

Musculoskeletal Soft Tissue Clinic

Evidence Update



December 2017 (Quarterly)

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Training Sessions 2017/18

All sessions are one hour

January (13.00-14.00)

4th (Thu)	Statistics
8th (Mon)	Literature Searching
18th (Thu)	Critical Appraisal
24th (Wed)	Statistics

February (12.00-13.00)

1 st (Thu)	Literature Searching
9 th (Fri)	Critical Appraisal
12 th (Mon)	Statistics
20 th (Tue)	Literature Searching
28 th (Wed)	Critical Appraisal

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Updates

NICE National Institute for
Health and Care Excellence

[ACR appropriateness criteria: Shoulder Pain-Traumatic](#) Source: [American College of Radiology](#) - 13 December 2017

[Review article: Best practice management of low back pain in the emergency department \(part 1 of the musculoskeletal injuries rapid review series\)](#) Source: [PubMed](#) - 12 December 2017 - Publisher: Emergency Medicine Australasia : Ema

[Review article: Best practice management of common ankle and foot injuries in the emergency department \(part 2 of the musculoskeletal injuries rapid review series\)](#) Source: [PubMed](#) - 13 December 2017 - Publisher: Emergency Medicine Australasia : Ema

[Review article: Best practice management of common knee injuries in the emergency department \(part 3 of the musculoskeletal injuries rapid review series\)](#) Source: [PubMed](#) - 15 December 2017 - Publisher: Emergency Medicine Australasia : Ema

[A systematic review on the effect of serious games and wearable technology used in rehabilitation of patients with traumatic bone and soft tissue injuries](#) Source: [PubMed](#) - 11 November 2017 - Publisher: Archives Of Physical Medicine And Rehabilitation

[Epidemiology of Injuries in Women Playing Competitive Team Bat-or-Stick Sports: A Systematic Review and a Meta-Analysis](#) Source: [PubMed](#) - 16 December 2017 - Publisher: Sports Medicine (auckland, N.z.)



No relevant evidence

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[Overview of inpatient management in the adult trauma patient](#)

Literature review current through: Dec 2017. | **This topic last updated:** Dec 05, 2017.

[Environmental and weapon-related electrical injuries](#)

Literature review current through: Dec 2017. | **This topic last updated:** Oct 02, 2017.

[Treatment of musculoskeletal chest pain](#)

Literature review current through: Dec 2017. | This topic last updated: Oct 05, 2015.

[Major causes of musculoskeletal chest pain in adults](#)

Literature review current through: Dec 2017. | This topic last updated: Nov 22, 2017.

[Initial management of moderate to severe hemorrhage in the adult trauma patient](#)

Literature review current through: Dec 2017. | This topic last updated: Nov 15, 2017.

[Overview of traumatic lower genitourinary tract injury](#)

Literature review current through: Dec 2017. | This topic last updated: Jan 02, 2018.

[Overview of traumatic and iatrogenic ureteral injury](#)

Literature review current through: Dec 2017. | This topic last updated: Jan 02, 2018.

Recent Database Articles related to Musculoskeletal Soft Tissue

Below is a selection of articles recently added to the healthcare databases, grouped in the following categories:

- Acute Soft Tissue injuries
- Musculoskeletal
- Sports Injuries

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk

Acute soft tissue injuries

Subtle radiographic signs of hamate body fracture: a diagnosis not to miss in the emergency department.

Author(s): Cecava, Nathan D; Finn, Mary F; Mansfield, Liem T

Source: Emergency radiology; Dec 2017; vol. 24 (no. 6); p. 689-695

Publication Type(s): Journal Article

Abstract:Hamate fractures are estimated to represent 1.7% of all carpal fractures and can occur at the hamulus (hook) or hamate body depending on mechanism of injury. Fractures of the hamate body can be exceedingly difficult to identify on standard wrist and hand radiographs in the emergency department. If the diagnosis is missed in the emergency department, orthopedic referral

is often delayed. This can result in lasting functional disability for the patient, as these fractures have a propensity to destabilize the fourth and fifth carpometacarpal (CMC) joints. In this pictorial essay, we present six radiographic signs indicative of hamate body fracture with computed tomography (CT) imaging correlation. Injury mechanism and fracture classification schemes are portrayed to aid in the understanding of these injuries. Once radiographs raise suspicion for a hamate body fracture, further characterization with CT and orthopedic referral is paramount. Goals of orthopedic management include reestablishment of the fourth and fifth CMC articular surface, stabilization of the CMC joints, and appropriate treatment of concomitant soft tissue injury.

Age and dressing type as independent predictors of post-operative infection in patients with acute compartment syndrome of the lower leg.

Author(s): Hake, Mark E; Etscheidt, Jordan; Chadayammuri, Vivek P; Kirsch, Jacob M; Mauffrey, Cyril

Source: International orthopaedics; Dec 2017; vol. 41 (no. 12); p. 2591-2596

Publication Type(s): Journal Article

Abstract: **PURPOSE** The purpose of this study was to determine independent factors, including timing of fasciotomy, that confer an increased risk of post-operative surgical site infection (SSI) in patients presenting with acute compartment syndrome (ACS) of the lower extremity. **METHODS** A retrospective analysis was performed on a consecutive cohort of 53 adult patients requiring fasciotomy for lower-extremity fractures complicated by ACS presenting to a single Level I trauma center over a seven-year study period. The primary outcome measure was the incidence of SSI (as defined by the CDC) occurring within 12 months of fasciotomy. Explanatory variables including site of ACS, time of injury, time of fasciotomy, operative findings, and requirement for additional soft tissue coverage procedures were recorded for all patients. Multivariate regression was used to determine independent predictors of post-operative SSI. **RESULTS** Post-operative SSI was detected in 16 (30.2%) patients. Compared to infection-free patients, patients with post-operative SSI had a significantly higher median age (52.0 vs. 37.0 years, $p = 0.010$), frequency of intra-operative myonecrosis at time of fasciotomy (31.2% vs. 5.4%, $p = 0.021$), and requirement for negative-pressure wound therapy [NPWT] (93.7% vs. 45.9%, $p = 0.002$). Multivariate logistic regression analysis confirmed that requirement for NPWT (odds ratio [OR], 17.10; 95% confidence interval [CI], 1.78-164.0; $p = 0.014$) and increasing age (OR, 1.07; 95% CI, 1.01-1.14; $p = 0.037$) were independent predictors of post-operative SSI. Timing of fasciotomy following injury was not independently related to the risk of SSI. **CONCLUSIONS** ACS occurs on a spectrum of disease severity that evolves variably over time. Increasing age of the patient and requirement for NPWT following fasciotomy are independent predictors of post-operative SSI following emergent fasciotomy for ACS. Further studies are required to inform optimal treatment strategies in such patients. **LEVEL OF EVIDENCE** Therapeutic, Level III.

Usefulness of direct W-plasty application to wound debridement for minimizing scar formation in the ED.

Author(s): Jin Hong Min; Kyung Hye Park; Hong Lak Choi; Jung Soo Park; Ji Han Lee; Hoon Kim;

Source: American Journal of Emergency Medicine; Dec 2017; vol. 35 (no. 12); p. 1804-1809

Publication Type(s): Academic Journal

Abstract: **Purpose:** A suture line placed with the same direction as the relaxed skin tension line leads to good healing, but a suture line with over 30 degrees of angle from the relaxed skin tension line leads to longer healing time and more prominent scarring. W-plasty is widely used to change the direction of the scar or to divide it into several split scars. In this study, we applied W-plasty to patients with facial lacerations in the emergency department. **Methods:** From June 2012 to December 2014, 35 patients underwent simple repair or W-plasty for facial lacerations. Patients in

the simple repair group underwent resection following a thermal margin, and the W-plasty group was resected within a pre-designed margin of W-shaped laceration. We assessed prognosis using the Stony Brook Scar Evaluation Scale (SBSSES) after 10 days (short-term) and six months (long-term), respectively, following suture removal. Results: Among 35 patients, 15 (42.9%) underwent simple debridement and 20 (57.1%) underwent W-plasty. In the W-plasty group, there was no difference between short-term and long-term follow-up showing high SBSSES, but in the simple debridement group, long-term follow-up SBSSES significantly decreased. W-plasty SBSSES was higher than simple debridement at short-term as well as long-term follow-up. Conclusion: We experienced good results of direct W-plasty application at six-month long-term follow-up. Therefore, W-plasty application is more effective in reducing scar appearance than a simple debridement method for facial laceration patients with an angle of 30 degrees or more to the relaxed skin tension line.

Accuracy of point-of-care ultrasound using low frequency curvilinear transducer in the diagnosis of shoulder dislocation and confirmation of appropriate reduction

Author(s): Seyedhosseini J.; Saiidian J.; Vahidi E.; Hashemi Taheri A.

Source: Turkish Journal of Emergency Medicine; Dec 2017; vol. 17 (no. 4); p. 132-135

Publication Type(s): Article

Available at [Turkish Journal of Emergency Medicine](#) - from Europe PubMed Central - Open Access

Abstract: Background Ultrasound (US) is an effective modality in the evaluation of shoulder dislocation and reduction. In most studies, high frequency US probes have been used. Objective To determine the sensitivity and specificity of low frequency US in the diagnosis of shoulder dislocation and its proper reduction in the emergency department (ED). Methods In a prospective observational study 84 patients, suspicious of shoulder dislocation, were enrolled in our study. In ED, they all underwent low frequency (curve) probe US examination by the emergency physician at the time of admission. Standard radiographies of their shoulder joints were taken later and then reported by the attending radiologist. As soon as the shoulder dislocation was confirmed, reduction of the joint was done under procedural sedation and analgesia. US and radiography of the relocated joint were taken for the second time. The sensitivity and specificity of low frequency US were compared with radiography by the appropriate statistical analysis. Results In comparison to radiography, US had a sensitivity of 100.0%, specificity of 80.0%, positive predictive value of 98.7%, and negative predictive value of 100.0% in diagnosis of shoulder dislocation. The specificity of US in diagnosis of proper reduction of the joint, was estimated to be 98.7% with a negative predictive value of 100.0%. US took a significantly less time than radiography to be performed ($p < 0.001$). Conclusions Low frequency US is highly accurate in diagnosing shoulder dislocation and its proper reduction. Thus it might be a good substitute for radiography in these situations. Copyright © 2017 The Emergency Medicine Association of Turkey

A prospective, observational cohort study of patients presenting to an emergency department with acute shoulder trauma: the Manchester emergency shoulder (MESH) project.

Author(s): Callaghan, Michael J; Baombe, Janos P; Horner, Dan; Hutchinson, Charles E;

Source: BMC emergency medicine; Dec 2017; vol. 17 (no. 1); p. 40

Publication Type(s): Journal Article

Available at [BMC emergency medicine](#) - from BioMed Central

Abstract: BACKGROUND Fracture and dislocation of the shoulder are usually identifiable through the use of plain radiographs in an emergency department. However, other significant soft tissue injuries can be missed at initial presentation. This study used contrast enhanced magnetic resonance arthrography (MRA) to determine the pattern of underlying soft tissue injuries in patients with

traumatic shoulder injury, loss of active range of motion, and normal plain radiography. **METHODS** A prospective, observational cohort study. Twenty-six patients with acute shoulder trauma and no identifiable radiograph abnormality were screened for inclusion. Those unable to actively abduct their affected arm to 90° at initial presentation and at two week's clinical review were consented for MRA. **RESULTS** Twenty patients (Mean age 44 years, 4 females) proceeded to MRA. One patient had no abnormality, three patients showed minimal pathology. Four patients had an isolated bony/labral injury. Eight patients had injuries isolated to the rotator cuff. Four patients had a combination of bony and rotator cuff injury. Four patients were referred to a specialist shoulder surgeon following MRA and underwent surgery. **CONCLUSIONS** Significant soft tissue pathology was common in our cohort of patients with acute shoulder trauma, despite the reassurance of normal plain radiography. These patients were unable to actively abduct to 90° both at initial presentation and at two week's post injury review. A more aggressive management and diagnostic strategy may identify those in need of early operative intervention and provide robust rehabilitation programmes.

Point-of-Care Ultrasound Diagnosis of Proximal Hamstring Rupture.

Author(s): Bengtzen, Rachel R; Ma, O John; Herzka, Andrea

Source: The Journal of emergency medicine; Dec 2017

Publication Type(s): Journal Article

Abstract: **BACKGROUND** Acute proximal hamstring ruptures can be a diagnostic challenge in the emergency department. The revealing sign of large posterior thigh ecchymosis is typically not yet present; the physical examination is limited due to pain, radiographs can be unremarkable, and definitive testing with magnetic resonance imaging is not practical. These avulsions are often misdiagnosed as hamstring strains and treated conservatively. The diagnosis is made after failed treatment, often months after the injury. Surgical repair at that time can be technically challenging and higher risk due to tendon retraction and adhesion of the tendon stump to the sciatic nerve. **CASE REPORT** The first case illustrates an example of how delay in diagnosis can occur in both emergency medicine and outpatient primary care settings. It also shows complications and morbidity potential for patients who warrant and do not receive timely surgical repair. The second case illustrates physical examination findings obtainable during the acute setting, and the use of point-of-care ultrasound (POCUS) in facilitating an expedited diagnosis and treatment plan. **WHY SHOULD AN EMERGENCY PHYSICIAN BE AWARE OF THIS?:** Timely diagnosis of hamstring rupture is paramount to optimize patient outcomes for this serious injury. The best results are obtained with surgical repair within 3-6 weeks of injury. POCUS evaluation can aid significantly in the timely diagnosis of this injury. If the POCUS examination raises clinical concern for a proximal hamstring rupture, this may allow for earlier diagnosis and definitive treatment of proximal hamstring rupture.

Diagnosis of Simultaneous Acute Ruptures of the Anterior Cruciate Ligament and Posterior Cruciate Ligament Using Point-Of-Care Ultrasound in the Emergency Department.

Author(s): Lee, Sun Hwa; Yun, Seong Jong

Source: The Journal of emergency medicine; Dec 2017

Publication Type(s): Journal Article

Abstract: **BACKGROUND** Patients with acute anterior cruciate ligament (ACL) and posterior cruciate ligament (PCL) injuries from sport-related activities are frequently seen in the emergency department (ED). However, knee instability tests are known to show variable sensitivity and specificity. These tests would also have limited functionality in patients with severe pain and swelling in the knee. **CASE REPORT** A 19-year-old female judo player presented to the ED with severe left knee pain. She had abruptly twisted her left knee while she was shoulder-throwing her opponent. She complained of severe pain and refused physical examination of the knee injury; as a result,

evaluation of knee instability could not be performed. However, a point-of-care ultrasound helped in making a prompt and accurate diagnosis of simultaneous, complete rupture and partial ruptures of the ACL and PCL, respectively. The ultrasound findings correlated well with the magnetic resonance imaging images in the assessment of the combined ACL-PCL ruptures. The patient underwent simultaneous arthroscopic ACL and PCL reconstruction with a hamstring tendon autograft and was discharged. **WHY SHOULD AN EMERGENCY PHYSICIAN BE AWARE OF THIS?:** Point-of-care ultrasound imaging of the knee in trauma patients may be helpful for diagnosis of ACL and PCL injuries by augmenting findings of physical examinations in patients with severe pain and swelling in the knee. Ultimately, it may lead to more accurate diagnosis and treatment plans in knee trauma patients.

A rare diagnosis of abdominal pain presentation in the emergency department: Idiopathic omental bleeding: A case report

Author(s): Wu Y.-H.; Liu K.-T.; Wen C.-K.

Source: *Medicine (United States)*; Dec 2017; vol. 96 (no. 51)

Publication Type(s): Article

Available at [Medicine \(United States\)](#) - from Europe PubMed Central - Open Access

Abstract:Rationale: Idiopathic omental bleeding is a rare cause of acute abdomen, with only a few reported cases. It usually presents with abdominal pain and may be life-threatening. As it rarely occurs, it may not be considered initially during patient presentation. Patient concerns: A 35-year-old male came to our emergency department with abdominal pain present for around 5 to 6 hours. The patient complained of left upper quadrant abdominal pain after eating breakfast. The only associated symptom was 3 episodes of vomiting up food. Physical examination revealed mild left upper quadrant abdominal tenderness without muscle guarding or rebounding pain. Blood examination showed leukocytosis with neutrophil predominance and C reactive protein elevation. The pain was persistent and relief was not obtained by medication. Diagnoses: Computed tomography showed a large lobular-contour homogenous slightly hyperdense lesion without enhancement along the greater curvature of the stomach in the lesser sac. A surgeon was consulted and laparotomy was suggested. Hematoma was found at Morrison pouch, subsplenic fossa, and lesser sac under operation. Intervention: Laparotomy and ligation for hemostasis. Outcomes: The patient was discharged with stable condition after 7 days of hospitalization. Lessons: This diagnosis should be considered in patients presenting with epigastric pain and vomiting after eating while in the emergency department because this disease might be life-threatening. This case highlights 2 important learning points. First, idiopathic omental bleeding could occur after eating in patients without underlying disease or trauma history, and this disease should be taken into consideration when acute abdomen occurs. Second, emergent laparotomy is indicated if the cause of acute abdomen is not clear. Copyright © 2017 the Author(s).

Endovascular treatment of a late traumatic pseudoaneurysm of the right subclavian artery: A case report

Author(s): Pinto L.M.C.; Lopez G.E.; Da Silva L.M.F.; Filippo M.G.; Vaz P.; De Oliveira Marinho A.C.

Source: *Vascular*; Dec 2017; vol. 25 (no. 3); p. 49

Publication Type(s): Conference Abstract

Abstract:Background: Subclavian artery injury is rare after blunt chest trauma as this artery is protected by various anatomical structures (subclavius muscle, clavicle, first rib, deep cervical fascia and costocoracoid ligament). Blunt thoracic trauma accounts for only 2% to 3% of all reported subclavian artery injuries while clavicular fracture is the leading etiology accounting for approximately 50% of all traumatic subclavian artery injuries. Arterial injury can result in rupture, pseudoaneurysm formation or occlusion with subsequent acute limb ischaemia. Rupture or

pseudoaneurysm of the subclavian artery can be life threatening (61% mortality) and requiring prompt resolution. Treatment options include both surgical and endovascular approaches. Surgical management remains the golden standard to treat subclavian aneurysms, pseudoaneurysms or transections. Surgery can be challenging as either a sternotomy or a supra or infraclavicular approach is required for proximal and distal control of this vessel. Surgery can be complicated (18-25%) by significant blood loss or injury of nearby neurovascular structures. Case description: A 30 year-old male developed a right subclavian artery pseudoaneurysm diagnosed 8 years after trauma as the patient complained of a pulsating mass in his right supraclavicular region. The angioCT showed a pseudoaneurysm with 6,62-7,31 cm diameter emerging right after the brachiocephalic trunk bifurcation. We opted for the endovascular treatment with the implant of a 10-10 cm coated stent Viabahn-(W. L. Gore and Associates). Access was made through dissection of right axillary artery and angiograph control through a catheter in right femoral artery. An extra-stiff guide wire was placed in the right carotid artery. The patient had no complications, excellent outcome with complete resolution of the pulsating mass at the right supraclavicular region, and no neurologic dysfunction. Endovascular stent placement is a promising less invasive alternative to surgery with lower morbidity and mortality rates. It should be considered whenever access to the subclavian injury bear high risks to the patient.

Efficacy and tolerability of a new ibuprofen 200mg plaster in patients with acute sports-related traumatic blunt soft tissue injury/contusion.

Author(s): Predel, Hans-Georg; Giannetti, Bruno; Connolly, Mark P; Lewis, Fraser; Bhatt, Aomesh

Source: Postgraduate medicine; Nov 2017 ; p. 1-8

Publication Type(s): Journal Article

Abstract:BACKGROUND Ibuprofen is used for the treatment of non-serious pain. This study assessed the efficacy and safety of a new ibuprofen plaster for the treatment of pain associated with acute sports impact injuries/contusions. METHODS In this randomised, double-blind, multi-centre, placebo controlled, parallel group study, adults (n = 130; 18-58 years of age) diagnosed with acute sports-related blunt soft tissue injury/contusion were randomized to receive either ibuprofen 200 mg plaster or placebo plaster. Plasters were administered once daily for five consecutive days. The primary assessment was area under the visual analogue scale (VAS) of pain on movement (POM) over 0 to three days (VAS AUC0-3d). Other endpoints included algometry AUC from 0 to three days (AUC0-3d) and 0 to five days (AUC0-5d), to evaluate improvement of sensitivity at the injured site, and patient and investigator global assessment of efficacy. Safety was monitored throughout the study. RESULTS The ibuprofen plaster resulted in superior reduction in AUC0-3d compared with placebo; the Least Squares (LS) mean difference was 662.82 mm*h in favour of the ibuprofen 200mg plaster (P = 0.0011). The greater improvement in VAS AUC of POM was also observed after 12 h, 24 h, and five days of therapy. Tenderness also significantly improved with the ibuprofen plaster compared with placebo; LS mean difference in algometry/tenderness AUC0-3d was 1.87 N/cm²*d and AUC0-5d was 1.87 N/cm²*d (P values ≤0.0004). At all study timepoints, a greater percentage of patients and investigators rated the effectiveness of the ibuprofen 200 mg plaster as good/excellent than the placebo plaster. Treatment-emergent adverse events for the ibuprofen plaster were few (≤1.5%) and were mild in severity. CONCLUSION The results of this study indicate 200 mg plaster is effective and safe for the treatment of pain due to acute sports-related traumatic blunt soft tissue injury/contusion in adults.

Predicting poor outcome from simple ankle injuries: a prospective cohort study.

Author(s): Bullock, Stuart A; Allen, Georgina M; Watson, Marion S; Wilson, David J

Source: The British journal of radiology; Nov 2017 ; p. 20170213

Publication Type(s): Journal Article

Abstract:BACKGROUND Sprained ankles are common and when there are no signs or evidence of a fracture, conventional management is conservative. At present, there are no clinical markers to identify those that may develop persisting instability and disability that would require rehabilitation or surgery. OBJECTIVE To investigate the nature and extent of soft tissue ankle injuries, and to consider whether the anatomical severity of injury can predict functional outcome. METHOD Patients attending a local Accident and Emergency Department in Oxford with an acute ankle injury with no clinical requirement for radiographs, or where radiographs were normal, were invited into the study. Within 5 days, patients underwent a diagnostic ultrasound examination, a cone beam CT study and a disability assessment. Ultrasound and physiotherapy assessments were repeated at 3 and 6 months. RESULTS 100 patients were recruited and grouped based upon injuries. 58 had simple ankle injuries, 21 complex, 19 had significant fractures and 2 were excluded from further follow up analysis. There were no clinically significant differences in pain, disability or functional outcomes between the groups at all points of the study. CONCLUSION Medium to long term clinical outcomes were not solely determined by the severity of injury. Some patients with simple injuries were seen to have ongoing problems, whereas some with complex injuries recovered completely in a shorter period. Advances in knowledge: The severity of an ankle injury determined by radiological imaging does not necessarily dictate the severity of a patient's symptoms and the trajectory of their recovery.

Missed opportunity to diagnose subungual melanoma: potential pitfalls!

Author(s): Dunphy, Louise; Morhij, Rossell; Verma, Yash; Pay, Andrew

Source: BMJ case reports; Nov 2017; vol. 2017

Publication Type(s): Journal Article

Abstract:Subungual melanoma, an uncommon form of acral melanoma that arises within the nail matrix, accounts for 1%-3% of all cutaneous melanoma in Caucasians. As subungual melanoma presents in a more disguised manner than cutaneous lesions, increased vigilance is required. It most commonly presents as a discolouration of the nail, nail splitting or nail-bed bleeding. Black pigmentation of the adjacent nail fold, termed Hutchinson's sign, may be a diagnostic clue. Treatment of subungual melanoma remains surgical with wide local excision and amputation primary modalities. We present the case of a 61-year-old man with an 18-month history of a left thumb nail-bed abnormality and a 6-week history of left axillary lymphadenopathy. One year earlier, he presented to the emergency department with a purulent discharge from his left thumb but declined nail-bed ablation. He was referred to the 'Hand and Plastic Injuries Clinic' by his general practitioner and diagnosed with a chronic traumatic-induced nail-bed injury. As his symptoms did not improve, he was referred to the 2-week wait Skin Cancer Clinic. The left thumb nail-bed was excised as a nail unit down to bone, and the diagnosis of melanoma was rendered. Left axillary lymphadenopathy was confirmed as metastatic melanoma. He underwent amputation of his left thumb at the interproximal phalangeal joint, and a left axillary node dissection was performed. No residual melanoma was identified in his thumb. Microscopically, his left axillary dissection confirmed 9 out of 36 positive nodes for metastatic melanoma with extracapsular spread. He was staged at IIIc disease. This case report demonstrates missed opportunities to diagnose subungual melanoma and acts as a cautionary tale in considering this pathology in the differential diagnosis of nail-bed lesions with prompt referral for further investigation.

The Acute Effect of Cryotherapy on Muscle Strength and Shoulder Proprioception.

Author(s): Torres, Rui; Silva, Filipa; Pedrosa, Vera; Ferreira, João; Lopes, Alexandre

Source: Journal of sport rehabilitation; Nov 2017; vol. 26 (no. 6); p. 497-506

Publication Type(s): Journal Article

Abstract:CONTEXT Cryotherapy, a common intervention used by clinicians, poses several benefits in managing acute injuries. However, cooling muscle tissue can interfere with muscular properties and the sensory-motor system. OBJECTIVE The aim of this study was to analyze the influence of cryotherapy with a crushed-ice pack on shoulder proprioception concerning joint position sense, force sense, the threshold for detecting passive movement, and maximal force production. DESIGN A randomized, double-blind controlled trial. PARTICIPANTS 48 healthy women aged 22.6 ± 0.4 y with a mean body mass index of 22.8 ± 0.37 kg/m² and a percentage of body fat of $15.4 \pm 1.5\%$. METHODS In the experimental group, a crushed-ice pack was applied to the shoulder for 15 min, whereas participants in the control group applied a sandbag at skin temperature, also for 15 min. An isokinetic dynamometer was used to assess maximal voluntary contraction, force sense, joint position sense, and the threshold for detecting passive movement. RESULTS Paired sample t tests revealed that maximal voluntary isometric contraction decreased significantly after cryotherapy ($P \leq .001$), or approximately 10% of the reduction found in both muscular groups assessed. Shoulder position sense ($P < .001$) and the threshold for detecting passive movement ($P = .01$ and $P = .01$ for lateral and medial shoulder rotator muscles, respectively) also suffered significant impairment. Nevertheless, no significant differences emerged in force sense at 20% and 50% of maximal force reproduction ($P = .41$ and $P = .10$ for lateral rotator muscles at 20% and 50%, respectively; and $P = .20$ and $P = .09$ for medial rotator muscles at 20% and 50%, respectively). CONCLUSION Applying a crushed-ice pack to the shoulder for 15 min negatively affected muscle strength and impaired shoulder proprioception by decreasing joint position sense and the threshold for detecting passive movement.

Unstable Open Posterior Subtalar Dislocation Treated With a Ring External Fixator: A Case Report and Review of the Literature.

Author(s): Teo, Alex Quok An; Han, Fucai; Chee, Yu Han; O'Neill, Gavin Kane

Source: Journal of Foot & Ankle Surgery; Nov 2017; vol. 56 (no. 6); p. 1279-1283

Publication Type(s): Academic Journal

Abstract: Traumatic dislocation of the subtalar joint is an infrequently occurring injury, with open true posterior dislocation an even rarer injury. We describe our treatment of a young motorcyclist who was brought into hospital after a road traffic accident, having sustained an open posterior subtalar dislocation. After initial reduction and resuscitation in the emergency department, he was taken to the operating theater for emergent wound debridement and external fixation of his ankle using a unilateral external fixator device. After 2 subsequent repeat debridements, this was changed to a ring external fixator device, followed by split-thickness skin grafting of his wound. He was allowed full weightbearing and was discharged from hospital 10 days after his last operation. He continued to improve clinically at his outpatient appointments to the 1-year follow-up point, with his external fixator removed at 6 weeks postoperatively. At the last follow-up appointment, he had successfully returned to his previous employment. To the best of our knowledge, only 1 other description of an open posterior dislocation has been reported, which was managed nonoperatively after wound debridement. Ours is the first reported case of an open posterior dislocation managed surgically using a ring external fixator. We believe the ability to allow immediate weightbearing resulting from the additional stability provided by this type of fixation is advantageous, with a theoretical reduction in the risk of periarticular osteoporosis and calf muscle atrophy. The early mobilization afforded by this treatment is hoped to improve the typically poor long-term outcomes for these patients.

Transient vocal cord paralysis following central venous hemodialysis catheter insertion.

Author(s): Pamukçu Günaydın, Gül; Gürü, Selahattin; Aslan Taş, Elif; Tanrıverdi, Fatih;

Source: The American journal of emergency medicine; Nov 2017; vol. 35 (no. 11); p. 1790

Publication Type(s): Case Reports Journal Article

Available at [The American journal of emergency medicine](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:In this article, we present a case of recurrent laryngeal nerve palsy not caused by nerve injury but due to local anesthetic infiltration that was applied prior to central venous catheterization. A 47-year-old female patient was admitted to emergency room with fatigue and nausea and was diagnosed with acute renal failure. Right jugular venous catheterization was performed for emergency hemodialysis with Seldinger technique using middle approach. Within minutes and immediately after the procedure the patient complained of hoarseness and shortness of breath, and she had stridor in her physical exam. Awake flexible fiberoptic laryngoscopy revealed unilateral right-sided vocal cord paralysis with no edema. The patient was asked to remain nil per os and observed in ER with nasal oxygen. At the 3rd hour of follow-up without any other intervention, her symptoms resolved. Due to its proximity to the internal jugular vein injury to the recurrent laryngeal nerve while attempting to insert a central venous line can occur, particularly with difficult and repeated attempts. Local anesthesia led temporary ipsilateral vocal cord paralysis in patients undergoing carotid endarterectomy is described in literature. We think temporary vocal cord palsy in our case was due to local anesthetic infiltration rather than nerve injury, since it resolved spontaneously within only hours. Expectant treatment is a good choice ensuring the patient's airway is safe. Emergency physicians should be aware of this rare complication and its right management.

Post-traumatic acute thoracic aortic injury (TAI)-a single center experience.

Author(s): Buczkowski, Piotr; Puslecki, Mateusz; Stefaniak, Sebastian; Juszkat, Robert

Source: Journal of thoracic disease; Nov 2017; vol. 9 (no. 11); p. 4477-4485

Publication Type(s): Journal Article

Available at [Journal of thoracic disease](#) - from Europe PubMed Central - Open Access

Abstract:BackgroundWe assess the effectiveness and our experience in emergency thoracic endovascular aortic repair (TEVAR) in patients with post-traumatic acute thoracic aortic injury (TAI) and associated multiorgan trauma. TAI is a life-threatening condition. It usually results from a sudden deceleration caused by vehicle accident, a fall or some other misfortune. Techniques of endovascular aortic repair have become promising methods to treat emergent TAI.MethodsSince 2007, 114 patients with thoracic aorta pathologies have been treated by TEVAR. Our study involved 15 (incl. 14 men) of them (13%) who underwent stent graft implantation for post-traumatic either aortic rupture or pseudoaneurysm. The procedural access was limited to small skin incision in one groin and percutaneous puncture of the contralateral femoral artery. We evaluated technical success, early and long-term mortality, complication rate of procedure and throughout clinical and instrumental follow-up.ResultsTechnical success rate was 100%. All patients survived the endovascular interventions. No additional procedures or conversions to open surgery were necessary. After the operation, none of the patients had symptoms of stroke or spinal cord ischemia (SCI). No serious stent-graft-related adverse events such as endoleak, infection or migration were noted during follow-up period that ranged from 6 to 108 months.ConclusionsIn our department, techniques of TEVAR with stentgraft implantation have become methods of choice in treatment of traumatic TAIs since they have enabled to minimize operational risk, particularly in unstable multitrauma patients in severe clinical status. TEVAR for TAI performed in emergency settings provide favorable long-term results.

Radiologic features of blast injuries from 2015 bangkok bombing

Author(s): Yuenyongsinchai K.; Tongbai T.; Chaitusaney T.; Tanpowpong N.; Numkarunarunrote N

Source: Journal of the Medical Association of Thailand; Nov 2017; vol. 100 (no. 11); p. 1224-1231

Publication Type(s): Article

Abstract:Objective: To describe the radiologic findings of blast injuries from the Bangkok bombing on August 17, 2015, as primary, secondary, tertiary, and quaternary blast injuries. Material and Method: Twenty patients that presented at the emergency department and underwent radiologic investigation on August 17, 2015 were included in this study. The clinical information and imaging findings were retrospectively reviewed from the medical record and Picture Archiving and Communication Systems (PACS). Results: Conventional radiography and computed tomography (CT) scan were the imaging modalities of choice in the acute blast setting. Acoustic barotrauma was observed in eight patients, and blast lung injury was detected in one patient. One hundred seventy three shrapnel fragments were identified in 16 of 20 patients. Most shrapnel fragments were located in lower extremities and pelvis (77.5%). Most of bone fractures, identified in six patients, were categorized as secondary blast injuries. Five patients had skin burn and two patients showed signs of inhalation injuries. Conclusion: Radiologic findings of blast injuries in the 2015 Bangkok bombing were predominantly from secondary blast injuries, and most of the shrapnel fragments were found in soft tissue of lower extremities and pelvis.

Effectiveness of a multi-layer foam dressing in preventing sacral pressure ulcers for the early acute care of patients with a traumatic spinal cord injury: comparison with the use of a gel mattress.

Author(s): Richard-Denis, Andréane; Thompson, Cynthia; Mac-Thiong, Jean-Marc

Source: International wound journal; Oct 2017; vol. 14 (no. 5); p. 874-881

Publication Type(s): Journal Article

Abstract:Individuals with spinal cord injury are at risk of sacral pressure ulcers due to, among other reasons, prolonged immobilisation. The effectiveness of a multi-layer foam dressing installed pre-operatively in reducing sacral pressure ulcer occurrence in spinal cord injured patients was compared to that of using a gel mattress, and stratified analyses were performed on patients with complete tetraplegia and paraplegia. Socio-demographic and clinical data were collected from 315 patients admitted in a level-I trauma centre following a spinal cord injury between April 2010 and March 2016. Upon arrival to the emergency room and until surgery, patients were transferred on a foam stretcher pad with a viscoelastic polymer gel mattress (before 1 October 2014) or received a multi-layer foam dressing applied to their sacral-coccygeal area (after 1 October 2014). The occurrence of sacral pressure ulcer during acute hospitalisation was similar irrespective of whether patients received the dressing or the gel mattress. It was found that 82% of patients with complete tetraplegia receiving the preventive dressing developed sacral ulcers as compared to only 36% of patients using the gel mattress. Although multi-layer dressings were suggested to improve skin protection and decrease pressure ulcer occurrence in critically ill patients, such preventive dressings are not superior to gel mattresses in spinal cord injured patients and should be used with precaution, especially in complete tetraplegia.

Which transfers can we avoid: Multi-state analysis of factors associated with discharge home without procedure after ED to ED transfer for traumatic injury.

Author(s): Medford-Davis, Laura N; Holena, Daniel N; Karp, David; Kallan, Michael J; Delgado, M Kit

Source: The American journal of emergency medicine; Oct 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVEAmong injured patients transferred from one emergency department (ED) to another, we determined factors associated with being discharged from the second ED without

procedures, or admission or observation. **METHODS** We analyzed all patients with injury diagnosis codes transferred between two EDs in the 2011 Healthcare Utilization Project State Emergency Department and State Inpatient Databases for 6 states. Multivariable hierarchical logistic regression evaluated the association between patient (demographics and clinical characteristics) and hospital factors, and discharge from the second ED without coded procedures. **RESULTS** In 2011, there were a total of 48,160 ED-to-ED injury transfers, half of which (49%) were transferred to non-trauma centers, including 23% with major trauma. A total of 22,011 transfers went to a higher level of care, of which 36% were discharged from the ED without procedures. Relative to torso injuries, discharge without procedures was more likely for patients with soft tissue (OR 6.8, 95%CI 5.6-8.2), head (OR 3.7, 95%CI 3.1-4.6), facial (OR 3.8, 95%CI 3.1-4.7), or hand (OR 3.1, 95%CI 2.6-3.8) injuries. Other factors included Medicaid (OR 1.3, 95%CI 1.2-1.5) or uninsured (OR 1.3, 95%CI 1.2-1.5) status. Treatment at the receiving ED added an additional \$2859 on average (95% CI \$2750-\$2968) per discharged patient to the total charges for injury care, not including the costs of ambulance transport between facilities. **CONCLUSION** Over a third of patients transferred to another ED for traumatic injury are discharged from the second ED without admission, observation, or procedures. Telemedicine consultation with sub-specialists might reduce some of these transfers.

Visualization of painful inflammation in patients with pain after traumatic ankle sprain using [11C]-D-deprenyl PET/CT.

Author(s): Aarnio, Mikko; Appel, Lieuwe; Fredrikson, Mats; Gordh, Torsten; Wolf, Olof;

Source: Scandinavian journal of pain; Oct 2017; vol. 17 ; p. 418-424

Publication Type(s): Journal Article

Abstract: **BACKGROUND AND AIMS** Positron emission tomography (PET) with the radioligand [11C]-D-deprenyl has shown increased signal at location of pain in patients with rheumatoid arthritis and chronic whiplash injury. The binding site of [11C]-D-deprenyl in peripheral tissues is suggested to be mitochondrial monoamine oxidase in cells engaged in post-traumatic inflammation and tissue repair processes. The association between [11C]-D-deprenyl uptake and the transition from acute to chronic pain remain unknown. Further imaging studies of musculoskeletal pain at the molecular level would benefit from establishing a clinical model in a common and well-defined injury in otherwise healthy and drug-naïve subjects. The aim of this study was to investigate if [11C]-D-deprenyl uptake would be acutely elevated in unilateral ankle sprain and if tracer uptake would be reduced as a function of healing, and correlated with pain localizations and pain experience. **METHODS** Eight otherwise healthy patients with unilateral ankle sprain were recruited at the emergency department. All underwent [11C]-D-deprenyl PET/CT in the acute phase, at one month and 6-14 months after injury. **RESULTS** Acute [11C]-D-deprenyl uptake at the injury site was a factor of 10.7 (range 2.9-37.3) higher than the intact ankle. During healing, [11C]-D-deprenyl uptake decreased, but did not normalize until after 11 months. Patients experiencing persistent pain had prolonged [11C]-D-deprenyl uptake in painful locations. **CONCLUSIONS AND IMPLICATIONS** The data provide further support that [11C]-D-deprenyl PET can visualize, quantify and follow processes in peripheral tissue that may relate to soft tissue injuries, inflammation and associated nociceptive signaling. Such an objective correlate would represent a progress in pain research, as well as in clinical pain diagnostics and management.

The feasibility of point-of-care ankle ultrasound examination in patients with recurrent ankle sprain and chronic ankle instability: Comparison with magnetic resonance imaging.

Author(s): Lee, Sun Hwa; Yun, Seong Jong

Source: Injury; Oct 2017; vol. 48 (no. 10); p. 2323-2328

Publication Type(s): Journal Article

Abstract:OBJECTIVE To evaluate the feasibility of point-of-care ankle ultrasound compared with magnetic resonance imaging (MRI) for diagnosing major ligaments and Achilles tendon injuries in patients with recurrent ankle sprain and chronic instability, and to evaluate inter-observer reliability between an emergency physician and a musculoskeletal radiology fellow. MATERIAL AND METHODS A prospective cross-sectional study was conducted in an emergency department. Patients with recurrent ankle sprain and chronic instability were recruited. An emergency physician and a musculoskeletal radiology fellow independently evaluated the anterior talofibular ligament (ATFL), calcaneofibular ligament (CFL), distal anterior tibiofibular ligament (ATiFL), deltoid ligament, and Achilles tendon using point-of-care ankle ultrasound. Findings were classified normal, partial tear, and complete tear. MRI was used as the reference standard. We calculated diagnostic values for point-of-care ankle ultrasound for both reviewers and compared them using DeLong's test. Intra-class correlation coefficients (ICCs) were calculated for agreement between each reviewer and the reference standard, and between the two reviewers. RESULTS Eighty-five patients were enrolled. Point-of-care ankle ultrasound showed acceptable sensitivity (96.4-100%), specificity (95.0-100%), and accuracy (96.5-100%); these performance markers did not differ significantly between reviewers. Agreement between each reviewer and the reference standard was excellent (emergency physician, ICC=0.846-1.000; musculoskeletal radiology fellow, ICC=0.930-1.000), as was inter-observer agreement (ICC=0.873-1.000). CONCLUSION Point-of-care ankle ultrasound is as precise as MRI for detecting major ankle ligament and Achilles tendon injuries; it could be used for immediate diagnosis and further pre-operative imaging. Moreover, it may reduce the interval from emergency department admission to admission for surgical intervention, and may save costs.

Non-operative external fixation of flail chest using vacuum assisted therapy

Author(s): Paleru C.; Marinescu L.; Popescu V.

Source: Interactive Cardiovascular and Thoracic Surgery; Oct 2017; vol. 25

Publication Type(s): Conference Abstract

Abstract: Objectives: Vacuum-assisted therapy is well established in sternal dehiscence wound and stabilization treatment. We propose the extent of this method to chest wall stabilization, in flail chest post trauma cases, using a non-traumatic and easy to apply system, avoiding "internal fixation", intubation and ventilation. Case description: A patient with mild contusions and associated trauma after a car crash was diagnosed with post-traumatic flail chest. The patient presented with respiratory distress with an SpO₂ value of 85%, tachypnoea and tachycardia with acute pain and no lung contusion. Blood gases values showed mild hypercapnia and EKG showed normal sinus rhythm, with neither respiratory nor cardiovascular history. Four double rib fractures on a 7-cm segment were described. Associated haemothorax necessitated emergency pleural drainage. External fixation with vacuum-assisted therapy was applied on day 2 post admission. Bronchoaspiration was performed repeatedly, with 2 episodes of intubation for acute respiratory distress. The system consists of applying pieces of open-cell foam externally, sandwich-secured with plastic bands and covering the entire area with a transparent adhesive membrane, firmly secured to the skin and connected to the vacuum source. The area becomes rigid and the system molds after the body shape. The therapy led to an improvement in thoracic wall compliance and movement, thus avoiding external surgical fixation. After 3 weeks we considered it safe to remove the vacuum-assisted therapy, with no skin injuries recorded. Conclusions: Our initial experience in external fixation showed improvement of the paradoxical chest movement. Following vacuum-assisted therapy in sternal wound dehiscence management, our limited experience in external fixation of extensive thoracotomies and vast experience in chest wall resection and reconstruction, we imagined an easy-to-control external application of the vacuum-assisted therapy used in post-traumatic flail chest emergency treatment. It is a versatile system, simple to apply to a cheap device, can also be used in emergencies, without direct medical supervision, during transportation, avoiding further costal movements.

Blood pressure variability accurately quantifies the evolution of autonomic cardiovascular control in acute spinal cord injury

Author(s): Lucci V.E.M.; Inskip J.A.; Sandberg O.A.; Bajaj S.S.; Ruiz-Romero I.; McGrath M.S.

Source: Clinical Autonomic Research; Oct 2017; vol. 27 (no. 5); p. 322

Publication Type(s): Conference Abstract

Abstract:After spinal cord injury (SCI) cardiovascular autonomic nerves can be injured, leading to cardiovascular dysfunction, particularly in high-level SCI. However, cardiovascular autonomic control and its evolution in the acute period after SCI are poorly characterised. We aimed to evaluate cardiovascular autonomic function over the first year after SCI and its relationship with indices of cardiac arrhythmia risk. We tested 40 people 6-months after acute SCI. Supine beat-to-beat blood pressure and heart rate variability (HRV), and electro-cardiographic (ECG) markers of arrhythmia risk (QT variability index [QTVI] and P wave duration [PWD]) were determined at each visit. Low frequency variability of systolic arterial pressure (LFSAP) was used to quantify sympathetic autonomic function. Low frequency to high frequency HRV ratio (LF/HF RRI) was used to assess sympa-thovagal balance. LFSAP was reduced in all participants at < 2 weeks. By 1-month post-injury two distinct groups emerged: autonomically-complete SCI with sustained low LFSAP (2.1 +/- 0.6 mmHg²) and autonomically-incomplete SCI (11.19 +/- 3.6 mmHg², p = 0.018) with higher LFSAP. These groups remained distinct at subsequent time-points. HR slowed across all visits (p < 0.05). LF/HF RRI was higher in the incomplete group compared to the complete group (p = 0.07) suggesting those with incomplete lesions have higher sympathetic tone. Those with autonomically complete lesions showed increased risk for ventricular (QTVI worsened in autonomically-complete SCI across all visits (p = 0.05) arrhythmia. In order to develop treatments for cardiovascular dysfunction we must first understand the typical progression of changes in autonomic control after SCI. The use of LFSAP may provide a simple measure to quantitatively assess autonomic function non-invasively. Assessment of autonomic function is most informative 1-month after injury. Impaired autonomic function conveys an increased risk for cardiac arrhythmia after SCI.

Spinal cord injury (SCI) healthcare utilization: Examining risk factors for superutilizers

Author(s): Robertson D.K.; Callender L.; Bennett M.; Sikka S.; Petrey L.

Source: Archives of Physical Medicine and Rehabilitation; Oct 2017; vol. 98 (no. 10)

Publication Type(s): Conference Abstract

Abstract:Research Objectives: To identify individuals at risk for high healthcare utilization after admission to a Level 1 trauma center following traumatic spinal cord injury (SCI). Design: Retrospective Cohort. Setting: Level 1 Trauma Acute Care Facility. Participants: 543 patients admitted to BUMC with SCI diagnosis admitted January 1, 2003 and June 30, 2014 were identified from the BUMC trauma registry. Interventions: Subjects were matched with the Dallas Fort Worth Hospital Council (DFWHC) registry to identify healthcare utilization after onset of SCI. The DFWHC tracks admissions data from 95% of hospitals in the DFW Metroplex within a 75 mile radius. Patients were categorized as superutilizers if the number of subsequent emergent hospital encounters after onset of injury was in the top quartile. Multiple logistic regression was used to determine which factors were associated with being an ED superutilizer. Main Outcome Measure(s): Healthcare utilization among superutilizers. Results: Public insurance (p=0.0006), no insurance (p=0.0023), other mechanism of injury (p=0.0348), and tetraplegia injuries (0.0426) were all associated with greater odds of being a superutilizer in the ED. Discharge to a inpatient rehabilitation (p=0.0020) or a skilled nursing facility/long term acute care (p=0.0041) were also associated with increased healthcare utilization among inpatient admissions. Chronic skin ulcers, digestive issues, urinary tract disorders, hypertension, and infection were the most commonly used diagnosis codes for subsequent healthcare

encounters. Conclusion/Discussion This analysis summarizes emergent healthcare utilization across a diverse population of spinal cord injuries at a large medical center. This data highlights those at highest risk for readmission and facilitates preliminary interventions to manage preventable secondary complications of acute spinal cord injury.

Spontaneous painful subungual thumb haematoma.

Author(s): Jakharia-Shah, Nihull; Chadha, Priyanka; Kulkarni, Mahendra

Source: BMJ case reports; Oct 2017; vol. 2017

Publication Type(s): Journal Article

Abstract: We present the case of a 56-year-old man who presented to our accident and emergency department 15 years after a work-based injury to his left thumb. In January 2017, the patient was woken up acutely with excruciating pain in his left thumb with no preceding trauma. On clinical examination, only a subungual haematoma was noted. Radiographs of the effected thumb demonstrated a round, lytic lesion with an accompanying hairline fracture on the distal phalanx of the left thumb. The radiologist suggested a differential diagnosis of enchondroma should be considered. The patient was referred for a routine plastic surgery outpatient appointment. Curettage sampling of the lesion was performed and a cement filler was used to prevent further pathological fractures. The biopsy report stated that the sample contained normal bone tissue with no evidence of enchondroma or other malignancy and the patient was discharged without any further complications.

Blunt traumatic pericardial rupture with cardiac herniation

Author(s): Archer-Arroyo K.; O'Connor J.V.

Source: Emergency Radiology; Oct 2017; vol. 24 (no. 5); p. 467-468

Publication Type(s): Conference Abstract

Abstract: History: 45-year-old male driver presents with left-sided chest pain and shortness of breath following near side impact in a motor vehicle collision. On initial examination he is hemodynamically stable. Diagnosis: An admission supine chest radiograph (Figure 1) demonstrates a prominent left cardiac silhouette with pneumopericardium. Extensive subcutaneous emphysema is seen throughout the left chest wall with multiple left rib fractures. Contrast enhanced whole body multi-detector CT (Figure 2) showed deviation of the cardiac apex into the left hemithorax with bi-atrial compression. On lung windows, pneumopericardium was seen with discontinuity of the left anterior pericardium at the site of a "collar" sign. The patient became hypotensive and was taken for emergent thoracotomy. Surgery confirmed a large longitudinal tear in the left lateral pericardium with cardiac herniation into the left hemithorax. The free edge of the torn pericardium was compressing the atria. Discussion: Blunt traumatic pericardial rupture (BTPR) is a rare, potential life threatening injury especially when complicated by cardiac herniation. The reported incidence of BTPR after blunt chest trauma ranges from 0.3 to 3% [1]. It is proposed BTPR occurs from a sharp increase in intrapericardial pressure from a high-energy thoracic force, compressing the pericardial sac between the chest wall and thoracic vertebra [2]. The common mechanisms are: motor vehicle collision (68%), motorcycle crash and pedestrians struck by vehicles [3]. The location of the pericardial tear is most commonly on the left (64%), followed by the right (9%), mediastinal (9%) and diaphragmatic (4%) pericardium [4]. Cardiac herniation is associated with BTPR in 64% of cases [5] with cardiac strangulation reported in 50% of patients in a small autopsy study [6]. Cardiac strangulation may occur when the cardiac apex herniates through a right pericardial defect allowing the heart to rotate on its long axis occluding the atrial-caval junction and ventricular outflow tracts [2]. This results in decreased venous return, compromised cardiac output and cardiac arrest. Herniation of the heart through a left pericardial defect may result in direct compression of the

myocardium and coronary arteries by the free pericardial edge resulting in myocardial edema or infarction [2]. Imaging is essential in diagnosing BTPR with cardiac herniation following poly-trauma, given the variable and nonspecific clinical presentation, including tachycardia and hemodynamic instability. Mortality due to delayed diagnosis has been reported as high as 64% [3]. Chest radiographs may show signs of BTPR including an empty pericardial sac delineated by air or herniation of the cardiac apex into either hemithorax [7]. CT can demonstrate findings specific for pericardial rupture such as focal pericardial dimpling and discontinuity, pneumopericardium. Findings of cardiac herniation include an empty pericardial sac, gross cardiac displacement into either hemithorax or deformed cardiac contour including the "collar" sign, which is caused by constriction of the cardiac contour by the free edge of the torn pericardium [7]. The use of MRI is limited in the acute setting given the unstable critically ill patients and extended time needed for patient transport and image acquisition. Conflict of Interest: The authors declare that they have no conflict of interest.

Musculoskeletal

Low evaluation rate for osteoporosis among patients presenting with a rib fracture.

Author(s): Kim, Whang; Gong, Hyun Sik; Lee, Seung Hoo; Park, Jin Woo; Kim, Kahyun;

Source: Archives of osteoporosis; Dec 2017; vol. 12 (no. 1); p. 61

Publication Type(s): Journal Article

Abstract: This study in a regional hospital setting found a low evaluation rate for osteoporosis among patients presenting with a rib fracture. Increased emphasis or education for osteoporosis evaluation may be necessary in case of rib fractures. **INTRODUCTION** Rib fractures from a low-energy trauma are common in the elderly, and a history of rib fracture has been reported to increase the risk for a subsequent osteoporotic fracture. The purpose of this study was to evaluate how many of the patients presenting with an isolated rib fracture were being evaluated for osteoporosis and the risk for a subsequent fracture. **METHODS** We retrospectively reviewed all patients aged 50 years or older who were diagnosed with a rib fracture between January 2011 and April 2016 at a regional tertiary care university hospital near Seoul, South Korea. We excluded those who had been treated for osteoporosis or those with other concomitant fractures or fractures from a motor vehicle accident or cancer. We evaluated the frequency of dual energy X-ray absorptiometry (DXA) scan examinations in these patients. **RESULTS** There were 231 patients with isolated rib fractures (132 men and 99 women). The mean age was 65 years. Rib fractures were most commonly diagnosed at the emergency department and most of the patients were referred to the department of thoracic surgery for follow-up evaluations. Of these 231 patients, 29 (12%) had DXA examinations after the injury, and only 9 (4%) of them did so within 6 months. Physicians specializing in orthopedic surgery, family medicine, internal medicine, rehabilitation medicine, and emergency medicine were ordering the examination. **CONCLUSIONS** This study in a regional hospital setting found a low evaluation rate for osteoporosis among patients presenting with a rib fracture. This study suggests that increased emphasis or education for osteoporosis evaluation may be necessary for physicians who are often referred to for care of rib fractures.

Regional nerve blockade for early analgesic management of elderly patients with hip fracture - a narrative review.

Author(s): Scurrah, A; Shiner, C T; Stevens, J A; Faux, S G

Source: Anaesthesia; Dec 2017

Publication Type(s): Journal Article Review

Abstract: Elderly patients with hip fracture experience high morbidity and mortality, and are often undertreated for pain. Acute pain management in the elderly is challenging, with physiological frailty, medical comorbidities and cognitive impairment commonly compounding pain assessment and treatment. Guidelines outlining current best practice for acute pain management in the elderly now exist, but evidence suggests that practice remains variable and there continues to be scope for improvement. We conducted a narrative review of the literature to examine the challenges of acute pain management in the elderly, and to evaluate evidence for the role of regional nerve blocks for acute pain associated with hip fracture in the elderly. There is consistent evidence that regional nerve blocks can effectively reduce pain associated with hip fracture, providing rapid-onset, site-specific analgesia that is more effective than standard systemic analgesia alone. There is also moderate evidence that nerve blocks may contribute to reduced rates of delirium, and some suggestion of reduced length of inpatient stay, morbidity and mortality, although limited evidence is available. Fascia iliaca blocks are emerging as a block of choice, with evidence they can be safely and rapidly administered under ultrasound guidance in the acute setting, by both trained medical and nursing staff, with good effect. Ideally, comprehensive pain protocols for elderly hip fracture patients are required, that integrate evidence-based fascia iliaca block use, timely and repeated pain assessment, and multidisciplinary orthogeriatric patient care.

HOFFA'S FRACTURE WITH IRREDUCIBLE PATELLAR DISLOCATION: APPROACH TO AVOID COMPLICATIONS IN A RARE INJURY

Author(s): Salunke A.A.; Savale A.; Dwivedi C.; Pathak S.; Ughareja P.; Akbari K.; Jain S.; Bhalodiya P.

Source: Journal of Musculoskeletal Research; Dec 2017

Publication Type(s): Article In Press

Abstract: Hoffa's fracture is coronal oriented fracture of distal femur with the fracture line extending through the femoral condyles. Hoffa's fracture is rarely associated with ipsilateral femur and tibia fractures. Proper clinical examination and radiographic evaluation is necessary to diagnose associated injuries around the knee joint with Hoffa's fracture. Closed reduction of dislocated patella in emergency room and field triage should be avoided to prevent patellar tendon incarceration, patellar tendon rupture and osteochondral damage. We report a rare case of Hoffa's fracture with irreducible patellar dislocation and tibial intercondylar eminence fracture following road traffic accident. Copyright © 2017 World Scientific Publishing Company

Rib Fracture Diagnosis in the Panscan Era

Author(s): Murphy C.E.; Rodriguez R.M.; Raja A.S.; Baumann B.M.; Medak A.J.; Langdorf M.I.

Source: Annals of Emergency Medicine; Dec 2017; vol. 70 (no. 6); p. 904-909

Publication Type(s): Article

Abstract: Study objective With increased use of chest computed tomography (CT) in trauma evaluation, traditional teachings in regard to rib fracture morbidity and mortality may no longer be accurate. We seek to determine rates of rib fracture observed on chest CT only; admission and mortality of patients with isolated rib fractures, rib fractures observed on CT only, and first or second rib fractures; and first or second rib fracture-associated great vessel injury. Methods We conducted a planned secondary analysis of 2 prospectively enrolled cohorts of the National Emergency X-Radiography Utilization Study chest studies, which evaluated patients with blunt trauma who were older than 14 years and received chest imaging in the emergency department. We defined rib fractures and other thoracic injuries according to CT reports and followed patients through their hospital course to determine outcomes. Results Of 8,661 patients who had both chest radiograph and chest CT, 2,071 (23.9%) had rib fractures, and rib fractures were observed on chest CT only in 1,368 cases (66.1%). Rib fracture patients had higher admission rates (88.7% versus 45.8%; mean

difference 42.9%; 95% confidence interval [CI] 41.4% to 44.4%) and mortality (5.6% versus 2.7%; mean difference 2.9%; 95% CI 1.8% to 4.0%) than patients without rib fracture. The mortality of patients with rib fracture observed on chest CT only was not statistically significantly different from that of patients with fractures also observed on chest radiograph (4.8% versus 5.7%; mean difference -0.9%; 95% CI -3.1% to 1.1%). Patients with first or second rib fractures had significantly higher mortality (7.4% versus 4.1%; mean difference 3.3%; 95% CI 0.2% to 7.1%) and prevalence of concomitant great vessel injury (2.8% versus 0.6%; mean difference 2.2%; 95% CI 0.6% to 4.9%) than patients with fractures of ribs 3 to 12, and the odds ratio of great vessel injury with first or second rib fracture was 4.4 (95% CI 1.8 to 10.4). Conclusion Under trauma imaging protocols that commonly incorporate chest CT, two thirds of rib fractures were observed on chest CT only. Patients with rib fractures had higher admission rates and mortality than those without rib fractures. First or second rib fractures were associated with significantly higher mortality and great vessel injury. Copyright © 2017 American College of Emergency Physicians

Monteggia Injuries.

Author(s): Delpont, M; Louahem, D; Cottalorda, J

Source: Orthopaedics & traumatology, surgery & research : OTSR; Nov 2017

Publication Type(s): Journal Article Review

Abstract:The Monteggia injury is defined as radial head dislocation with a fracture of the ulnar shaft. This combination should be sought routinely in patients with ulnar fractures, even when the displacement is small. The emergent management is simple, as reducing the ulnar fracture is usually sufficient to stabilise the radial head. Internal fixation of the ulna deserves to be widely used to fully stabilise the radial head. Irreducibility of the radial head at the acute stage may indicate an interposition, which requires open surgery on the joint. Radial head dislocation may occur even with minimal displacement of the ulnar fragment. Chronic Monteggia fractures are more challenging to treat, and their outcomes are more variable. The radial head becomes irreducible after 2 to 3 weeks. When a simple surgical approach fails to ensure stable reduction, the most widely used method at present is open reduction of the radial head and proximal osteotomy of the ulnar shaft. Stability must be obtained intra-operatively. Without treatment, radial head dislocation may be well tolerated for several months or even years. In the long term, however, osteo-articular remodelling results in loss of joint congruence, pain and, eventually, osteoarthritis. Radiographs must therefore be obtained on an emergency basis and analysed with great care to avoid missing a Monteggia fracture.

Association of Insulin-like Growth Factor-1, Bone Mass and Inflammation to Low-energy Distal Radius Fractures and Fracture Healing in Elderly Women Attending Emergency Care.

Author(s): Chisalita, Simona I; Chong, Lee Ti; Wajda, Maciej; Adolfsson, Lars

Source: Orthopaedic surgery; Nov 2017; vol. 9 (no. 4); p. 380-385

Publication Type(s): Journal Article

Abstract:OBJECTIVEElderly patients suffer fractures through low-energy mechanisms. The distal radius is the most frequent fracture localization. Insulin-like growth factor-1 (IGF1) plays an important role in the maintenance of bone mass and its levels decline with advancing age and in states of malnutrition. Our aim was to investigate the association of IGF1 levels, bone mass, nutritional status, and inflammation to low-energy distal radius fractures and also study if fracture healing is influenced by IGF1, nutritional status, and inflammation.METHODSPostmenopausal women, 55 years or older, with low-energy distal radius fractures occurring due to falling on slippery ground, indoors or outdoors, were recruited in the emergency department (ED) and followed 1 and 5 weeks after the initial trauma with biomarkers for nutritional status and inflammation. Fractures were diagnosed according to standard procedure by physical examination and X-ray. All patients

were conservatively treated with plaster casts in the ED. Patients who needed interventions were excluded from our study. Fracture healing was evaluated from radiographs. Fracture healing assessment was made with a five-point scale where the radiological assessment included callus formation, fracture line, and stage of union. Blood samples were taken within 24 h after fracture and analyzed in the routine laboratory. Bone mineral density (BMD) was measured by dual-energy X-ray absorptiometry (DXA). RESULTSThirty-eight Caucasian women, aged 70.5 ± 8.9 years (mean \pm SD) old, were recruited. Nutritional status, as evaluated by albumin (40.3 ± 3.1 g/L), IGF1 (125.3 ± 39.9 μ g/L), body mass index (26.9 ± 3.6 kg/m²), arm diameter (28.9 ± 8.9 cm), and arm skinfold (2.5 ± 0.7 cm), was normal. A positive correlation was found between IGF1 at visit 1 and the lowest BMD for hip, spine, or radius ($r = 0.39$, $P = 0.04$). High sensitive C-reactive protein (hsCRP) and leukocytes were higher at the fracture event compared to 5 weeks later ($P = 0.07$ and $P < 0.001$, respectively). Fracture healing parameters (i.e. callus formation, fracture line, and stage of union) were positively correlated with the initial leukocyte count and to difference in thrombocyte count between visit 1 and 3. CONCLUSIONSIn elderly women with low-energy distal radius fractures, an association between IGF1 and lowest measures of BMD was found, indicating that low IGF1 could be an indirect risk factor for fractures. Fracture healing was associated with initial leukocytosis and a lower thrombocyte count, suggesting that inflammation and thrombocytes are important components in fracture healing.

Trainees With Displaced Hip Fractures Present to Physical Therapy With Primary Complaint of Knee Pain.

Author(s): Carow, Scott D; Houser, Jeremy D

Source: Military medicine; Nov 2017; vol. 182 (no. 11); p. e2095

Publication Type(s): Journal Article

Available at [Military Medicine](#) - from EBSCO (MEDLINE Complete)

Abstract:Stress fractures of the femoral neck are career-threatening and life-altering injuries that occur frequently in Initial Entry Training (IET) Soldiers. Because of the severity of these injuries, military clinics that serve IET Soldiers have implemented guidelines to direct providers in the management of Soldiers with signs of symptoms of stress fracture. These guidelines focus on Soldiers presenting with a primary complaint of hip pain. The cases described here show two Soldiers who had displaced hip fractures despite having primary complaints of knee pain and no self-reported hip pain. In the first case, the patient was ambulatory with a slight limp and lateral knee pain that he rated as 3 out of 10. His physical therapist noted a significant gross leg length discrepancy on physical examination. Leg length X-rays identified a displaced fracture of the femoral neck. In the second case, the Soldier had severe (7/10) lateral knee pain with no complaints of hip pain. He presented to the Emergency Department where he received knee X-rays, which were normal. The next day in physical therapy, he continued to complain of severe knee pain. A femur X-ray demonstrated that he had a displaced hip fracture. Throughout their examination and diagnostic workup, neither of these patients ever experienced any hip pain. The implication of these cases is that clinicians must remain vigilant in examining the joints above and below the primary complaint. This may be more important when evaluating trainees who have a uniquely high risk of severe bone stress injury. Clinicians who work primarily with trainees should consider updating clinical management guidelines to include basic hip screening on patients who present with primary complaints of knee pain. Because of cases like these and the known connection between knee pain and hip pathology, we recommend that clinicians in IET clinics consider screening procedures to rule out hip pathology in trainees with primary complaints of knee pain.

Management of acute hip fracture

Author(s): Bhandari M.; Swiontkowski M.

Source: New England Journal of Medicine; Nov 2017; vol. 377 (no. 21); p. 2053-2062

Publication Type(s): Article

Available at [New England Journal of Medicine](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: A 65-year-old woman who has been healthy and active presents to the emergency department several hours after a slip and fall. She is unable bear any weight on her right leg and reports that she has pain with any attempt to move. On inspection, her right leg is shortened and externally rotated. A plain radiograph of her pelvis and hip confirms a nondisplaced fracture of the femoral neck. Careful review of the radiograph determines that her fracture is located at the base of the femoral neck (sometimes called a basicervical fracture) with a more vertically oriented fracture line. How should her case be managed? Copyright © 2017 Massachusetts Medical Society.

Role of insulin-like growth factor-I in stress fracture risk

Author(s): Nindl B.

Source: Journal of Science and Medicine in Sport; Nov 2017; vol. 20

Publication Type(s): Conference Abstract

Abstract: Purpose: There are many varied roles of insulin-like growth factor I (IGF-I), which exists in different biocompartments, and there is abundant scientific evidence demonstrating that IGF-I is an important metabolic biomarker associated with a variety of health- and exercise-related outcomes. In most cases (muscle, bone, tendon, body composition, and cognitive function), elevated IGF-I concentrations are considered beneficial; however, cancer remains a notable exception. Methods: With regard to bone, Insulin-like growth factor-I (IGF-I) is a potent stimulator of bone formation and is positively correlated with bone mineral density, especially in women. IGF-1 and is an emerging biomarker of stress fracture risk in female military recruits. Results: Preliminary results suggest that stress fracture susceptibility may be related to differential IGF-I system concentrations and response to physical training. Although the fact that both increased and decreased IGF-I concentrations can be considered as reflective of favorable and beneficial health outcomes and may seem as a paradox and even contradictory, it is important to emphasize that, in both cases, measured IGF-I concentrations do offer important insight into physiological processes. The precise and relative role of systemic versus locally produced IGF-I in mediating the outcomes of physical activity is still not clearly delineated, but it does seem as though local IGF-I is consistently upregulated with both acute and chronic exercises; whereas in certain situations, circulating IGF-I may actually decrease. Although perhaps counterintuitive to the known anabolic role that IGF-I exerts, positive neuromuscular training adaptations can occur in the presence of decreases or no changes in circulating IGF-I. These observations, however, should not be interpreted to conclude that the role of circulating IGF-I lacks importance or relevance in contributing to enhanced musculoskeletal health as evidenced by the liver IGF-I deficient mouse model. Because of the ubiquitous nature of IGF-I, prospective experimental approaches involving physical activity that can sample and measure IGF-I in the body's various biocompartments (i.e., blood, interstitial fluid, muscle) with the most biologically relevant assays are encouraged. We believe that such endeavors will provide greater understanding in the complex role that IGF-I possesses in mediating exercise-induced adaptations. Conclusion: This presentation will overview the relationship between the IGF-I system and bone health, particularly as it applies to stress fracture and musculoskeletal injuries in military populations.

Incidence of spinal fractures in the Netherlands 1997-2012

Author(s): ten Brinke J.G.; Goslings J.C.; Saltzherr T.P.; Hogervorst M.; Panneman M.J.M.

Source: Journal of Clinical Orthopaedics and Trauma; Nov 2017; vol. 8

Publication Type(s): Article

Abstract: Study objective : To determine time trends of emergency department (ED) visits, hospitalization rates, spinal cord lesions and characteristics of patients with spinal fractures in the Netherlands. Methods: In an observational database study we used the Dutch Injury Surveillance System to analyse spinal fracture-related ED visits, hospitalization rates and spinal cord lesions between 1997 and 2012. Results: The total number of ED visits associated with spinal fractures increased from 4,507 in 1997 to 9,690 in 2012 (115% increase). The increase in the total number of fractures occurred in all age groups independently of gender. However, incidence rates increased more strongly with age and were higher in young males and ageing females. The hospitalization rate of diagnosed spinal fractures remained stable between 62 and 67%. The incidence of spinal cord lesions varied between 13.8 and 20.3 per million of the population over a period of 15 years. Conclusion: Spinal fracture-related ED visits are increasing in the Dutch population, independently of age or gender. The hospitalization rate and the absolute numbers of spinal cord lesions have remained stable over a period of 15 years. These findings are relevant for public health decision-making and resource allocation. Copyright © 2017 Delhi Orthopedic Association

Spine Conditions: Cervical Spine Conditions.

Author(s): Childress, Marc A

Source: FP essentials; Oct 2017; vol. 461 ; p. 11-14

Publication Type(s): Journal Article

Abstract: There are a variety of causes of neck pain, including trauma and degenerative changes. The history of onset helps to direct evaluation, including the need for imaging or ancillary testing. Patterns of pain, weakness, and other specific physical examination findings also aid in diagnosis. Management of most soft tissue injuries involves early mobilization, whereas fractures are managed based on patterns of instability. Acute spinal cord injury requires emergent care, to include possible decompressive surgery. The role of hypothermia and corticosteroids in these patients remains unclear. Cervical radiculopathy (eg, disk herniation, arthritic changes) can be managed conservatively in most patients. Central cord compression, or myelopathy, often is overlooked but is a common condition among older patients. Although certain patients may benefit from surgery, many have a stable course or slow progression that can be managed nonsurgically. Rheumatoid arthritis can have significant effects on the cervical spine. Patients with inflammatory conditions may improve with steroids, nonsteroidal anti-inflammatory drugs, or biologic drugs, but these drugs rarely have lasting benefit in degenerative conditions. Stretching, strengthening, and other physical therapy modalities have been shown to be helpful for patients with chronic and acute but stable neck conditions.

Introduction of a novel rib fracture admission protocol decreases time to surgical intensive care unit SICU admission

Author(s): Campion E.M.; Croyle C.; French A.J.; Burlew C.C.; Lawless R.A.; Platnick K.B.; Cohen M.J.

Source: Journal of the American College of Surgeons; Oct 2017; vol. 225 (no. 4)

Publication Type(s): Conference Abstract

Abstract: INTRODUCTION: Rib fractures occur commonly after blunt trauma with resultant morbidity and mortality. A subgroup of these patients benefit from aggressive analgesia and pulmonary care in the surgical intensive care unit (SICU). Many of our rib fracture patients admitted to our SICU were delayed in admission from the emergency department (ED) impeding the onset of crucial SICU care. To address this delay, we instituted a novel rib fracture protocol to rapidly identify patients that

require admission to the SICU and facilitate transfer and onset of care. **METHODS:** We retrospectively reviewed all patients admitted from the ED to the SICU with rib fractures from October 2014 to October 2016. Patients were grouped into a before and after cohort surrounding an implementation of our protocol in November 2015. Patients with other injuries requiring SICU care were excluded. In addition to demographics and injury information, outcomes included ED length of stay (LOS), as well as the time from rib fracture diagnosis to SICU admission. **RESULTS:** A total of 111 patients with a mean age of 59 years met criteria for the study; 61 prior to protocol implementation and 50 after. While the pre-protocol group was slightly more severely injured there was no difference in age, number of rib fractures, flail segments, or utilization of CT imaging. Implementation of the protocol was associated with faster time to SICU admission. **CONCLUSIONS:** Implementation of our rib fracture protocol was associated with a decreased time in the ED. This was primarily by decreasing the time from rib fracture diagnosis to SICU admission.

Os trigonum fracture: An unusual injury

Author(s): Sekhon R.; Wong D.

Source: Journal of Medical Imaging and Radiation Oncology; Oct 2017; vol. 61 ; p. 232

Publication Type(s): Conference Abstract

Abstract:The Os Trigonum is one of the largest and most common accessory ossicles of the foot. Fractures of the Os Trigonum are extremely rare and it may be radiographically confused with a fracture of the posterior process of the talus. There should be a high index of suspicion for fracture in severe hyperflexion injuries. We review a case of an Os Trigonum fracture following acute trauma in our institution highlighting the difference from a posterior process of talus fracture. A missed Os Trigonum fracture may result in persistent pain and posterior-ankle impingement syndrome. **Learning Objectives:** We educate on the salient features of an os trigonum fracture, as a missed diagnosis may result in persistent pain, non-union and posterior-ankle impingement syndrome⁴. **Background:** The os trigonum appears between the ages of 8 and 11 as a secondary ossification centre. It usually fuses with the talus however when the secondary ossification centre remains separate, it is referred to as the os trigonum^{1,2}. It remains connected to the lateral tubercle of the posterior process of the talus by a fibrocartilagenous synchondrosis^{1,2}. It may be radiographically confused with a fracture of the posterior process of the talus³. An os trigonum is usually round or oval, with a well-defined corticated margin in contrast to a fractured lateral tubercle or a fractured os trigonum, which has an irregular, serrated margin between the fragment and the talus². Although os trigonum fractures are very uncommon, one should have a high index of suspicion following a severe hyperflexion injury of the ankle⁴ where the os trigonum is compressed between the posterior malleolus of the tibia and tuber calcaneus ⁴. Patients present with pain exacerbated on weight bearing and increased plantar-flexion ³. A missed diagnosis may result in non-union, chronic pain and posterior-ankle impingement syndrome⁵, necessitating surgical excision of the un-united fragment⁴. Similar to posterior process of talus fractures, with appropriate diagnosis, conservative treatment is usually allows return to normal function. **Imaging Findings:** A 25 year old male presented to the Emergency Department after falling down stairs on a push bike, with tenderness and swelling overlying the anterior and lateral malleolus of the left ankle. Initial radiographs showed a fracture of the medial talus. An os trigonum was identified together with an additional smaller fragment posterior to the talus which was thought to be either a fracture of the posterior process of the talus or fracture of the os trigonum. A subsequent CT scan of the left ankle confirmed a fracture of the os trigonum with displacement of the larger fragment medially, perched on the lateral tubercle of the posterior process of the talus. The patient was treated conservatively with a Camboot. **Conclusion:** Awareness and accurate diagnosis of an os trigonum fracture after severe hyperflexion may allow for conservative management, preventing complications which include posterior ankle impingement syndrome.

Retrospective audit of plain film imaging in acute ankle trauma: Are we choosing wisely?

Author(s): Figar S.; Wong C.; Du L.; Findakly S.

Source: Journal of Medical Imaging and Radiation Oncology; Oct 2017; vol. 61 ; p. 149-150

Publication Type(s): Conference Abstract

Abstract: Purpose: Retrospective audit of current clinical practice for the ordering of plain radiographs of the foot and ankle in patients presenting with acute ankle injury across the Gold Coast Health Service. Appropriate ordering of plain radiographs was assessed against the clinical decision rules published by the Royal Australian and New Zealand College of Radiologists in the "Choosing Wisely Australia" document, which adopts the widely recognized and extensively validated Ottawa Ankle Rules. Methods and materials: The audit covered all ED patients who underwent foot and ankle radiographs for the 2 month period of May and June 2016. Data was collected from the picture archiving and communications system and the electronic medical record, including the date and time of presentation to the emergency department and the type of clinician who made the initial assessment and referral for imaging (consultant, registrar, resident medical officer, intern, nurse practitioner, or physiotherapist) as well as notes from any subsequent fracture clinic follow up. Failure to document components of the clinical decision rule in the imaging request or clinical notes was interpreted as absence of that clinical sign. Pearson's chi-square test was used to analyse the categorical data. Results: 646 patients were eligible for inclusion. 516 patients (80%) met the clinical decision rule criteria with 169 acute ankle fractures diagnosed. 130 patients (20%) did not meet the clinical decision rule criteria. Of these patients, none had a final diagnosis of acute fracture. There was no statistically significant difference in application of the clinical decision rules during business hours compared to after hours. There was a significant association between the referring clinician type and the appropriate use of the clinical decision rules ($p < 0.05$), with consultants and interns ordering the highest proportion of radiographs without satisfying the criteria (35% and 33% respectively), with nurse practitioners and physiotherapists ordering the least (12% and 14% respectively). Conclusion: A significant proportion (20%) of patients received radiographs without meeting the clinical decision rule criteria, with the proportion varying between referring clinician types. None of these demonstrated an acute fracture. The possible explanations for this include failure of the clinician to document clinical components of the decision rule, lack of awareness of the decision rules, or "overriding" of the decision rule due to clinician experience and/or high clinical suspicion of injury. Further characterisation may help direct clinician-specific education with the aim to reduce unnecessary imaging in ankle trauma.

Impact of choices of imaging modality on length of hospital stay for patients with intertrochanteric extension of greater trochanteric fractures in the emergency department

Author(s): Anilkumar A.; Schweitzer M.; Huang M.; Zhang Z.

Source: Emergency Radiology; Oct 2017; vol. 24 (no. 5); p. 447

Publication Type(s): Conference Abstract

Abstract: Purpose: Greater trochanteric fractures (GTFs) commonly occur as a component of intertrochanteric extension fractures (IEFs). Early detection is critical for management, as IEFs generally require surgical intervention compared to nonsurgical for isolated GTFs. Radiography, CT and MRI are the imaging modalities commonly used to assess the proximal femur. This study seeks to assess the impact of which imaging modality was selected on hospital stay in an emergency department of a single institution. Methods: A retrospective review of 7214 patients with hip pain who visited the Emergency Department (ED) of a level I trauma center over a 4 year period was conducted. 34 patients with an acute GTF on radiograph who later went on to have more advanced imaging for detection of IEF were studied. Gender, age, diabetic status, osteoporosis risk, and BMI of

these patients were recorded. Patients were then grouped according to the imaging modality used to detect IEF (MRI only, CT followed by MRI, and CT only). The length of stay following ED admission was recorded in days. Results: Of the 34 patients with a GTF, 28 (82.4%) were found to have an IEF. 17 (68.7%) were female, and 11 (39.3%) were male. 8 (28.6%) were diabetic, and 9 (32.1%) had osteoporosis. The mean (+/-SD) BMI and age was 25.5 +/- 3.9 and 77.2 +/- 14.2 respectively. The detection rate of the IEFs was 100.0% (19/19) on MRI, 54.5% (12/22) on CT, and 0.04% (1/28) on X-ray. Following the initial hip X-ray, patients who underwent an MRI only (n = 6), CT followed by MRI (n = 13), and CT only (n = 9) had a mean (+/-SD) length of stay of 4.2 (+/-1.7), 7.5 (+/-4.7), and 9.7 (+/-7.4) days, respectively. The difference in LOS of patients who had an MRI only and those who had a CT followed by an MRI was statistically significant per Mann-Whitney U test (p = 0.036); the difference in LOS between the groups MRI only and CT only was also statistically significant (p = 0.037). Conclusions: When a patient presents to the ED with a GTF, MRI should be acutely performed to assess for the highly associated IEF and when used may shorten hospital stay.

Sports Injuries

MR Imaging of Muscle Trauma: Anatomy, Biomechanics, Pathophysiology, and Imaging Appearance.

Author(s): Flores, Dyan V; Mejía Gómez, Catalina; Estrada-Castrillón, Mauricio; Smitaman, Edward;

Source: Radiographics : a review publication of the Radiological Society of North America, Inc; Dec 2017 ; p. 170072

Publication Type(s): Journal Article

Abstract: Muscle is an important component of the muscle-tendon-bone unit, driving skeletal motion through contractions that alter the length of the muscle. The muscle and myotendinous junction (MTJ) are most commonly injured in the young adult, as a result of indirect mechanisms such as overuse or stretching, direct impact (penetrating or nonpenetrating), or dysfunction of the supporting connective tissues. Magnetic resonance (MR) imaging is widely used for assessment of muscle injuries. This review illustrates the MR imaging appearance of a broad spectrum of acute, subacute, and chronic traumatic lesions of muscle, highlighting the pathophysiology, biomechanics, and anatomic considerations underlying these lesions. Concentric (shortening) contractions are more powerful, but it is eccentric (lengthening) contractions that produce the greatest muscle tension, leading to indirect injuries such as delayed-onset muscle soreness (DOMS) and muscle strain. Strain is the most commonly encountered muscle injury and is characteristically located at the MTJ, where maximal stress accumulates during eccentric exercise. The risk of strain varies among muscles based on their fiber composition, size, length, and architecture, with pennate muscles being at highest risk. Direct impact to muscle results in laceration or contusion, often accompanied by intramuscular interstitial hemorrhage and hematoma. Disorders related to the muscle's collagen framework include compartment syndrome, which is related to acute or episodic increases in pressure, and muscle herniation through anatomic defects in the overlying fascia. The healing response after muscle trauma can result in regeneration, degeneration with fibrosis and fatty replacement, or disordered tissue proliferation as seen in myositis ossificans. In athletes, accurate grading of the severity and precise location of injury is necessary to guide rehabilitation planning to prevent reinjury and ensure adequate healing. In elite athletes, MR imaging grading of muscle trauma plays an increasingly important role in recently developed comprehensive grading systems that are replacing the imprecise three-grade injury classification system currently used. ©RSNA, 2017.

Epidemiologic comparisons of soccer-related injuries presenting to emergency departments and reported within high school and collegiate settings.

Author(s): Kerr, Zachary Y; Pierpoint, Lauren A; Currie, Dustin W; Wasserman, Erin B; Comstock,

Source: Injury epidemiology; Dec 2017; vol. 4 (no. 1); p. 19

Publication Type(s): Journal Article

Available at [Injury Epidemiology](#) - from Europe PubMed Central - Open Access

Abstract:BACKGROUND Few studies compare sports injury patterns in different settings. This study described the epidemiology of soccer injuries presenting to emergency departments (EDs) and compared injuries presenting to EDs to injuries presenting to collegiate and high school athletic trainers (ATs).METHODS Soccer-related injuries (product code 1267) in the National Electronic Injury Surveillance System (NEISS) that were sustained by individuals at least two years of age in 2004-2013 were included. High School Reporting Information Online (HS RIO) data for high school soccer injuries during the 2005/06-2013/14 academic years were compared to NEISS data for those aged 14-17 years in 2005-2013. National Collegiate Athletic Association Injury Surveillance Program (NCAA-ISP) data for collegiate soccer injuries during the 2009/10-2013/14 academic years were compared to NEISS data for those aged 18-22 years in 2009-2013. All datasets included weights to calculate national estimates. Injury proportion ratios (IPRs) with 95% confidence intervals (CIs) compared nationally estimated injury distributions between the HS RIO/NCAA-ISP and NEISS data subsets.RESULTS During the study period, 63,258 soccer-related injuries were captured by NEISS, which translates to an estimated 2,039,250 injuries seen at US EDs nationwide. Commonly injured body parts included the head/face (19.1%), ankle (17.6%), hand/wrist (15.3%), and knee (12.2%). Common diagnoses included sprains/strains (34.0%), fractures (22.2%), and contusions (17.7%). Compared to their respective age ranges in NEISS, sprains/strains comprised a larger proportion of injuries in HS RIO (48.3% vs. 33.7%; IPR = 1.38; 95% CI: 1.33, 1.42) and NCAA-ISP (51.3% vs. 37.0%; IPR = 1.39; 95% CI: 1.31, 1.46). In contrast, fractures comprised a smaller proportion of injuries in HS RIO than in NEISS (7.5% vs. 18.6%; IPR = 0.43; 95% CI: 0.39, 0.47) and NCAA-ISP (2.8% vs. 15.7%; IPR = 0.18; 95% CI: 0.14, 0.22).CONCLUSIONS ATs more commonly reported injuries that are easily diagnosed and treated (e.g., sprains/strains); EDs more commonly reported injuries with longer recovery times and rehabilitation (e.g., fractures). Although ED surveillance data can identify the most severe sports-related injuries, high school and college sports surveillance may better describe the breadth of sports-related injuries. Our findings may provide further support for school-based sports medicine professionals, but further research is needed to comprehensively examine the potential economic and health-related benefits.

Managing dislocations of the hip, knee, and ankle in the emergency department

Author(s): Arnold, Caylyne; Fayos, Zane; Bruner, David; Arnold, Dylan

Source: Emergency medicine practice; Dec 2017; vol. 19 (no. 12); p. 1-28

Publication Type(s): Journal Article

Abstract: Dislocation of the major joints of the lower extremities--hip, knee, and ankle--can occur due to motor-vehicle crashes, falls, and sports injuries. Hip dislocations are the most common, and they require emergent management to prevent avascular necrosis of the femoral head. Knee dislocations are uncommon but potentially dangerous injuries that can result in amputation due to the potential for missed secondary injury, especially if they are reduced spontaneously. Isolated ankle dislocations are relatively rare, as most ankle dislocations involve an associated fracture. This review presents an algorithmic approach to management that ensures that pain relief, imaging, reduction, vascular monitoring, and emergent orthopedic consultation are carried out in a timely fashion.

Recreational Activity and Facial Trauma Among Older Adults.

Author(s): Plawecki, Andrea; Bobian, Michael; Kandinov, Aron; Svider, Peter F; Folbe, Adam J

Source: JAMA facial plastic surgery; Dec 2017; vol. 19 (no. 6); p. 453-458

Publication Type(s): Journal Article

Available at [JAMA facial plastic surgery](#) - from EBSCO (MEDLINE Complete)

Abstract: Importance As the US population ages, public health agencies have released guidelines encouraging aerobic activity and muscle-strengthening exercises among older individuals. Facial trauma from such activities among elderly individuals has long been underappreciated. Objectives To evaluate the incidence of recreational activity-associated facial fractures among older adults and to further delineate injury characteristics including demographics, fracture location, and specific activities. Design, Setting, and Participants The National Electronic Injury Surveillance System was used to collect data on emergency department visits from January 1, 2011, to December 31, 2015, for individuals 55 years of age or older who sustained facial fractures from recreational activities. Individual entries were evaluated for activity code, fracture site, and demographics. Weighting data were used to extrapolate national incidence. Main Outcomes and Measures Incidence and location of facial fractures and associated recreational activity. Results During the study period, there were 20 519 emergency department visits for recreational activity-associated facial fractures among adults 55 years of age or older (8107 women and 12 412 men; mean [SD] age, 66.5 [9.1] years). The annual incidence of facial fractures increased by 45.3% from 2011 (n = 3174) through 2015 (n = 4612). Bicycling (26.6%), team sports (15.4%), outdoor activities (10.1%), and gardening (9.5%) were the most common causes of facial fractures. Walking and jogging caused 5.5% of fractures. In cases specifying site of fracture, nasal (65.4%) and orbital (14.1%) fractures were the most common. A greater proportion of men than women sustained bicycle-associated fractures (35.7% vs 14.9%; $P = 3.1056 \times 10^{-170}$), while more women than men sustained fractures associated with gardening (15.5% vs 6.1%; $P = 2.1029 \times 10^{-97}$), outdoor activities (14.6% vs 7.7%; $P = 4.3156 \times 10^{-50}$), and gym exercise (7.7% vs 1.3%; $P = 3.0281 \times 10^{-114}$). Men harbored a greater likelihood than women of orbital (14.9% vs 12.8%; $P = 6.1468 \times 10^{-5}$) and mandible fractures (9.3% vs 2.0%; $P = 9.3760 \times 10^{-64}$). Walking and jogging and gardening comprised a greater proportion of injuries in older cohorts. Conclusions and Relevance Facial fractures sustained from recreational activity increased by 45.3% during a 5-year period among older adults. Although bicycling was the most common activity facilitating these injuries, many other pursuits represent areas of concern. Nasal fractures predominated, although orbital fractures increased with age. These findings offer areas for targeted prevention and provide valuable information for patient counseling. Furthermore, initiatives encouraging greater activity among this population may need to be accompanied by guidelines for injury prevention. Level of Evidence NA.

Injury rates of U.S. rugby-7s an Olympic collision sport: Using a novel injury surveillance tool the RISE report methodology

Author(s): Lopez V.; Ma R.; Weinstein M.; Victoria C.; Queler S.; Pierre D.; Allen A.; Hume P.; Cantu R.

Source: Journal of Science and Medicine in Sport; Nov 2017; vol. 20 ; p. 64

Publication Type(s): Conference Abstract

Abstract: Background: Rugby-7s is an emerging Olympic collision sport in the U.S. that is played with a high incidence of injury. There is limited injury data on Rugby-7s in emerging markets such as the U.S. The Rugby Injury Survey & Evaluation (RISE) report methodology was designed to collect injury data for U.S. rugby-7s. Methods: RISE report methodology was used to collect injury incidence (per 1000 player hours (ph)) data among 24,418 U.S. amateur rugby-7's players competing at different levels: Under-19 (U19); college; adult/senior; sub-elite; and elite. Medical attention injuries (players injured with no absence from play), time-loss injuries (players who did not return to play after injured), and severity (days absent before return to training/competition including post tournament) were recorded. Results: Rugby-7s medical attention and time-loss match injuries were prospectively collected in USA Rugby sanctioned tournaments (2010-2014) (n = 1570; men= 73%; women= 27%). The time-loss injury rate (including all levels and both genders) was 34.4/1000 ph (n = 502), with a

mean injury severity of 44 days before return to sport in 68% with follow-up data. Elite players had the highest time-loss injury rate (43.5/1000 ph) (RR: 2.1; CI: 1.5-2.7; $p < 0.001$). Most time-loss injuries were new acute injuries among all levels of play (U19 76%, college 64%, senior 80%, sub-elite 77%, elite 70%) and occurred during the tackle (U19 80%, college 68%, senior 70%, sub-elite 70%, elite 69%). Recurrent injuries overall were frequent (23%) and recurrent time-loss injuries were observed at similar rates among all levels. Time-loss ligament injuries were most commonly seen (U19 30%, college 18%, senior 34%, sub-elite 35% and elite 34%) in the lower extremity (U19 41%, college 45%, senior 39%, sub-elite 46% and elite 52%) at all levels. The head/face was the most commonly injured body part (U19 21%, college 24%, senior 16%, sub-elite 18% and elite 20%).

Conclusions: Injury surveillance for U.S. rugby-7s is necessary to obtain age and level-specific injury data to nurture safe growth of Rugby-7s in all levels of play. Our observed injury rate levels were lower than those reported in elite international cohorts. U.S. elite cohorts had the highest observed injury rates among U.S. amateur rugby-7s playing levels. In our U.S. cohort, most match injuries occurred during tackling among all levels of competition. Injury data suggests education on tackling, return to play and posttournament injury care may be important in prevention of match and recurrent injuries in all U.S. levels of play.

A pilot single-centre cross-sectional study to determine the knowledge and management of sports concussion by emergency physicians: an experience from Singapore.

Author(s): Sirisena, Dinesh; Walter, Joy; Ong, Joo Haw; Probert, Joanne

Source: Singapore medical journal; Nov 2017

Publication Type(s): Journal Article

Available at [Singapore Medical Journal](#) - from EBSCO (MEDLINE Complete)

Abstract:INTRODUCTIONSports concussion remains a challenging condition to manage despite changes to policy and practice since the 2012 Concussion in Sport Group consensus meeting. Emergency physicians (EPs) are often the first line of medical care for athletes in amateur and youth collision sports. This single-centre cross-sectional study aimed to establish the understanding and management of concussion by EPs in Singapore.METHODSAn anonymised 17-item online questionnaire was sent out to EPs using the Google Forms application, requesting information on clinical experience, training, exposure to concussion cases in the emergency department (ED) and assessed knowledge of the condition.RESULTS52 clinicians responded, with 25 (48.1%) being medical officers. Over 90% had not received formal training in concussion management and 27 (73.1%) assessed concussion regularly. 40 (76.9%) recognised loss of consciousness as not being essential for diagnosis but only 24 (46.2%) knew the most common symptom. 26 (50.0%) reported that they would perform brain imaging and among those who referred onwards, 29 (55.8%) made referrals were to neurosurgery. There was no significant difference between the clinical grade or training in concussion and positive responses for definition, indication for imaging or most common symptom.CONCLUSIONConcussion is a common presentation to this ED in Singapore. However, understanding of the condition, its clinical diagnosis, investigation and onward management is limited. Although EPs reported training in the subject matter, it is likely that this was insufficient. Perhaps commencing relevant education programmes as undergraduate and postgraduate medical students would enable progressive acquisition of knowledge and thereby improve patient management in the future.

An evaluation of the impact of FIFA World Cup on soccer emergency department injuries among Montreal adolescents.

Author(s): Keys, Glenn; Friedman, Debbie; Beaudin, Marianne; Gagnon, Isabelle

Source: Journal of paediatrics and child health; Nov 2017

Publication Type(s): Journal Article

Abstract:AIMThe 'trickle-down effect', or how major sports events have a positive impact on sports participation, has been the subject of many studies, but none produced conclusive results. We took a different approach and rather than look at sports participation, we used injuries as a proxy and see if injuries increased, or remained the same, after the International Federation of Association Football World Cup. METHODSUsing a retrospective cohort design, we looked at the injuries suffered by males and females (13-16 years old) while playing team sports in Montreal, that occurred in May to July, from 1999 to 2014. Information reported by the Canadian Hospitals Injury Reporting Prevention Program (CHIRPP) was limited to the two CHIRPP centres in Montreal: the Montreal Children's Hospital and Hopital Sainte-Justine. RESULTSIn females, no significant trends were noticed. In males who played non-organised soccer, the percent changes between FIFA World Cup (WC) (June) and pre-FIFA WC (May) was always highest during FIFA WC years: 17.2% more injuries in years when FIFA WC was held compared to 1.3% less injuries during non-FIFA WC years. In non-organised soccer, male players suffered less strains/sprains (11.9% vs. 30.1%; $P = 0.015$), suffered more severe injuries (59.7% vs. 43.1%; $P = 0.049$) and more of their injuries were the results of direct contact with another player (26.8% vs. 13.3%; $P = 0.028$) during FIFA WC. CONCLUSIONFIFA WC seems to have an impact on the injuries of teenage boys when playing non-organised soccer. The impact was short-lived, only lasting during the FIFA WC event.

Effects of the New York State Concussion Management and Awareness Act ("Lystedt Law") on Concussion-Related Emergency Health Care Utilization Among Adolescents, 2005-2015.

Author(s): Baker, David R; Kulick, Erin R; Boehme, Amelia K; Noble, James M

Source: The American journal of sports medicine; Nov 2017 ; p. 363546517738742

Publication Type(s): Journal Article

Abstract:BACKGROUNDAll states have enacted legislation addressing the management of sports-related concussions (SRCs) in adolescent athletes. The effect of these laws on health care utilization is uncertain. Hypothesis/Purpose: The purpose was to evaluate the effects of New York's 2011 Concussion Management and Awareness Act ("Lystedt Law") on emergency department (ED) concussion health care visits (EDCHVs) and brain imaging utilization. It was hypothesized that New York concussion legislation would have a significant temporal effect on EDCHVs. STUDY DESIGNDescriptive epidemiology study. METHODSUsing the New York State Department of Health Statewide Planning and Research Cooperative System (SPARCS) database, trends in EDCHVs from 2005 to 2015 were identified among 12- to 18-year-old patients, comprising 5,740,403 total ED visits. RESULTSOverall, 208,024 EDCHVs, including 54,669 for an SRC, occurred during the study period. EDCHVs increased from 13,664 (2.74% of all ED visits) in 2005 to a peak of 21,374 (4.26%) in 2013, with greatest relative increases from 2008 to 2013. SRCs followed a similar trend: 3213 (0.64%) in 2005 to a peak of 6197 (1.24%) in 2013. Brain imaging utilization decreased by 5.3% for EDCHVs and 15.4% for SRCs (all comparisons year-by-year and for trends; $P < .001$). CONCLUSIONThe period of greatest increases in EDCHVs and decreases in brain imaging utilization for SRCs preceded New York concussion legislation by several years, suggesting a minimal direct effect on emergency care-seeking behavior for concussions. Instead, increased public awareness of SRCs and imaging guidelines may have driven EDCHV trends and imaging practices.

Hypothermia Promotes Cell-Protective and Chondroprotective Effects After Blunt Cartilage Trauma.

Author(s): Riegger, Jana; Zimmermann, Madeleine; Joos, Helga; Kappe, Thomas; Brenner, Rolf E

Source: The American journal of sports medicine; Nov 2017 ; p. 363546517736051

Publication Type(s): Journal Article

Abstract:BACKGROUND Cryotherapy is routinely administered after sports injuries of synovial joints. Although positive clinical effects on periarticular swelling and pain have been described, the effects on the cell biological activities of cartilage and synovial cells remain largely unknown so far. HYPOTHESIS Local hypothermia alleviates synovial reactions and prevents chondrocyte death as well as cartilage destructive processes after blunt cartilage trauma. STUDY DESIGN Controlled laboratory study. METHODS Human cartilage explants were impacted by a drop-tower apparatus (0.59 J) and cultured at 24 hours or 7 days in different temperature conditions (2 hours [short term], 16 hours [medium term], or throughout [long term] at 27°C; afterwards or throughout at 37°C). Besides, isolated human fibroblast-like synoviocytes (FLS) were stimulated with traumatized cartilage conditioned medium and cultured as mentioned above up to 4 days. The effects of hypothermia were evaluated by cell viability, gene expression, type II collagen synthesis and cleavage, as well as the release of matrix metalloproteinase (MMP)-2, MMP-13, and interleukin 6 (IL-6). RESULTS Seven days after trauma, hypothermic treatment throughout improved cell viability (short term: 10.1% [P = .016]; medium term: 6% [P = .0362]; long term: 12.5% [P = .0039]). Short-term hypothermia attenuated the expression of catabolic MMP-13 (mRNA: -2.2-fold [P = .0119]; protein: -2-fold [P = .0238]). Whereas type II collagen synthesis (1.7-fold [P = .0227]) was increased after medium-term hypothermia, MMP-13 expression (mRNA: -30.8-fold [P = .0025]; protein: -10.3-fold [P < .0001]) and subsequent cleavage of type II collagen (-1.1-fold [P = .0489]) were inhibited. Long-term hypothermia further suppressed MMP release (pro-MMP-2: -3-fold [P = .0222]; active MMP-2: -5.2-fold [P = .0183]; MMP-13: -56-fold [P < .0001]) and type II collagen breakdown (-1.6-fold [P = .0036]). Four days after FLS stimulation, hypothermia significantly suppressed the gene expression of matrix-destructive enzymes after medium-term (MMP-3: -4.1-fold [P = .0211]) and long-term exposure (a disintegrin and metalloproteinase with thrombospondin motifs 4 [ADAMTS4]: -4.3-fold [P = .0045]; MMP-3: -25.8-fold [P = .014]; MMP-13: -122-fold [P = .0444]) and attenuated IL-6 expression by trend. CONCLUSION After blunt cartilage trauma, initial hypothermia for only 2 hours and/or 16 hours induced significant cell-protective and chondroprotective effects and promoted the anabolic activity of chondrocytes, while the expression of matrix-destructive enzymes by stimulated FLS was attenuated by prolonged hypothermia. CLINICAL RELEVANCE The findings of this preliminary ex vivo investigation indicate that optimized cryotherapy management after cartilage trauma might prevent matrix-degenerative processes associated with the pathogenesis of posttraumatic osteoarthritis.

Persistent effects of playing football and associated (subconcussive) head trauma on brain structure and function: a systematic review of the literature.

Author(s): Tarnutzer, A A; Straumann, D; Brugger, P; Feddermann-Demont, N

Source: British journal of sports medicine; Nov 2017; vol. 51 (no. 22); p. 1592-1604

Publication Type(s): Journal Article Review

Available at [BRITISH JOURNAL OF SPORTS MEDICINE](#) - from BMJ Journals - NHS

Abstract:AIM/OBJECTIVE There is ongoing controversy about persistent neurological deficits in active and former football (soccer) players. We reviewed the literature for associations between football activities (including heading/head injuries) and decline in brain structure/function. DESIGN Systematic literature review. DATA SOURCES MEDLINE, Embase, PsycINFO, CINAHL, Cochrane-CRCT, SportDiscus, Cochrane-DSR=4 (accessed 2 August 2016). ELIGIBILITY CRITERIA FOR SELECTING STUDIES Original studies reporting on football-related persistent effects on brain structure/function. Results from neurocognitive testing, neuroimaging and EEG were compared with controls and/or correlated with heading frequency and/or head injuries. Methodological quality was rated for risk-of-bias, including appropriateness of controls, correction for multiple statistical testing and assessment of heading frequency and head injuries. RESULTS 30 studies with 1691 players were included. Those 57% (8/14) of case-control studies reporting persistent neurocognitive impairment had higher odds for

inappropriate control of type 1 errors (OR=17.35 (95% CI (10.61 to 28.36)) and for inappropriate selection of controls (OR=1.72 (1.22 to 2.43)) than studies observing no impairment. Studies reporting a correlation between heading frequency and neurocognitive deficits (6/17) had lower quality of heading assessment (OR=14.20 (9.01 to 22.39)) than studies reporting no such correlation. In 7 of 13 studies (54%), the number of head injuries correlated with the degree of neurocognitive impairment. Abnormalities on neuroimaging (6/8 studies) were associated with subclinical neurocognitive deficits in 3 of 4 studies. SUMMARY/CONCLUSIONS Various methodological shortcomings limit the evidence for persistent effects of football play on brain structure/function. Sources of bias include low-quality assessment of heading frequency, inappropriate control for type 1 errors and inappropriate selection of controls. Combining neuroimaging techniques with neurocognitive testing in prospective studies seems most promising to further clarify on the impact of football on the brain.

Early warning signs? Recent head trauma linked to depressive symptoms in Australian Rules football players

Author(s): Harris S.; McIntyre F.; Piggott B.; Farrington F.; Chivers P.

Source: Journal of Science and Medicine in Sport; Nov 2017; vol. 20 ; p. 15

Publication Type(s): Conference Abstract

Abstract: Background: Australian Rules Football (ARF) players are frequently exposed to the risk of head trauma (concussion or head knocks) due to the fast paced, contact nature of the game. Research into other football codes indicates repeated exposure to this head trauma, in particular concussion, may increase a player's risk of long term consequences, including neurodegeneration and negative emotional changes (e.g. depression). However little research has considered the short-term impact of concussive or sub-concussive traumas on emotional wellbeing, specifically the presence of depressive symptoms. The purpose of this study was to investigate the relationship between recent head trauma and the presence of depressive symptoms in senior West Australian Football League (WAFL) players. Method: The study was conducted over the first 22 weeks of the 2015 WAFL season (n = 69, Mage = 21.81, SD = 2.91 years), with data collected fortnightly. Injury including head trauma was anonymously self-reported using the WAFL Injury Report Survey (WIRS). Depressive symptoms were measured using the Centre for Epidemiological Studies Depression Scale (CESD-20) with a score over 16 indicating presence of depressive symptoms. Univariate Linear Mixed Models (ULMM) assessed the relationship between head trauma and depressive symptoms over time. Generalized Estimating Equations (GEE) assessed the risk of depressive symptoms occurring when a head trauma was experienced. Results: Within a fortnight of experiencing a concussion, 40 percent of concussed players reported depressive symptoms above the cut off (CESD20 score ≥ 16). ULMM indicated a significant relationship existed between concussion and an increase in depressive symptoms ($p = .002$) and head knocks and depressive symptoms ($p = .007$). When investigating risk, a GEE model identified a player was almost 8 times more likely to experience symptoms of depression (CESD20 score ≥ 16), when a concussion was reported. Discussion: Despite increased recognition of the importance of emotional wellbeing, there is limited evidence regarding the impact of head trauma on the mental health of ARF players at the semi-professional level. Findings that a significant proportion of players reported experiencing depressive symptoms within the two week period following head trauma, suggests that coaches and medical staff need to monitor not only the physical, but also the emotional wellbeing of their players, especially after a concussion or head knock has occurred. Players may also benefit from more education regarding identifying depressive symptoms post head trauma, encouraging them to seek medical advice especially if they notice a change in their emotional wellbeing.

Case 247: Jersey Finger of the Fifth Finger.**Author(s):** Créteur, Viviane Marie; Durieux, Pierre François; Cuylits, Nicolas**Source:** Radiology; Nov 2017; vol. 285 (no. 2); p. 683-689**Publication Type(s):** Case Reports Journal Article

Abstract:History A 34-year-old man without underlying medical conditions came to the emergency department for evaluation of persistent pain over the volar portion of his right fifth finger after a fall during a football match 3 days before. At physical examination, the injured finger was swollen and purple. Passive and active flexion of the proximal and distal interphalangeal joints were compromised, without interphalangeal instability. Radiography was performed in the emergency department, and the patient was released with a diagnosis of a fifth digit sprain. After the senior radiologist (V.M.C.) reviewed the radiographs, the patient was called back for assessment with ultrasonography (US) on the same day. US was performed with an Aplio 500 unit (Toshiba Medical Systems, Tokyo, Japan) using a multifrequency linear array 7.2-18.0-MHz PLT-1204BX transducer focused at the level of the flexor tendon. The patient was sitting in front of the examiner, with the hand lying palm up on the examination bed. No abnormality was observed during color Doppler US.

26. ERRATUM...Abbott A. Aquatic emergencies. ACSMs Health Fit J. 2017;21(4):35–39.**Author(s):****Source:** ACSM's Health & Fitness Journal; Nov 2017; vol. 21 (no. 6); p. 50-50**Publication Type(s):** Periodical**Blunt injuries related to equestrian sports: results from an international prospective trauma database analysis.****Author(s):** Weber, Christian D; Nguyen, Anthony R; Lefering, Rolf; Hofman, Martijn;**Source:** International orthopaedics; Oct 2017; vol. 41 (no. 10); p. 2105-2112**Publication Type(s):** Journal Article

Abstract:INTRODUCTIONThe objective of this study was to investigate the nature, management, and outcome of major injuries related to equestrian sports and to define the at-risk groups for serious and life-threatening injuries.METHODSWe analyzed demographic, pre-hospital, clinical, and outcome data from an international population-based prospective trauma database (TraumaRegister DGU®). Patients with major injuries (Injury Severity Score [ISS] ≥ 9 points) related to equestrian sports activities were included (January 1, 1993, to December 31, 2012). Clinical and outcome parameters were stratified for four different types of injury mechanisms: fall from horse (FFH), horse-kick (HK), horse crush (HC), and carriage-related accidents (CRA). Participating countries included Germany, Austria, Switzerland, Finland, Slovenia, Belgium, Luxembourg, and The Netherlands. Statistical analyses were performed with SPSS (Version 22, IBM Inc., Armonk, NY).RESULTSThe Database identified 122,000 documented patients, of whom 679 were equestrian incidents. Among these, the four major injury mechanisms were: FFH (n = 427), HK (n = 188), HC (n = 34), and the CRA (n = 30). Females were more likely to sustain FFH (75.5%, $p < 0.001$), leading to head injuries (n = 204, 47.8%) and spinal fractures (n = 109, 25.5%). HK injuries often resulted in facial fractures (29.3%, $p < 0.001$). Individuals sustaining HC injuries had a high risk for pelvic (32.4%, $p < 0.001$) and abdominal injuries (35.2%, $p < 0.001$). In contrast to the FFH cohort, the CRA cohort involved older males (57 ± 13 years), with chest (63.3% $p = 0.001$), and extremity injuries, resulting in significant injury severity (ISS 20.7 ± 10.6). In the CRA cohort, 16% were in haemorrhagic shock on scene, and also the highest in-hospital mortality (14.8%, $p = 0.006$) was observed.CONCLUSIONSYoung female riders are at risk from falling, horse-kicks, and crush-injuries. Older males in carriage-related accidents

sustained the highest injury severity and mortality rate, and must specifically be targeted by future prevention initiatives. Level of evidence Descriptive Epidemiologic Study, Level II.

Effectiveness of a novel boswellic acids delivery form (Casperome®) in the management of grade II ankle sprains due to sport trauma - a registry study.

Author(s): Feragalli, B; Ippolito, E; Dugall, M; Cacchio, M; Belcaro, G; Cesarone, M R

Source: European review for medical and pharmacological sciences; Oct 2017; vol. 21 (no. 20); p. 4726-4732

Publication Type(s): Journal Article

Abstract:OBJECTIVEIn this study, we evaluated a novel delivery form of boswellic acids (Casperome®) in the management of signs and symptoms associated with ankle sprain grade II due to sport trauma.PATIENTS AND METHODSIn this supplement registry study, 72 otherwise healthy subjects with grade II ankle sprain induced by sport activities were advised to either follow a standard management (SM, 37 subjects) for the condition or the SM with the additional daily intake of 1 tablet containing 250 mg Casperome® (35 subjects). Subjects were allowed to use rescue medications (ketoprofen tablets, 25 mg/tablet), and their intake was measured at the end of the management period of 7 days. Each individual was subjected to several non-invasive examinations (self-reported pain at rest and under moderate exercise, range of active and passive movement, presence of local hematomas by ultrasonography) at the following time periods: at inclusion, to evaluate the basal conditions of the subject before the beginning of the study, at day 3 and at the end of the week to evaluate the response differences between the two groups. Additionally, a blood sample from the Casperome® treated subjects (34 out of 35 subjects) was taken at day 7 and analyzed for the systemic concentration of boswellic acids.RESULTSThe 72 individuals recruited in this study spontaneously decided which management to follow, either SM (n=37) or SM+Casperome® (n=35). Supplementation with Casperome® 250 mg/day showed beneficial effects in the reduction of signs and symptoms of ankle sprains evaluated at day 3 and day 7, and was shown to induce measurable plasma level of boswellic acids. Moreover, the supplementary use of Casperome® was well-tolerated and devoid of side effects.CONCLUSIONSOur pilot registry study showed the effectiveness of Casperome® supplementation in improving recovery after ankle sprain of mild severity (grade II), suggesting a potentially beneficial role in relieving the trauma associated with sport activities and in decreasing the use of rescue drugs.

Motocross-associated head and spine injuries in adult patients evaluated in an emergency department.

Author(s): Silva, Lucas Oliveira J E; Fernanda Bellolio, M; Smith, Elisa M; Daniels, David J; Lohse, Christine M; Campbell, Ronna L

Source: The American journal of emergency medicine; Oct 2017; vol. 35 (no. 10); p. 1485-1489

Publication Type(s): Journal Article Observational Study

PubMedID: 28499787

Available at [The American journal of emergency medicine](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:BACKGROUNDMotor vehicle-related injuries (including off-road) are the leading cause of traumatic brain injury (TBI) and acute traumatic spinal cord injury in the United States.OBJECTIVESTo describe motocross-related head and spine injuries of adult patients presenting to an academic emergency department (ED).METHODSWe performed an observational cohort study of adult ED patients evaluated for motocross-related injuries from 2010 through 2015. Electronic health records were reviewed and data extracted using a standardized review process.RESULTSA total of 145

motocross-related ED visits (143 unique patients) were included. Overall, 95.2% of patients were men with a median age of 25 years. Sixty-seven visits (46.2%) were associated with head or spine injuries. Forty-three visits (29.7%) were associated with head injuries, and 46 (31.7%) were associated with spine injuries. Among the 43 head injuries, 36 (83.7%) were concussions. Seven visits (16.3%) were associated with at least 1 head abnormality identified by computed tomography, including skull fracture (n=2), subdural hematoma (n=1), subarachnoid hemorrhage (n=4), intraparenchymal hemorrhage (n=3), and diffuse axonal injury (n=3). Among the 46 spine injuries, 32 (69.6%) were acute spinal fractures. Seven patients (4.9%) had clinically significant and persistent neurologic injuries. One patient (0.7%) died, and 3 patients had severe TBIs. CONCLUSION Adult patients evaluated in the ED after motocross trauma had high rates of head and spine injuries with considerable morbidity and mortality. Almost half had head or spine injuries (or both), with permanent impairment for nearly 5% and death for 0.7%.

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Exercise: Heterogeneity

Heterogeneity is the extent to which studies brought together in a systematic review demonstrate variation across a range of key variables.

Match the different types of heterogeneity:

1. Statistical heterogeneity (conventionally just known as 'heterogeneity')
 2. Methodological heterogeneity
 3. Clinical heterogeneity
-
- A. Variability in the participants, interventions and outcomes studied
 - B. Variability in study design and risk of bias
 - C. Variability in the intervention effects being evaluated in the different studies

Answers: 1C, 2B, 3A



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