndrome 1. In the CS group swallowing problems 4, hoarseness of voice 4, CSF leak 1, recurrent symptoms 1. The observed difference in the incidence of complications between the groups did not reach statistical significance. Univariate analysis between the groups did not show any difference in the improvement of cervical sagittal balance, fusion rate, subsidence, and complications encountered. Multivariate logistic regression analysis for complications showed no difference between the groups when assessed for smoking gender, age, Charlson comorbidity index, levels of surgery, fusion status, Odom score, or the type of implant.

Conclusion: In this short-term study the standalone cages showed no difference in their complication profile in comparison to a cage-crew construct for both single and multilevel ACDF. Standalone cages might be a more economical option without increased complication risks. Nevertheless, we propose a longer-term follow up with a prospective randomized trial for further evaluation of this finding.

The management of ambulatory trauma via a 'one-stop-shop' T+O led clinic, in response to the Covid-19 pandemic

S Howles, T Mahmood, S Lala, A Pearse, C Docker
Worcestershire Royal Hospital

Introduction: In response to a rising number of coronavirus cases, in April 2020 the British Orthopaedic Association (BOA) issued a series of emergency guidelines for the management of trauma and orthopaedic patients during the pandemic. In line with this guidance, the orthopaedic team at Worcestershire Royal Hospital set up a seven-day 'one-stop-shop' minor injuries unit (MIU), with the aim of reducing pressure on the emergency department and the need for fracture clinic appointments.

Methodology: Data was collected retrospectively from a clinic database, dictated letters and scanned patient notes. The data collection period was from 20/04/2020 to 18/05/2020. Data collected included patient age and gender, time of arrival and departure, grade of reviewing clinician, diagnosis, management and the clinic outcome, including timing of follow up.

Results: 700 patients were seen in MIU over the 6 week data collection period. 98% of patients were seen by a middle grade doctor or consultant and 85% were seen and treated within an hour. 71% of patients were discharged after initial appointment, and only 9 (1%) required a fracture clinic appointment within 72 hours. 15 patients (2%) re-attended, and just four required additional intervention.

Conclusions: We delivered a seven-day minor injuries service in which the majority of patients received consultant-led definitive management at first appointment. The lessons learned will inform our practice into the second peak of the pandemic and beyond.

The impact of Major Trauma Centre designation on routine orthopaedic care

J Archer, A Odeh, D Piper, E Moore, A Butt, R Fawdington, P Fenton
University Hospitals, Birmingham

Introduction: Major Trauma networks were introduced in 2012 to improve care for patients with major traumatic injuries. Current evidence suggests that this has been successfully achieved; however, there are implications for 'routine trauma care'.

Methods: We assessed time from injury to surgery in August to October 2011 and 2019. We also assessed the National Hip Fracture Database outcomes for time to surgery in the same period.

Results: Average wait times for ankle surgery in 2011 was 4.9 days (18 patients) and by 2019 it was 7 days (26 patients). Average wait times for distal radius surgery in 2011 was 3.9 days (36 patients) and in 2019 it was 6.5 days (23 patients). 53.7% of patients received their hip fracture surgery within 36 hours in 2011 (322 patients) compared to 66.7% in 2019 (375 patients).

Conclusion: This shows that wait times for 'routine trauma care' have increased since the introduction of the major trauma network. This is probably due to the large demand on major trauma centres presented by complex trauma. However, the care of patients undergoing hip fracture surgery has improved. Changes to the current major trauma system or an increase in resources are required to help reverse this trend.

The Impact of the COVID-19 Pandemic on Trauma Surgery in a UK District General Hospital

G Chauhan, J Kaur, V Dewan, A Habeebullah, G Pemmaraju
New Cross Hospital, Wolverhampton

Introduction: The 2020 Coronavirus pandemic led to changes to the NHS system, and social life in the UK. We evaluated the impact of the pandemic on trauma surgery in our unit.

Methods: From 1/3/20 to 31/5/20, the first wave of the coronavirus pandemic, we prospectively collected data for all patients undergoing trauma surgery. We collected demographics, mechanism of injury, time to surgery, length of stay, incidence of Covid-19 and mortality. We also compared this to the same time period in 2019 and 2018.

Results: There were 318 surgical trauma cases. This compares with 423 in 2019 and 444 in 2018. Focusing on 2020 data, 108 were femoral neck fractures, 26 were for infections, 13 were paediatric injuries, 54 were high energy injuries, 11 were DIY injuries and just 5 were injuries at work. The mean time from injury to admission was 4.0 days, and admission to surgery 1.2 days. 210 patients were tested for Covid-19, with 20% (42) of these being positive. 23 of the 42 positive patients (55%) had died by 30 days.

Conclusion: This study showed that there was a reduction in trauma admissions during the coronavirus pandemic. It also highlights the high mortality rates in Covid positive patients.

Are we performing unnecessary Knee Radiographs at a Major Trauma Centre (MTC) in the context of the Ottowa Knee Rules (OKRs)

V Menon, A Vasudev, R Prakash, R Jordan, N Smith
University Hospitals Birmingham

Background: Multiple research studies have validated that the OKRs are highly sensitive in identifying patients who require an x-ray for suspected knee fractures, thus reducing potential unnecessary investigations.

Aims: To investigate the compliance with the OKRs at a MTC A&E department and whether unnecessary x-rays are being requested.

Method: 200 consecutive knee x-rays for suspected fractures were retrospectively evaluated. A standard of 95% compliance was set as per RCR guidelines, where at least one of the five OKRs should be satisfied on the request form.

Results: 32% of referrals failed the OKRs criteria. For those under 55, and therefore not immediately satisfying one of the OKRs, this rose to 57.1%. 26.6% of unjustified x-rays, as per the referral, were in fact justified upon evaluation of patients' clinical documentation. 46 of 200 x-rays were unjustified and resulted in no fracture, and therefore represent a potential saving of cost, time and radiation exposure.

Conclusion: All unjustified knee x-rays resulted in no fracture with unnecessary radiation and cost. This study reaffirms that the OKRs have between 90-95% sensitivity in identifying potential knee fractures. As such efforts should be made to improve compliance thus reducing potential radiation harm and financial implications.

Experiences of less than full-time training

O Payton
University Hospital Coventry and Warwick

Introduction: Over 10% of the workforce is less than full-time; this may increase as more people turn to flexible training. The main reason for LTFT training remains childcare. Flexible training brings unique issues. LTFT trainees may encounter difficulties with rotas, supervision and mentoring. Understanding these will improve the training experience for those working flexibly.

Method: This qualitative study seeks the experiences of LTFT trainees and their supervisors. These experiences were collated via an anonymous questionnaire that was sent electronically.

Results: Supervisors responded from different specialties with a range of 11 months to 20+ years as a consultant. Most people had a role as clinical or educational supervisors. A quarter had personal +/- LTFT-supervisor role. Over half of the respondents stated they never received any training or information regarding LTFT, 80% of these said it would have been useful. Trainees responding felt that most of the responsibility for organising their rotas and checking pay fell to them, which added a significant amount of time and stress.

Conclusion: In conclusion both trainees and consultants state that a lack of information makes it difficult to manage LTFT trainees. Better management is felt to be a benefit to all.

Prevalence of Peri-Operative Anaemia and Blood Transfusion Requirements in Patients Undergoing Resections of Bone and Soft Tissue Sarcomas and Metastatic Bone Disease

R Mahoney, U Khattak, Z Djoudi, S Evans, B Smith, K Nyangoni
Royal Orthopaedic Hospital, Birmingham

Background: Peri-operative anaemia is associated with increased risks of post-operative complications, blood transfusion and mortality. Correction of anaemia in patients undergoing elective orthopaedic surgery and colorectal oncological resections has been shown to reduce transfusion requirements and improve outcomes.

Aim: We investigated the incidence of peri-operative anaemia and requirement for blood transfusion, as well as the factors associated with need for peri-operative blood transfusion.

Methods: Data was collected on pre- and post-operative haemoglobin, and transfusion requirements on all oncological resections and amputations performed at a single centre from 1st January 2020 to 2nd September 2020.

Results: 127 patients underwent surgery during this time, 27% of which required peri-operative blood transfusion. Mean drop in haemoglobin following surgery was 20.6g/L. The group at highest risk for needing blood transfusion were patients undergoing a hemi-pelvectomy (67%). In those transfused, the mean pre-operative haemoglobin was 111, dropping to 87 post-operatively. 7.5% of patient who didn't receive a blood transfusion during the admission were discharged home on oral iron supplementation.

Conclusion: Peri-operative anaemia is a significant problem in our patient cohort. By optimising these patients prior to surgery we could potentially reduce risk of post-operative morbidity, transfusion requirements and length of stay.

Is a Cheilectomy Non-Inferior to Fusion in Severe Grade III or Grade IV Hallux Rigidus?

N Pandit, E Jenner, R Wall, M Pereira
Alexandra Hospital, Redditch

Background: Arthrodesis is the current gold standard for treatment of hallux rigidus (HR). Few studies have assessed the efficacy of cheilectomy, a joint sparing procedure, in severe HR. Here we aimed to assess if cheilectomy alone is an effective surgical treatment for the management of severe hallux rigidus.

Methods: Retrospective analysis of patients who underwent cheilectomy in a single centre over a 15-year period. The degree of first MTPJ arthritis was graded radiologically according to the Coughlin and Shurnas classification. For patients in whom the pre-operative grade was severe (3 or 4) we assessed their functional status using the Foot and Ankle Outcome score (FAOS) with a minimum of 12-month follow up. The FAOS is a patient reported outcome totalling 0-100 (with 100 being asymptomatic, normal function). We compared our result with those for arthrodesis for severe HR using previously published FAOS scores. (1)

Results: A total of 22 patients underwent cheilectomy for severe HR. 13 completed the FAOS and hence were included in the full analysis. The mean FAOS score post-operatively was 60.0 (range 0-92) with 6 patients (46%) scoring >/= to 70. The mean postoperative FAOS score for arthrodesis was 80.0.

Conclusion: Cheilectomy provides a potential alternative to arthrodesis in severe HR. In appropriately selected patients, functional outcomes are acceptable, even many years post operatively. Published outcomes for FAOS are better for arthrodesis although larger comparative studies are required to determine whether this is statistically and clinically relevant. Ultimately, the choice of procedure should be centred around the patient's goals and expectations but this study suggests that cheilectomy should not necessarily be excluded on HR grade alone.

Acute versus delayed distal biceps tendon repair: Comparison of functional outcomes & complications at average 40 months follow-up

D Thurston, N Green, S Elashry, S Gella, T Singh, S Deshmukh, K Theivendran
Sandwell and West Birmingham Hospitals NHS Trust

Distal biceps tendon rupture is an uncommon injury for which surgical repair is typically recommended. Whilst functional outcomes and strength are typically good irrespective of time to surgery, delay to repair can result in increased complications. Our aim was to determine patient satisfaction & post-operative complication rates following distal biceps tendon repair and compare those repaired acutely with those whose repair was delayed.

Single-centre, multi-surgeon retrospective review of all distal biceps tendon repairs between April 2014 and April 2018. Data were collected on mechanism and laterality of injury, hand dominance, surgical timing & technique, and post-operative complications. Telephone interviews were conducted to determine patient satisfaction, utilising the Oxford Elbow Score (OES) and Quick Disabilities of Arm, Shoulder and Hand (QDASH) outcome measures.

29 patients identified (100% male), average age 40. 21 patients repaired within 2 weeks of injury. Two minor post-operative complications reported. 19 patients were available for telephone follow-up. Average follow-up period was 40 months. Average OES was 46 (range: 42 – 48), and average Q-DASH was 1.6 (range: 0 – 9.1). When comparing acute and delayed surgical repair, there was no significant difference in either OES ($p=0.82$) or Q-DASH ($p=0.54$), nor in post-operative complication rates ($p=0.47$).

Patient satisfaction following distal biceps tendon repair remains high and complication rates are very low, irrespective of time to surgery, even beyond three years post-operatively. To our knowledge this is the longest follow up period yet comparing acute and delayed repair.

‘Positives in a Pandemic’ The Birmingham Trauma and Orthopaedic Training Experience during the Covid-19 Pandemic

G Smith, E Battaloglu, R Nandra, A Marsh

This presentation reports the experience of senior T&O trainees during the Covid-19 Pandemic at one of 27 Major Trauma Centres in England. Significant changes were made to daily clinical practice, meaning specialty experience would be different, with concerns that this may prolong training. A novel approach was taken to counter this and provide unique training, whilst also creating resilience for sickness and shielding. Trainees worked under direct mentorship of orthopaedic trauma consultants. This report details the experiences and training opportunities. It recommends formalising this process, whereby senior trainees perform daytime, directly mentored consultant level work, creating a smooth transition from trainee to consultant. Finding a positive for training during Covid-19, requires dissemination to a wide orthopaedic audience at the Naughton Dunn Meeting.

Evidence based review of safe theatre practice during COVID-19 pandemic: Beyond

M Khalefa, N Khadabadi, T Moores, F Hossain
Walsall Manor Hospital

Introduction: Despite easing of lockdown restrictions worldwide, COVID-19 remains a threat for a fear of a second pandemic. Emergency orthopaedic operations are still amongst the most commonly performed procedures with increased risk of transmission of SARS-CoV-2 virus to the patients and the healthcare workers. The aim of this study was to present the evidence available into best practices limiting spread of COVID-19 in healthcare setting during current and future pandemics.

Methods: A systematic review of literature was performed in multiple databases using 'COVID19' with other relevant keywords in different combinations. Due to the limited and heterogeneous evidence available, data was presented in a narrative manner.

Findings: A multimodal approach to minimise pathogen transmission is required. This comprises the wider engineering and administrative controls. Traffic control bundling, theatre flow and logistics, ventilation and waste management form pivotal role in the engineering controls. Administrative measures include policies for both patients and staff. For patients, isolation and pre-operative screening are of utmost value. For staff, testing for COVID-19, risk assessment, redeployment and provision of PPE along with the necessary training are important administrative controls.

Conclusion: We believe these measures are likely to improve sustainability of resources and can be carried to elective settings and help mitigate effects from future pandemics.

The relationship between operating surgeon's seniority and intra-operative radiation dose in the management of hip fractures

A Bruce, A Habeebullah, R Golmohamad, S Shah, A Gulati
Sandwell and West Birmingham Hospitals NHS Trust

Introduction: The use of fluoroscopic imaging intra-operatively in fixation of neck of Femur Fractures is commonplace but has side effects related to radiation. It is an operation many orthopaedic surgeons learn to do early in their careers. This study aimed to analyse the relationship between the level of experience of the operating surgeon and the radiation dose administered during fixation of neck of femur fractures.

Methods: A retrospective study was performed which included 305 patients using operative notes, patient records and radiographs between Jan 2018 and Dec 2019. The grade of operating surgeon was subdivided into Consultant, Senior Trainee (>5 years of experience), and Junior Trainee (<5 years of experience). Comparison was made of the effect of the training grade of operating surgeon on the radiation dose, as measured by centi-Gray/cm^2 ($cGcm^2$).

Results: The study included 305 patients. Primary operating surgeon was a Consultant in 55 cases (17.8%), Senior Trainee in 165 (53.3%), and Junior Trainee in 89 (28.8%). The mean intra-operative radiation dose administered was 164.7$cGcm^2$ for Consultants, 174.0$cGcm^2$ for Senior Trainee, and 261.3$cGcm^2$ for Junior Trainee. There was a statistical difference in the amount of radiation between the three groups ($p=0.001$) when comparing different classification of fractures against surgeon seniority.

Conclusion: Our study demonstrates that the amount of intra-operative radiation dose used in the fixation of hip fractures is inversely proportional to the experience of the primary operating surgeon. We conclude that hip fixation procedures are good training opportunities for junior surgeons but should always be carried out with a scrubbed consultant to help reduce the amount of harmful radiation the patient is exposed to.

NB The below paper was also accepted for presentation at the meeting, but unfortunately the author was unable to present due to illness:

Index radiographic measurements in the prediction of progression in infantile idiopathic scoliosis; a comparative analysis and description of a novel predictive model

A Lloyd, M Jones, A Gardner, M Newton Ede
The Royal Orthopaedic Hospital, Birmingham

Background: Prognosis of IIS at index presentation is ambiguous despite use of previously described radiological markers. The aim of this work was to assess the comparative accuracy of index radiological measurements in the prognosis of IIS and build a parsimonious prognostic model utilising these measurements.

Methods: This was a retrospective analysis of a UK population of patients with IIS. Index radiological parameters were analysed and outcome of their condition determined over long term follow up. Comparative accuracy of each measure was determined by logistic regression analyses and the corresponding receiver operating characteristic (ROC) curve. A predictive model of IIS progression using these measurements was then created.

Results : All three radiological measurement categories were predictive of IIS progression. However, on pairwise comparison of ROC curves and multivariate analysis, the index Cobb angle proved the most significant predictor of curve progression. A predictive model of curve progression achieved an accuracy of 81.18% with a cut-off Cobb angle of 34.5° found to be the optimal threshold to discriminate a progressive from resolving curve.

Conclusion: Of the analysed index radiological parameters commonly used by surgeons in the prognosis of IIS, we found the Cobb angle is the most accurate predictive measure.