

FORWARD SURGERY ON OPERATION TELIC THE 16 CLOSE SUPPORT MEDICAL REGIMENT EXPERIENCE

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Two Air Assault Surgical Groups (AASGs) from 16 Close Support Medical Regiment deployed to Kuwait on Operation Telic in February 2003. Each AASG was comprised of a four-table resuscitation facility, a two table FST and a twin-bedded ITU facility. An A+E Consultant and nurse, an experienced radiographer and laboratory technician with two further RGNs and CMTs provided resuscitation support. Each FST had an orthopaedic and a general surgeon, two anaesthetists and eight operating department practitioners. Further equipment consisted of a Polymobil 111 x-ray unit, a Sonosite 180 ultrasound scanner and an ISTAT gas, haematocrit and electrolyte analyser. 100 units of mixed blood were carried by each AASG.

Fifty-one surgical procedures were performed on thirty-one patients. Twenty-one of these patients were Iraqi prisoners of war or civilians. Seventeen wound debridements, five amputations, five laparotomies, four insertions of Denham pins with Thomas splintage for femoral fracture, three external fixations and one axillary artery repair formed the basis of the major cases undertaken. The first field use of activated factor 7 by the British Army was successful in the resuscitation of a patient with exsanguinating haemorrhage after an open-book (APC-III) pelvic fracture and a ruptured intrapelvic haematoma. The other cases included eleven manipulations under anaesthetic/application of plaster and four finger terminalisations.

Forward military surgery has a continued role to play on the modern fast moving battlefield. 16 Close Support Medical Regiment normally supports 16 Air Assault Brigade with its remit for out-of-area operations and SF support. Its experience on Op Telic should influence planning for future deployments.

CLINICAL TIMELINES AND FIELD SURGERY DURING OPERATION TELIC

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Introduction

The geographical & temporal position of surgical assets in the evacuation chain during war fighting is controversial. Manning, equipment and command issues can conflict with clinical experience and evidence as to the ideal location and configuration for Field Surgical Teams.

Method

Details of casualties presenting to 2 Air Attack Surgical Groups were collected prospectively during the ground war phase of Operation Telic. Mechanism and time of injury, wound type and classification, patient demographics, times and details of treatments carried out, evacuation details and outcomes were noted for both coalition and Iraqi patients.

Results

The mean time to life and limb saving surgery for coalition casualties was 4 hours, significantly shorter than during previous conflicts in the region. Air casevac requests generated within the area of responsibility failed in all cases to move patients from point of wounding to fixed hospital assets within agreed clinical timelines.

Discussion

We argue that in order to keep life and limb saving surgical resuscitation within agreed clinical guidelines Field Surgery Teams must be capable of deploying to a forward environment within the Medical Regiment organization. Manning and equipment templates used by this unit provide a template for this capability.

PENETRATING MISSILE INJURIES DURING THE INITIAL PHASE OF THE 2003 GULF CONFLICT - 202 FIELD HOSPITAL EXPERIENCE.

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Background

War wounds produce a significant burden on medical facilities in war. Workload from the recent conflict was documented in order to guide medical needs in future conflicts.

Method

Data on war injuries was collected prospectively. In addition, all patients sustaining penetrating injuries that received their treatment at our hospital had their wounds scored using the Red Cross wound classification. This information was supplemented with a review of all patients admitted during the study period.

Results

During the first two weeks of the conflict, the sole British field hospital in the region received 482 casualties. One hundred and four were battle injuries of which nine were burns. Seventy-nine casualties had their initial surgery performed by British military surgeons and form the study group. Twenty-nine casualties (37%) sustained gunshot wounds, 49 casualties (62%) suffered wounds due to fragmentation weapons and one casualty detonated an anti personnel mine. Sixty-four casualties (81%) sustained limb injuries. These 79 patients had a total of 123 wounds that were scored using the Red Cross wound classification. Twenty-seven of the wounded (34%) were non-combatants; of these, eight were children. Median delay from point of wounding to definitive care for coalition forces was 6 hours (range 1 to 11.5 hours) compared to 12 hours (range 1 hour to 7 days) for Iraqi casualties. Four patients (5%) died; all had sustained gunshot wounds.

Conclusion

War continues to demand that a full spectrum of hospital specialists be available to treat our own personnel and the Defence Medical Services are increasingly likely to be called to provide humanitarian assistance to wounded non-combatants. Military medical skills, training and available resources must reflect these fundamental changes in order to properly prepare for future conflicts.

'WAR SURGERY AT SEA': MARITIME TRAUMA EXPERIENCE IN THE GULF WAR 2003

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Abstract

During the second Gulf War in 2003, the Primary Casualty Receiving facility onboard R.F.A. Argus treated thirty six patients with injuries sustained in the conflict, including thirty Iraqi enemy prisoners of war and displaced persons. Their injuries and operative management are reported. Eighteen casualties sustained fragmentation injuries, six casualties sustained gunshot wounds and seven casualties suffered a combination of both. In addition to penetrating missile injuries five casualties from road traffic accidents were treated. All wounds were managed following the established principles of war surgery. The extremities were involved in twenty eight patients (78%) including nine open, multifragmented long bone fractures which were managed with external skeletal fixators. Two laparotomies and one thoracotomy were performed. The average duration of surgery was one hundred and thirty two minutes with the longest procedure lasting for six hours and ten minutes. This was the first time that the Primary Casualty Receiving Facility had been used to surgically manage war casualties and it fulfilled this role to good effect.

BONES IN THE DESERT: ONE YEAR OF ORTHOPAEDIC TEAM ACTIVITY AT MULTINATIONAL DISTRICT (SOUTH EAST) HOSPITAL, IRAQ

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The Clinical Medical Group in Southern Iraq was opened on 24 March 2003.

Since then the hospital has received 4583 inpatients of which 1762 have been surgical admissions.

The aim of this paper is to discuss the number, severity, mechanism of injury and overall outcome of all the orthopaedic admissions seen within the hospital complex, including all serving personnel, foreign employed nationals and foreign civilians treated. Particular reference will be made to the percentage of admissions returned to front line activities and a comparison of this percentage made with general surgical and medical admissions.

Data for this retrospective review has been obtained from the hospital, operating theatre and patient records currently held in theatre.

EARLY FAILURE OF EXTERNAL FIXATION IN THE MANAGEMENT OF WAR INJURIES

J C Clasper and S L Phillips

Objective

The aim of this study was to prospectively study the effectiveness of external fixation for war injuries during the recent Gulf conflict.

Patients and Methods

We studied all patients seen at 202 Field Hospital, which received the majority of patients who had external fixators applied by the British Armed Forces.

Results

Fifteen patients had external fixators applied with follow-up available for 14 (15 external fixators). Of the 15, 13 (87%) required early revision or removal due to complications of the injury or the fixator. Seven required early removal at a mean of 9.1 days (range 1-19). Six required early revision at a mean of 5.9 days (range 1-22).

Instability was a problem with 10 fixators (67%). Seven fixators were revised and 3 were removed. Pin loosening was noted with 5 fixators (33%) involving twelve pins. The cause was multifactorial, but was related to injury severity and frame design.

A significant pin track infection developed at 14 pin sites (3 fixators – 20%). All 3 fixators were removed after a mean of 15.5 days (range 14-19).

Only 2 fixators did not require early removal or revision.

Conclusion

We have demonstrated a high early failure rate with the use of external fixation and would caution against its universal acceptance. For many fractures plaster or skeletal traction provide an alternative option. When external fixation is required, stability must be achieved. Even with this there is likely to be a high complication rate due to pin track infection and loosening, and amputation must still be considered as a possible outcome for military injuries.

A SIMPLE METHOD OF DRESSING EXTERNAL FIXATOR PIN SITES

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Purpose

We describe a simple method of dressing pin sites, based on the principles developed in the Ilizarov Institute, that can be easily used in British operating theatres.

Method

There are a wide variety of protocols for pin site care but infection rates of up to 80% are reported. The Russian Ilizarov Institute claim low infection rates which may be influenced by their dressing technique. Pin sites are dressed with gauze sponges held against the skin with specifically manufactured rubber stoppers passed over the wires. These provide pressure at the pin site. Plastic syringes consist of a barrel and a plunger with a rubber bung. The rubber bung from a 5ml syringe plunger can be easily removed and slid over the end of a half-pin or both ends of a fine wire. This must be done before the frame is attached and we recommend applying the bungs each time a pin is inserted. At the end of the procedure a cut piece of gauze is applied around the pin site and held in place by the rubber bung, providing a secure non-bulky dressing. A dressing protocol developed by the senior author, based on "The Russian Protocol", was audited and found to have made a significant impact on the incidence on pin track infection. The bungs can be slid back up the pin when the dressings are changed and left up if the pin site is to remain uncovered. Should the pin site begin to discharge the bung can again be used to hold the dressings securely.

Conclusion

We have found this to be a simple, quick, inexpensive and reliable method of pin site dressing that can be readily used in everyday practice, and, reduces the pin track infection incidence.

CERVICAL SPINE INJURIES ADMITTED TO THE MULTINATIONAL DIVISION (SOUTH EAST) HOSPITAL DURING OP TELIC

Capt D Luke, Maj J Bird, Maj N Ward, Maj PA Templeton, Lt Col M Stewart

Introduction

Cervical spine fractures and dislocations are uncommon injuries that can have serious neurological consequences. These injuries require adequate stabilisation to prevent further spinal cord injury during transfer between hospitals. Evacuation often requires a combination of road ambulance, helicopter and fixed wing aircraft from military hospitals. This paper outlines the neck injuries sustained during Op Telic and discusses the need for Halo vests to be available at Role 3.

Methodology

The MND(SE) Hospital databases were used to identify all casualties admitted with either a "cervical" or "Neck" injury. The databases covered the period from March 2003 until February 2004. The diagnoses were categorised into minor and serious cervical spine injuries. We defined a serious cervical spine injury as either a fracture or dislocation. We looked at the discharge letters of all casualties evacuated to a Role 4 hospital to confirm whether the casualties had serious cervical spine injuries.

Results

46 casualties were admitted and all were British except 2, who were Iraqi. 33 casualties were returned to their unit for duty or discharged at the airhead on return to the UK. Twelve casualties required hospital treatment. There were 3 serious cervical spine injuries over the study period which included one Hangman's fracture of C2, one flexion compression injury of C5 and one unifacetal dislocation. All casualties were neurologically intact.

Conclusions

3 casualties were treated at MND(SE) Hospital for serious injuries to the cervical spine. Two patients were transferred without Halo stabilisation after failing to obtain halos in Iraq. One casualty was kept until a halo was flown out from the UK

Recommendations

All unstable cervical spine fractures should be stabilised with a halo vest prior to transfer from Role 3. Halo rings and vests should be available at Role 3 facilities.

A RETROSPECTIVE ANALYSIS OF ROAD TRAFFIC ACCIDENT ADMISSIONS TO BMH SHAIBAH FROM AUGUST 2003 TO JANUARY 2004

Major N J Ward RAMC

Objective

To analyse RTA admissions to BMH Shaibah with respect to seatbelt usage, position in vehicle, age, type of injury and mechanism of injury.

Design

Retrospective analysis of discharge summaries and hospital notes.

Subjects

All service personnel admitted to BMH Shaibah due to RTA.

Results

During the study there were 315 reported RTAs, 3 fatalities and 47 inpatient admissions. 87% of admissions were male; in 32% of cases the vehicle had rolled and 28% of individuals admitted had been ejected from the vehicle. 85% of individuals had not been wearing seatbelts, and none of the ejected individuals had been restrained. 92% of those ejected were travelling in the rear of the Landrover. Of those ejected, 38% suffered more than one type of injury and 62% suffered a fracture, (accounting for 50% of all fractures admitted). 34% of admissions had sustained a fracture and would be evacuated to the UK

Conclusions

These figures correlate well with previous evidence showing the likelihood of serious injury is increased by more than 300% if the patient is ejected. Those travelling in the rear of a Landrover would appear to be in the most dangerous position. Seatbelts are the single most effective means of reducing fatal and non-fatal injuries in motor vehicle accidents. Standing Orders states that seatbelt use is mandatory, but compliance is poor. This may be due to misconceptions on the relative dangers faced by soldiers in Iraq. Education and enforcement needs to be more effective if the Army is to reduce the number, and seriousness, of injuries attributable to RTAs.

MULTINATIONAL INTEGRATED MEDICAL UNIT BOSNIA – OPERATING THEATRE ACTIVITY ANALYSIS

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Introduction

An analysis was carried out of the operating theatre activity at the Role Three Multinational Integrated Medical Unit, located at Sipovo in Bosnia. The overall number of operative procedures, over a two-year period from January 2001 - December 2002, were studied. A total of 409 patients were treated and 443 operations were carried out. The patients ranged in age from 2 – 83 years.

Results

202 operations were performed in 2001 and 241 operations in 2002. Of the total operations, 349 (79%) were performed by the General Surgeon and 91 (21%) performed by the Orthopaedic Surgeon. The majority of patients treated were local civilians, who outnumbered military personnel, by a ratio of 3:1.

347 operations (78%) were of a non-emergency nature and 96 carried out as emergencies (22%). Of the 111 military patients operated on, 63 were from the UK, 25 were Dutch, 16 Canadian and the rest from other countries. The vast majority of orthopaedic procedures performed were of a minor nature, such as incision and drainage, wound debridement and tendon repair. The general surgical procedures consisted largely of elective surgery in the local civilian population.

During my deployment of three months, from November 2002 - January 2003, I carried out 11 operative procedures on 9 patients, 6 of these patients were civilian and 3 military. During the same period, 23 general surgical procedures were performed.

Conclusion

My personal experience over 3 months and, a wider analysis over 2 years highlights, the gross under-utilisation of scarce and valuable resource. I feel that the deployment of a General Surgeon with trauma experience could very adequately provide combined surgical cover for the two specialities.

SHOULD WE INSIST ON ROUTINELY REMOVING METALWORK FROM POTENTIAL ARMY RECRUITS?

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Aim

To review the evidence supporting the British military policy that potential army recruits should have upper or lower limb metalwork removed before training.

Background

British military policy requires that potential recruits with either upper or lower limb internal fixation metalwork fall below acceptable entry criteria. Military training introduces considerable new stresses upon individuals and this is not without risk. 25% of applicants fall below basic medical entry standards whilst many areas remain undermanned. The MoD has a duty of care as an employer towards recruits and established personnel.

Method

A Medline literature search was conducted together with multinational correspondence from interested agencies to review the evidence for this policy.

Results

Studies suggest that in the asymptomatic patient, metalwork should not be routinely removed. Recent literature suggests a 4-40% complication rate following removal of metalwork. Infection and refracture are among the common complications. Evidence in top-level athletes suggests only minimal problems relating to retained metalwork when returning to pre-injury performance levels.

Summary

No evidence has been demonstrated to support current MoD policy, which appears to be historically based. Other nations often adopt a more lenient approach. Translating the evidence specifically to the "military" scenario would require further prospective study.

A NATIONAL AUDIT TO ASSESS PREFERENTIAL REDUCTION TECHNIQUE OF ORTHOPAEDIC SURGEONS AND ACCIDENT AND EMERGENCY (A&E) DOCTORS IN ANTERIOR DISLOCATION OF THE SHOULDER

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Abstract

Many techniques exist for reduction of anterior dislocation of the shoulder. The two commonest methods are the Hippocratic and Kocher. Iatrogenic complications have been linked to both techniques; though reports of brachial plexus traction-injury from the Hippocratic method are rare compared to the more common complication of surgical neck of humerus fracture secondary to the Kocher technique.

Method

Questionnaires were sent to 125 Orthopaedic and 125 A&E departments in the UK, asking staff to independently comment on their preferential reduction technique in anterior dislocation of the shoulder.

Results

Overall 62% performed the Kocher method and 29% performed a Hippocratic reduction. However, 64% of Orthopaedic consultants performed a Hippocratic reduction (34% performing Kocher) compared to only 14% of A&E consultants, (70% of whom performed a Kocher reduction).

Conclusion

The significant risk of humeral neck fracture in performing a Kocher reduction, especially in an inadequately anaesthetised patient in the A&E setting, and the overwhelming preference of Orthopaedic consultants to perform a Hippocratic reduction, indicate that the Kocher method should not be employed.

MANIPULATION OF DISTAL RADIUS FRACTURES IN A DISTRICT GENERAL HOSPITAL ACCIDENT AND EMERGENCY DEPARTMENT- AN AUDIT OF DOCUMENTATION.

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Guidelines versus practice

Keywords: Haematoma block, Documentation, Audit

Abstract

The 1995 Audit Commission report, "Setting the Record Straight- A study of hospital medical records," criticised the poor standard of NHS record keeping. A retrospective audit of documentation of patients undergoing a closed manipulation of distal radius fractures (Colles type) in the Accident and Emergency department of the Queen Alexandra Hospital revealed that note keeping still needs to be improved. Only 15% of patients had adequate documentation.

ARM WRESTLING INJURIES – A “HUMEROUS” MECHANISM

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Abstract

Arm wrestling as both a formalised sport and recreational pastime has increased in popularity in recent years. It is not without risks.

We report 3 cases that have recently presented at our hospital having sustained injuries to the distal humerus within the last year. We discuss their history, injuries sustained and subsequent treatment.

We discuss the supposed mechanism of injuries and review the literature.

When assessing patients in A/E, the history of arm wrestling should be taken seriously as it is important to realise that severe bone injury can occur. However this is a low velocity mechanism and responds well with non-operative management.

ARE STANDARDISED RADIOGRAPHS OF THE HIP JOINT NECESSARY PRIOR TO TOTAL HIP ARTHROPLASTY?

Major C Meyer MRCS, Lt Col I McMurtry FRCS

Introduction

Femoral offset is the perpendicular distance from the centre line of the femur to the centre of rotation of the femoral head. In total hip replacement this is important for maintaining the correct leg length and creating a stable hip with well balanced soft tissues.

We studied the effect of hip rotation on the measurement of femoral offset and its subsequent effect on choice of femoral stem.

Method

A series of saw-bone models labelled with radio-opaque markers was prepared. Serial x-rays were taken as each model was rotated through $+15^{\circ}$ internal rotation, 0° , -15° and -30° external rotation. At 0° the model was in the anatomical position. The resultant offset was measured from each x-ray.

Results

Offset was significantly different when measured at different angles of rotation ($p < 0.0001$ Friedman 2-way analysis of variances). Offset was greatest when measured at $+15^{\circ}$. The greatest difference was encountered at -30° (up to 14mm). For the Exeter hip system this could lead to the selection of a stem 2 sizes too small. Even between 0° and -15° , where rotation is not readily identified on x-ray, differences of up to 7mm were found, which could still lead to the selection of an incorrect stem.

Conclusions

A standardised AP x-ray of the pelvis should improve the measurement of femoral offset. This should benefit patients by ensuring that they receive a correctly sized hip replacement.

THE INFLUENCE OF SUPPLEMENTARY TIBIAL FIXATION ON LAXITY MEASUREMENTS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION WITH HAMSTRING TENDONS IN FEMALES

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Background

Female patients undergoing arthroscopic anterior cruciate ligament reconstruction with hamstring tendon graft developed increased post-operative laxity compared to male and female patients who had been reconstructed using patellar tendon graft.

Hypothesis

Supplementary tibial fixation in female patients will reduce laxity.

Study Design

Prospective, randomized, double-blinded clinical trial.

Methods

Fifty-six female patients divided into two groups (standard tibial fixation versus supplementary staple fixation) were followed for 2 years.

Results

After 2 years the mean side-to-side difference utilizing KT-1000 arthrometer manual maximum measurements was 1.8 mm (standard group) and 1.1 mm (staple group) ($p=0.05$). A Grade 0 Lachman test was present in 63% of the standard group and 86% of the staple group ($p=0.04$). Kneeling pain was experienced by 7% of the standard group and 29% of the staple group ($p=0.05$).

Conclusions

Supplementary tibial fixation in female patients undergoing ACL reconstruction with hamstring tendon graft and interference screw fixation with a single screw size significantly improves laxity measurements and clinical stability assessment 2 years post-operatively. However, this is at the cost of increased kneeling pain.

AN AUDIT OF TUNNEL POSITIONS IN PRIMARY ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Introduction

We performed an audit of tunnel position in primary anterior cruciate ligament reconstructions performed by two surgeons at a single centre. The audit cycle was opened with a retrospective review of a cohort of patients in order to establish existing surgical practice. Following this review our practice changed with the use of intra-operative image intensifier to confirm tunnel positions. The audit loop was closed with a prospective study of a second cohort of patients undergoing surgery using the new technique.

Results

Twenty five patients were reviewed in each group. The case-mix for the two groups were similar with regard to age, sex, side, graft selection and surgical technique. The first cohort of patients had optimal tibial tunnel placement in 56% (sagittal) and 88% (coronal) of cases. The femoral tunnel was correctly positioned in the sagittal plane in 52% of patients. The second cohort, in which an intra-operative image-intensifier was used, had optimal tunnel position for the femur in 100% of cases and for the tibia (sagittal) in 48% of patients.

Conclusion

In this study we have shown that the use of an image intensifier, intra-operatively, greatly improved femoral tunnel position but had no significant effect on tibial tunnel placement. We have also demonstrated that audit is effective in improving clinical practice.

ARTHROSCOPIC KNOTS : THE TAUTLINE HITCH COMES OUT ON TOP

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Aim of Study

To assess the efficacy of commonly used suture materials with commonly described arthroscopic knotting techniques in as close a physiological pattern as possible.

Methods

The investigation was carried out in three phases. Initially the ultimate strength of the suture material was tested. Materials compared were 1PDS, 2 Ethibond, 1 Panacryl. The suture was then tested to failure by two surgeons comparing five different knotting techniques. Knots tested were Tennessee slider, Duncan loop, SMC, Tautline hitch, and Surgeons knot. Finally the test was repeated after soaking the suture with normal saline.

Results

As expected, 2 ethibond has a higher ultimate strength than either 1 PDS or 1 Panacryl. The Tautline hitch and Surgeon's knot had a significantly lower slippage rate when compared to the other knotting techniques. (P value < 0.002). The Tennessee slider, Duncan Loop and SMC knots slipped in > 50% of experiments. No difference was observed when the suture material had been soaked in normal saline. The number of half hitches required to provide maximum knot holding capacity was 3, confirming previous experimental findings by other investigators.

Conclusions

Tautline hitch is recommended for use with all suture materials due to low slippage rates, ease of tying, ease of sliding and overall high knot strength.

THE IMPACT OF AIR AMBULANCE TRANSPORTATION ON A NEW LEVEL 1 TRAUMA CENTRE

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Introduction

The introduction of an air ambulance is known to have an impact on the workload at the receiving hospital. This study analysed all patients transported by an air ambulance to a new level 1 trauma centre, in particular examining their geographical location of injury, diagnoses and subsequent management.

Method

Data was collected prospectively for a three month period from the commencement of the air ambulance service. Data was retrieved from the Casualty and inpatient notes. It included demographic data, trauma scores and theatre and admission details.

Results

Of the 36 patients transferred by air 2 died in casualty shortly after arrival (1 drowning, 1 fatal brain injury). 24 patients were admitted under orthopaedic care. 4 of these had immediate emergency orthopaedic surgery. A further 10 had subsequent delayed surgery. 6 patients were admitted under other specialties (only one required operative intervention). 4 patients were discharged home directly from Casualty.

21 patients were transported from outside the hospital catchment area. 3 had suffered significant multisystem trauma as a result of road traffic accidents. 2 were in geographically isolated areas. In the remainder there was no specific requirement for air transportation.

Conclusions

There were a significant number of minor orthopaedic cases whose clinical condition could have been met by road transport. Many patients were also from outside the catchment area of the hospital. This study highlights the potential for mistasking of an air ambulance service and the requirement for increased resources at the receiving hospital. Joint protocols need to be agreed on.

AN AUDIT OF THE PROCESS AND MANAGEMENT OF OPEN, LONG BONE FRACTURES REFERRED TO THE QUEEN VICTORIA HOSPITAL FOR PLASTIC SURGERY CARE

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Abstract

The authors felt that it would be an interesting and worthwhile exercise to examine the process and management of open long-bone fractures referred to East Grinstead as we felt that we were not achieving the timeframe, as advised by the BOA/BAPS guidelines.

Methods

The notes of patients who were referred East Grinstead for soft tissue management of long-bone fractures were examined over a 1year period and analysed. After the results were seen to be poor in terms of management, practices were changed and the following year's patients' management underwent the same analysis prospectively.

Results

The first years audit revealed average day of referral of 6.1, day of transfer was 13.2 days and time to soft tissue coverage was 18.3 days. 8% of patients achieved the BOA/BAPS guidelines of coverage by day 5. The second cohort of patients showed little improvement in their process of care.

Conclusion

Further change of practice is required to prevent trauma patient suffering because of elective surgery targets. Better and earlier communication is required and further prioritisation for earlier transfer is required. In case of delay or in the multiply injured patient, plastic surgery trauma teams must be prepared to visit and operate at outlying units.

RUPTURE OF THE PECTORALIS MAJOR MUSCLE: SURGICAL TREATMENT IN ATHLETES

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Abstract

Pectoralis major tendon rupture is a relatively rare injury, resulting from violent, eccentric contraction of the muscle. Over fifty percent of these injuries occur in athletes classically in weight-lifters during bench press. In this study, thirteen cases of distal rupture of the pectoralis major muscle in athletes are presented. All patients underwent surgical repair.

Physical findings and surgical technique are described. Magnetic resonance imaging was used in the diagnosis of all patients and intra-operative findings correlated with the reported scans in eleven patients with minor differences in two patients. During follow up examination, six patients had excellent results, six had good results and one had a fair result. Eleven patients could return to sports activity at their preoperative level.

Among our patients we emphasize that of an orthopaedic resident who suffered a rupture of his pectoralis major tendon as an unusual complication of closed manipulation of an anterior shoulder dislocation.

According to the literature and our experience, we suggest that only surgical repair of the pectoralis major rupture will result in complete recovery and restoration of the full strength of the muscle which is essential for the active athlete.