

Scottish Spine Surgeons

~10th Meeting - 2017 - Inverness



Timetable:

Day 1: Friday 10th November			
Session 1 (Chair: Colin McNair)			
09:50-12:30	09:50	Welcome	Mr Gerry Cousins
	10:00	Spinal Infection- an update	Dr Alex Cochrane
	10:45	Blood loss during Spinal surgery	Mr Rakesh Dhokia
	11:30	Cauda equina syndrome; the frustrations and potential for improvement	Mr Patrick Statham
12:30-13:30	Lunch		
Session 2 (Chair: Gerry Cousins)			
13:30-15:30	13:30	STIG	Mr Aprajay Golash
	14:15	O- Arm Navigation	Mr Jim Walkden
	14:45	The British Spine Registry	Mr Lee Breakwell
15:30 -16:00	Coffee		
Session 3 (Chair: Colin McNair)			
16:00-17:30	Free paper session (timetable and abstracts below).		

Day 2 : Saturday 11th November			
Session 4 (Chair: Gerry Cousins) Trainee Instructional morning / CPD			
09:30-11:00	09:30	Spine Biomechanics	Mr Colin McNair
	10:00	Thoraco-lumbar fractures	Mr Alex Augustithis
	10:30	Spinal Surgical Approaches	Mr Chris Adams
11:00-11:15	Coffee		
Session 5 (Chair: Colin McNair)			
11:15-13:00	11:15-12:00	Case Discussion	
	12:00-12:45	Where to next for the Scottish Spine Meeting?	
	12:45-13:00	Closing remarks	
13:00-14:00	Lunch and Depart		

As surgeons based in the Scottish Health Service providing care for patients with conditions of the spine we want to share best practice. This forum and website (www.spinesurgeons.scot) are for healthcare professionals involved in spine surgery care at present, but who knows what the future will bring. Our annual informal and friendly gathering helps us to achieve our best clinical care for

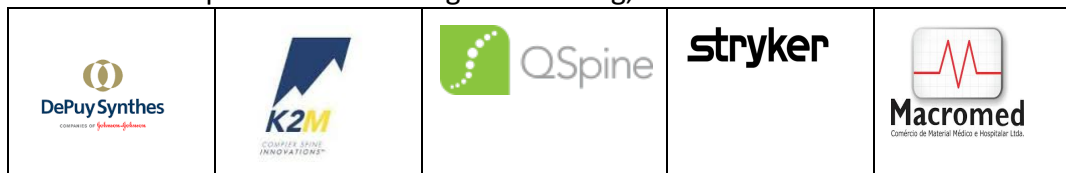
patients now and in the future.

An award of 6 hours CPD for Friday and 3 hours CPD for Saturday have been approved by the Royal College of Surgeons of Edinburgh (Recognition number – RCSEd01827).

The venue for our 10th Scottish Spine Surgeons meeting is Eden Court Theatre, Bishops Rd, Inverness IV3 5SA.

Accommodation for the Thursday and Friday evening will be at the Columba Hotel, 7 Ness Walk, Inverness IV3 5NF

Thanks to our sponsors for funding the meeting, accommodation and meals.



We wish you all a safe trip and look forward to seeing you here so that we can enjoy discussing the spine.

Best wishes

The Spine Team, Inverness

Organisers, Scottish Spine Surgeons meeting 2017 – Inverness

E-mail:

Web page: www.spinesurgeons.scot

Free Paper Session

Time	Paper	Presenter	Title
16:00	1	Mohamed Abdelsadg	Wrong-level spinal surgery
16:12	2	Sadaf Sohrabi	Spondylodiscitis with epidural abscess can be safely managed non-surgically outside a neurosurgical unit
16:24	3	Sophie Adams	Improving in-patient outcome after idiopathic spine deformity surgery by an Enhanced Recovery Pathway (ERP) and Enhanced Recovery After Surgery (ERAS) philosophy: initial results of helping young people get better more quickly.
16:36	4	Hamzah Soleiman	Cauda Equina Syndrome (CES). Not a radiological diagnosis
16:48	5	David Skipsey	The Highland Spinal Triage Pathway; Improving Patient Care
17:00	6	Anna Leerssen	How Common are Patients with Spinal Pathologies Referred to Hip Clinic - Study from a Scottish Regional Specialist Hip Clinic
17:12	7	Fracois Okorafoar	Bracing for Thoracolumbar Fractures
17:24	8	Pragnesh Bhatt	Art & Spine Surgery – What is the relevance?

Abstracts below.

16:00hrs, paper 1.

Presenter: M Abdelsadg

Title: Wrong-level spinal surgery is considered a 'never-event'.

Authors: M. Abdelsadg, K. Badran, D. Mowle.

Institution: Department of Neurosurgery- Ninewells Hospital

Conflict of Interest: None

Funding source: None

Background and Aim: Wrong-level spinal surgery is considered a 'never-event'. It often adversely affects both surgeons and patients. Intra-operative X-Rays have been frequently emphasized to prevent this error. We looked at how this measure has helped prevented wrong-level lumbar spinal surgeries locally.

Design and Methods: A standard operating procedure to identify spinal level was adopted. After establishing prone positioning, using palpation of bony landmarks, a spinal needle is placed vertically between the spinous processes at the operative level and X-ray obtained. The image is checked by two clinicians to confirm the targeted level. Prior to closure a further lateral X-ray is performed with a dissector in the disc space or at the borders of the decompression. If there is any doubt about the surgical trajectory a further X-ray is taken before fenestration or decompression. Data was collected by analysing PACS, theatre logbook and medical notes.

Results: 202 patients were included. 165 were new and 37 were revisional. Out of these, 114 had microdiscectomy and 88 had decompression. Only one patient did not have a pre-operative Xray level check done. 143 cases recorded the number of times an X ray was taken to determine the correct level pre-operatively following palpation. 39% of these required only one take; 43 % required two takes and 16% required three takes . Intermediate Intra-operative X-ray were taken in 28 cases when the surgeon suspected an incorrect surgical trajectory. 75% were confirmed to be wrong and therefore corrected. In two cases, the wrong level was detected after fenestration whereas in the remaining 18 cases, spinal level was corrected prior to decompression or fenestration.

Conclusion: Palpation is an inaccurate technique. Despite pre-operative X-rays, incorrect level was identified in 10% of surgeries when cross-checked using intra-operative X-rays. Re-auditing is due to finish in 2 weeks and results will be included.

16:12hrs, paper 2.

Presenter: Sadaf Sohrabi

Title: Spondylodiscitis with epidural abscess can be safely managed non-surgically outside a neurosurgical unit

Authors: Sadaf Sohrabi, Kevin Owusu-Agyemang, Calan Mathieson

Institution: Institute of Neurological Sciences, Glasgow, UK Conflicts of Interest: None Funding source: None (for the next 8 sections the word count should be under 250 words)

Background context: Spontaneous pyogenic spondylodiscitis can lead to cavitation and compression fractures that risks injury to neural elements. Uncontrolled infection can result in spinal epidural abscess (SEA) formation with further risk of paraplegia, subdural abscess, and meningitis. Previous studies report the presence of epidural abscess as an indication for surgery, even in the absence of neurological deficits.

Aim / Purpose: At our centre, patients with SEA are managed non-surgically in the absence of significant neurological sequelae. Here, we review the outcomes of our approach.

Study design / Setting: A retrospective review of patients referred to our centre between March-November 2015.

Patient Sample: 55 patients

Outcome Measures: Neurological symptoms (motor power, sensation), deterioration, clinical outcome.

Methods: Clinical and radiographic records were analysed using NHS clinical portal, TRAK care, and PACS.

Results: Of 55 patients referred with spondylodiscitis or vertebral osteomyelitis 25 (45%) had an associated SEA. Median age 62 (29–86). Mean peak CRP 193. 52% were in the cervical/thoracic spine. 12(48%) patients with SEA had neurological symptoms on referral (6 power MRC grade 4 or less, 6 sensory only).

Four patients (2 planned, 2 delayed diagnosis/transfer) were admitted for surgical management. Complete neurological recovery in 1/4 patients and incomplete recovery in 3/4 after surgical decompression. 84% (3/6 patients with motor deficits) patients made an uncomplicated recovery after a mean of 129 days. We conclude that non-surgical management is an appropriate approach for suitable patients.

16:24hrs, paper 3.

Presenter: Sophie F. Adams

Title: Improving in-patient outcome after idiopathic spine deformity surgery by an Enhanced Recovery Pathway (ERP) and Enhanced Recovery After Surgery (ERAS) philosophy: initial results of helping young people get better more quickly.

Authors: Sophie F. Adams, Charlotte Goujon, Mandy Sim, Donna Cowie, Fiona McGovern, Joseph Fournier, Enrique Garrido and Christopher I. Adams.

Institution: The Scottish National Spine Deformity Service, The Royal Hospital for Sick Children, Edinburgh.

Conflicts of Interest: None. Funding source: None.

Background context: From inception around 1997, ERPs and ERAS programmes have expanded beyond General Surgery to some orthopaedic procedures.

Aim / Purpose: We wished to assess whether existing spinal pathways could incorporate an ERP to benefit in-patient outcome.

Study design / Setting: A prospective, consecutive cohort series.

Patient Sample: All patients undergoing primary surgery for idiopathic scoliosis before and after introduction of an ERP. The first group April 2015 to March 2016 totalled 95 patients. The second group February to June 2017 totalled 28 patients.

Outcome Measures: Length of stay, catheter removal, mobilization to chair and walking, morphine oral equivalent usage.

Methods: The ERP was developed by a multidisciplinary healthcare team: preoperative education sessions promoting early mobilisation; preoperative stool softeners and dietary advice sheet; new multimodal analgesic regimen; criteria based catheter removal protocol.

Statistical analysis with F-test for variance then Student's t-Test, two-tail using Excel software (Microsoft, 2007). Statistical significance considered at p-value of 0.05 or lower.

Results: There were no significant differences between the groups to include age for Group 1 of 14.9 years (11-19) and Group 2 of 14.0 years (11-19) with fusion levels and blood loss the same.

Length of stay reduced from Group 1 at 6.8 days (4-21) to Group 2 at 5.7 days (3-23). Catheter removal achieved for Group 1 in 2.9 days (2-5); significantly quicker for Group 2 at 1.3 days (1-2) ($p < 0.001$).

Mobilisation to chair in Group 1 was 2.1 days (1-5); significantly quicker for Group 2 at 1.2 days (1-3) ($p < 0.001$). First walking achieved in Group 1 at 2.7 days (1-6); significantly more quickly for Group 2 at 1.2 days (1-3) ($p < 0.001$).

The pain experienced was assessed using equivalent oral morphine dose calculations by post-operative day with 20 patients from each group. There was no significant difference on day of surgery or first post-operative day but from the second day Group 1 required a mean 117.9 mg (44.5-360) but significantly less for Group 2 at 81.7 mg (42.5-105) ($p = 0.023$). This effect remained significant until discharge ($p < 0.001$).

Conclusions: The addition of an ERP has improved a return toward normal function and reduced average in-patient stay by at least one day. This change has resulted in significantly less morphine equivalent analgesia. Continuing enrolment of patients using the ERP will establish whether these early results are maintained.

16:36hrs, paper 4.

Presenter: Hamzah A Soleiman

Title: Cauda Equina Syndrome (CES). Not a radiological diagnosis

Authors:

H. A. Soleiman (1), I. Hoeritzauer(2,3), S Pronin(3), A Carson(2, 3), P Statham(1), J. Stone (2), A. K. Demetriades(1)

Institution:

1- Department of clinical neurosciences (neurosurgery), Western General Hospital, Edinburgh, UK

2- Department of clinical neurosciences (neurology), Western General Hospital, Edinburgh, UK

3- University of Edinburgh, Edinburgh, UK

Conflicts of Interest: None

Funding source: None

Background:

Clinical diagnosis of CES before irreversible neurological damage is challenging,

MRI imaging is increasingly used as a triage tool.

Patients who have radiological Cauda Equina compression without clinical CES features present a challenging management dilemma.

Aim / Purpose:

Explore the incidence and outcome of patients referred with radiological cauda equina compression without CES clinical features

Study design:

Caldicott approved retrospective electronic record review of referrals between August 2013-November 2014.

Electronic records follow up until July 2016.

Patient Sample:

patients referred with radiological cauda equina compression without CES features.

Outcome measures:

surgical intervention and symptoms on followup

Methods:

The following definitions were used

Clinical CES diagnosis as one or more of

- Bladder and/or bowel dysfunction
- Reduced sensation in the saddle area
- Sexual dysfunction.

Radiological CE compression defined as at least one of:

- Over 75% spinal canal occlusion on axial T2 .
- Absence of CSF around the nerve roots on T2.

The patients with clinical CES features were excluded, and the remaining patients with radiological CE compression without CES features were studied.

Results:

59 patients had radiological cauda equina compression.

38 patients without CES features were included and followed up to 38 months (mean 12 months)

18 patients (47%) didn't undergo any surgical intervention.

66% of conservatively managed patients were pain free during follow up reviews, and in 77% there was documented improvement in their symptoms.

Conclusions:

Clinical assessment is essential always, and MRI alone is not a gold standard diagnostic test for cauda equina syndrome.

16:48hrs, paper 5.

Presenter: David Skipsey

Title: The Highland Spinal Triage Pathway; Improving Patient Care

Authors: David A Skipsey, Harry W Sargeant, Alastair Mayne, Gerard Cousins

Institution: Trauma and Orthopaedic Department, Raigmore Hospital, Inverness

Conflicts of Interest: None to declare

Funding Source: No financial sources to declare

Background Context:

Back pain and sciatica are common and present a huge burden to the NHS with increasing referrals to Orthopaedics and Neurosurgery without increased capacity to meet this demand. The Spinal Services review group in 2011 recommended a triage pathway to improve waiting times and optimise care with a multidisciplinary approach.

Aim/Purpose:

To review the NHS Highland spinal service implemented in 2016 to assess its effect on waiting times and number of patients requiring specialist review.

Study design/Setting:

This is a prospective audit of change in service design. Two Specialist Spinal Physiotherapists were employed to review all patients referred and arrange imaging, onward referral, discharge or discussion at MDT as appropriate.

Patient Sample:

Patients entered the service via redirection from the general orthopaedic/neurosurgical outpatient waiting lists.

Outcome Measures:

Primary outcome measures included waiting time and numbers of patients requiring specialist review.

Methods:

A database of spine referrals since the inception of the pathway was created and used to evaluate the service.

Results:

In 15 months of this service 685 patients have been reviewed. Mean time from GP referral to initial review prior to this pathway in June 2016 was 44 weeks. By August 2017 this was 3 weeks. Before this service was available, all the patients referred would have been reviewed in specialist clinic. With the service, 46% of patients required discussion at an MDT and 16% required an orthopaedic/neurosurgical specialist review.

Conclusions:

Implementing a spinal triage service, specialist physiotherapists and an MDT approach to treating spinal referrals has significantly reduced waiting times and safely diverted appropriate patients from specialist surgical clinics.

17:00, paper 6.

Presenter: Anna Leerssen

Title: How Common are Patients with Spinal Pathologies Referred to Hip Clinic - Study from a Scottish Regional Specialist Hip Clinic

Authors: Anna Leerssen, Andraay Leung, Roland Ingram, Andrew Stark

Institution: Glasgow Royal Infirmary (GRI), University of Glasgow

Conflicts of Interest: None

Funding source: None

(for the next 8 sections the word count should be under 250 words)

Background context: A third of presentations to primary care are musculoskeletal, and within these hip and spine complaints are common. Hip and spinal pathologies share some common symptoms and may even co-exist.

Study design / Setting: Retrospective cohort study in outpatient population

Outcome Measures: diagnosis, onward referral to spinal services.

Methods: Electronic patient records were accessed for new patients to the Hip clinic at the GRI for 6 consecutive months. 227 patient records were investigated, and 169 of these were included for analysis. Data analysis was performed using SPSS statistics software. Referral letters and clinic letters were analysed for symptom descriptions.

Results: 71.6% (n=121) of referrals listed "Hip" as the main site of pain. Clinic letters used "Hip" as main site in 33.2% (n=55) cases, although this was always further elaborated on with specific sites such as groin or buttock. Cramer V coefficient test identified strong, significant relationship ($\phi_c = 0.376$; $p < 0.001$) between pain site in clinic and diagnosis; with groin pain associated with hip osteoarthritis, and back and buttock pain associated with spinal pathology. Overall, 23.6% (n=40) had a final diagnosis of a spinal pathology and 3% (n=5) were referred for spinal surgery opinion.

Conclusions: Nearly a quarter in our cohort had spinal pathology. This highlights an area for potential service improvement. Moreover, the larger number of pain-site descriptors identified in clinic illustrates greater emphasis on pain history in clinic and the importance of a thorough pain history to arrive at a correct diagnosis.

17:12hrs. paper 7.

Presenter: Francois Okoroafor

Title: Post operative outcomes in patients wearing spinal braces following surgery for thoracolumbar fracture

Objectives

We present results from the second year of a trial comparing post operative outcomes in patients wearing spinal braces, following surgery for thoracolumbar fracture. We are studying the surgical outcomes related to shorter-and-shorter brace duration.

Method

Queen Elizabeth National Spinal Injuries Unit is responsible for the acute care of adult patients with traumatic spinal cord injuries (SCI) in Scotland. From April 2015 to April 2017 patients admitted with single level thoracolumbar fractures managed with internal fixation were included in study. Patients admitted April 2015 to April 2016 were instructed to wear a spine brace post-op for 12 weeks (Group 1); Patients admitted April 2016 to April 2017, 8 weeks (Group 2). Patients transferred to other centres were excluded. Outcomes: neurological status, analgesia requirement. Statistics: Mann-Whitney U test, Fisher's exact test.

Results

Group 1(26): 46% female; median age 27 (14 – 72); 50% caused by fall, 38% RTA; 31% lumbar spine fractures, 73% compression fractures; 31% complete SCI at admission. Group 2(16); 38% female; median age 34 (16 – 55); 63% injuries due to fall, 31% RTA; 75% lumbar spine fractures; 56% compression fractures; 13% complete SCI on admission.

Significant difference between group analgesic requirements at admission ($p = .0009$). No significant difference between group analgesic requirements at 12 weeks ($p = 0.6015$). Both groups demonstrate reduction in use of strong opioids over time.

No deterioration in neurological status observed. 19% of patients in group 1 showed improved ASIA impairment score, 31% in group 2. No significant difference between groups ($p = 0.483$).

Conclusion

General improvement in analgesia requirement; group differences indeterminate. Generally, some patients improved neurologically. No significant difference between group neurological improvements.

17:24hrs, paper 8.

Presenter: Pragnesh Bhatt

Title: Art & Spine Surgery – What is the relevance?

Authors: Pragnesh Bhatt

Institution: Aberdeen Royal Infirmary

Conflicts of Interest: None

Funding source: None

Aim: To evaluate the outcome with regard to the post operative scar overlying the tattoos in patients undergoing lumbar spine surgery.

Design: Retrospective review of the results following Lumbar Spinal Surgery.

Subjects: All those patients undergoing lumbar spine surgery who consented to having their tattoos photographed before and after the operation were included in the study.

Methods: All those patients who were included in the study had their pre-operative photographs of the operative area including tattoo taken. Most of those patients had their post-operative photographs also taken at variable interval of time depending upon their convenience.

Outcome measures: Self reported questionnaire and informal feedback.

Results: Majority of the patients had their tattoos preserved and their satisfaction ranged from good to excellent. Some of these were substantiated by the original tattoo artists whom the patients visited post-operatively for evaluation and re-doing.

Conclusions: It is possible to preserve the tattoos in the operative field provided meticulous technique of wound closure is employed.