WHAT'S THE EVIDENCE?

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LL ARTHOPLASTY FELLOW
WATFORD / STANMORE

- Do you need to know evidence to pass?

- Do you need to know evidence?

- Do you need to know evidence to pass?

NO

- Do you need to know evidence?

YES

WHY?

- YOU CAN GET A 6 WITHOUT EVIDENCE
- NEED EVIDENCE TO PUSH TOWARDS 7+ SCORE
- TO COMPENSATE FOR YOUR POOR STATIONS
- GIVES YOU MORE SECURITY
- GIVES YOU CONFIDENCE

OUTLINE

1. BOAST
2. NICE
3. NJR
4. MHRA
5. PAPERS

1) BOAST

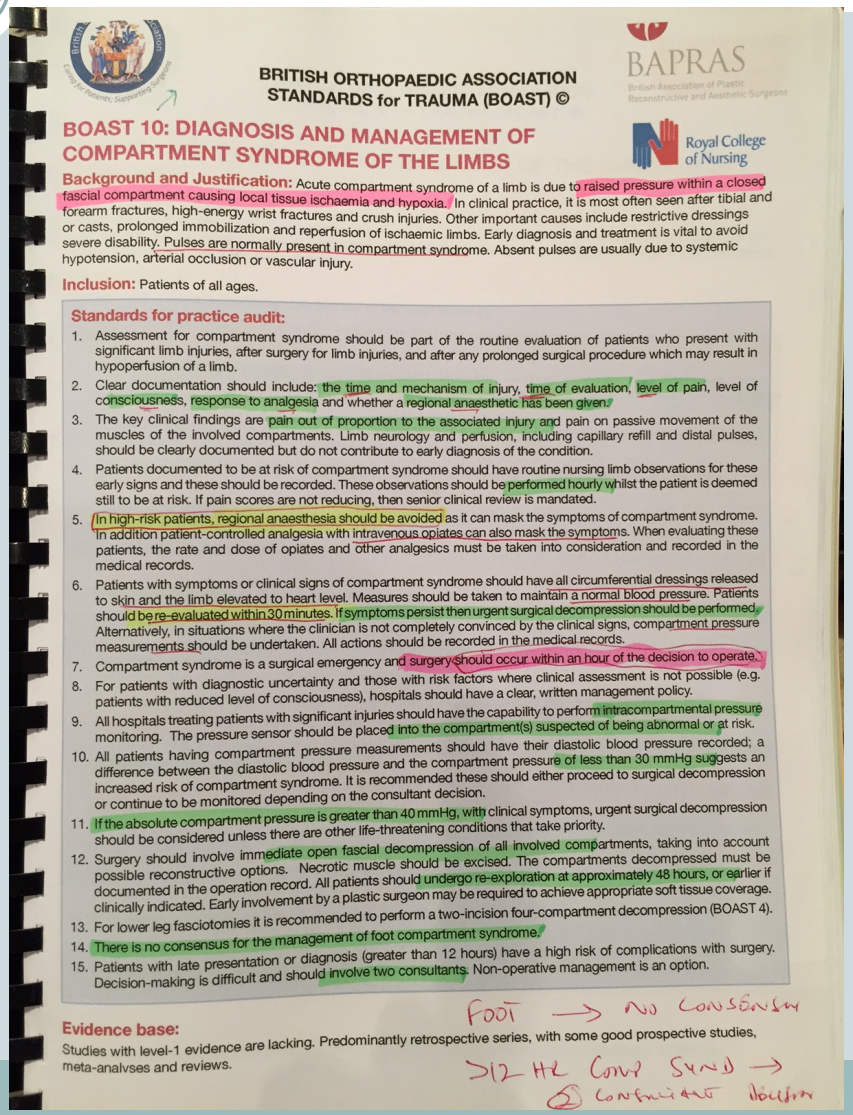
BOA Standards for Trauma (BOASTs)

Our Trauma Group produces BOASTs, which are laminated sheets that can be used in operating theatres.

- BOAST 1 - Patients sustaining a fragility hip fracture
- BOAST 2 - Spinal clearance in the trauma patient
- BOAST 3 - Pelvic and acetabular fracture management
- BOAST 4 - The management of severe open lower limb fractures
- BOAST 5 - Peripheral nerve injury
- BOAST 6 - Management of arterial injuries
- BOAST 7 - Fracture clinic services
- BOAST 8 - The management of traumatic spinal cord injury
- BOAST 9 - Fracture liaison services
- BOAST 10 - Diagnosis and management of compartment syndrome of the limbs
- BOAST 11 - Supracondylar fractures in the humerus in children

BOAST

- ONLY 11
- Need to know all
- Key points (highlight)
- Try and quote it
- Few in depth (full viva)
  - Pelvis
  - Tibia (open)
  - Supracondylar



BRITISH ORTHOPAEDIC ASSOCIATION
STANDARDS for TRAUMA (BOAST) ©

BAPRAS
British Association of Plastic Reconstructive and Aesthetic Surgeons

Royal College of Nursing

BOAST 10: DIAGNOSIS AND MANAGEMENT OF COMPARTMENT SYNDROME OF THE LIMBS

Background and Justification: Acute compartment syndrome of a limb is due to raised pressure within a closed fascial compartment causing local tissue ischaemia and hypoxia. In clinical practice, it is most often seen after tibial and forearm fractures, high-energy wrist fractures and crush injuries. Other important causes include restrictive dressings or casts, prolonged immobilization and reperfusion of ischaemic limbs. Early diagnosis and treatment is vital to avoid severe disability. Pulses are normally present in compartment syndrome. Absent pulses are usually due to systemic hypotension, arterial occlusion or vascular injury.

Inclusion: Patients of all ages.

Standards for practice audit:

1. Assessment for compartment syndrome should be part of the routine evaluation of patients who present with significant limb injuries, after surgery for limb injuries, and after any prolonged surgical procedure which may result in hypoperfusion of a limb.
2. Clear documentation should include: the time and mechanism of injury, time of evaluation, level of pain, level of consciousness, response to analgesia and whether a regional anaesthetic has been given.
3. The key clinical findings are pain out of proportion to the associated injury and pain on passive movement of the muscles of the involved compartments. Limb neurology and perfusion, including capillary refill and distal pulses, should be clearly documented but do not contribute to early diagnosis of the condition.
4. Patients documented to be at risk of compartment syndrome should have routine nursing limb observations for these early signs and these should be recorded. These observations should be performed hourly whilst the patient is deemed still to be at risk. If pain scores are not reducing, then senior clinical review is mandated.
5. In high-risk patients, regional anaesthesia should be avoided as it can mask the symptoms of compartment syndrome. In addition patient-controlled analgesia with intravenous opiates can also mask the symptoms. When evaluating these patients, the rate and dose of opiates and other analgesics must be taken into consideration and recorded in the medical records.
6. Patients with symptoms or clinical signs of compartment syndrome should have all circumferential dressings released to skin and the limb elevated to heart level. Measures should be taken to maintain a normal blood pressure. Patients should be re-evaluated within 30 minutes. If symptoms persist then urgent surgical decompression should be performed. Alternatively, in situations where the clinician is not completely convinced by the clinical signs, compartment pressure measurements should be undertaken. All actions should be recorded in the medical records.
7. Compartment syndrome is a surgical emergency and surgery should occur within an hour of the decision to operate.
8. For patients with diagnostic uncertainty and those with risk factors where clinical assessment is not possible (e.g. patients with reduced level of consciousness), hospitals should have a clear, written management policy.
9. All hospitals treating patients with significant injuries should have the capability to perform intracompartmental pressure monitoring. The pressure sensor should be placed into the compartment(s) suspected of being abnormal or at risk.
10. All patients having compartment pressure measurements should have their diastolic blood pressure recorded; a difference between the diastolic blood pressure and the compartment pressure of less than 30 mmHg suggests an increased risk of compartment syndrome. It is recommended these should either proceed to surgical decompression or continue to be monitored depending on the consultant decision.
11. If the absolute compartment pressure is greater than 40 mmHg, with clinical symptoms, urgent surgical decompression should be considered unless there are other life-threatening conditions that take priority.
12. Surgery should involve immediate open fascial decompression of all involved compartments, taking into account possible reconstructive options. Necrotic muscle should be excised. The compartments decompressed must be documented in the operation record. All patients should undergo re-exploration at approximately 48 hours, or earlier if clinically indicated. Early involvement by a plastic surgeon may be required to achieve appropriate soft tissue coverage.
13. For lower leg fasciotomies it is recommended to perform a two-incision four-compartment decompression (BOAST 4).
14. There is no consensus for the management of foot compartment syndrome.
15. Patients with late presentation or diagnosis (greater than 12 hours) have a high risk of complications with surgery. Decision-making is difficult and should involve two consultants. Non-operative management is an option.

FOOT → NO CONSENSUS

Evidence base:

Studies with level-1 evidence are lacking. Predominantly retrospective series, with some good prospective studies, meta-analyses and reviews.

>12 HR CONT SUND → CONSULTANT DECISION

2) NICE:

- DVT prophylaxis after THR?

NICE:

- DVT prophylaxis after THR? 28-35 days

NICE:

- DVT prophylaxis after THR? 28-35 days
- DVT prophylaxis after TKR?

NICE:

- DVT prophylaxis after THR? 28-35 days
- DVT prophylaxis after TKR? 10-14 days

NICE:

- DVT prophylaxis after THR? 28-35 days
- DVT prophylaxis after TKR? 10-14 days
- DVT prophylaxis after NOF op?

NICE:

- DVT prophylaxis after THR? 28-35 days
- DVT prophylaxis after TKR? 10-14 days
- DVT prophylaxis after NOF op? 28-35 days

- *Venous thromboembolism in adults admitted to hospital: reducing the risk (2010 updated 2015) NICE guideline CG92*

When to do THR after NOF?

1.6 Surgical procedures

1.6.1 Operate on patients with the aim to allow them to fully weight bear (without restriction) in the immediate postoperative period.

1.6.2 Perform replacement arthroplasty (hemiarthroplasty or total hip replacement) in patients with a displaced intracapsular fracture.

1.6.3 Offer total hip replacements to patients with a displaced intracapsular fracture who:

- were able to walk independently out of doors with no more than the use of a stick **and**
- are not cognitively impaired **and**
- are medically fit for anaesthesia and the procedure.

1.6.4 Use a proven femoral stem design rather than Austin Moore or Thompson stems for arthroplasties. Suitable designs include those with an Orthopaedic Data Evaluation Panel rating of 10A, 10B, 10C, 7A, 7B, 5A, 5B, 3A or 3B.

1.6.5 Use cemented implants in patients undergoing surgery with arthroplasty.

1.6.6 Consider an anterolateral approach in favour of a posterior approach when inserting a hemiarthroplasty.

1.6.7 Use extramedullary implants such as a sliding hip screw in preference to an intramedullary nail in patients with trochanteric fractures above and including the lesser trochanter (AO classification types A1 and A2).

1.6.8 Use an intramedullary nail to treat patients with a subtrochanteric fracture.

Imaging if not sure of NOF?

1.1 Imaging options in occult hip fracture

1.1.1 Offer magnetic resonance imaging (MRI) if hip fracture is suspected despite negative X-rays of the hip of an adequate standard. If MRI is not available within 24 hours or is contraindicated, consider computed tomography (CT).).

Hip fracture: The management of hip fracture in adults
NICE guidelines [CG124] Published date: June 2011

3) NJR

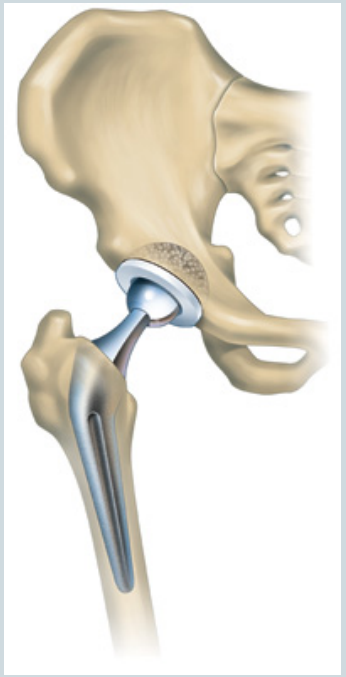
- Started april 2003
- 11th report in 2014
- 10 year good data (expected to know)
  - 620 K THR
  - 675 K TKR
  - 2 K TAR

CRITICISM?

NJR 10 years (HIPS)

DISTRIBUTION:

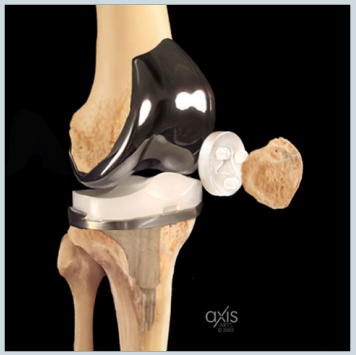
- Cemented (37%)
- Uncemented (38%)
- Resurfacing (6%)



REVISION RATES:

- Exeter-Contemporary 3.1%
- BHR 9%
- ASR resurfacing 30% !!!

NJR 10 years (KNEES)



DISTRIBUTION:

- PS (25% fixed)
- CR (67% fixed, 5% mobile)
- Uni TKR (28% fixed, 70% mobile)

REVISION RATES:

- PFC (TKR) 2.6%
- Patello-femoral replacement (Avon) 15%
- Oxford Uni 12%

MHRA (Metal on Metal)

Issued: 25 June 2012 at 11:00 Ref: **MDA/2012/036**

Appendix

Management recommendations for patients with metal-on-metal hip replacement implants

	MoM hip resurfacing (no stem)		**Stemmed MoM total hip replacements – femoral head diameter <36mm**		**Stemmed MoM total hip replacements – femoral head diameter ≥36mm**		**DePuy ASR™ hip replacements (all types)**	
	Symptomatic patients	**Asymptomatic patients**	**Symptomatic patients**	**Asymptomatic patients**	**Symptomatic patients**	**Asymptomatic patients**	**Symptomatic Patients**	**Asymptomatic patients**
Patient follow-up	Annually for the life of the implant	According to local protocols	Annually for the life of the implant	According to local protocols	Annually for the life of the implant	Annually for the life of the implant	Annually for the life of the implant	Annually for the life of the implant
Imaging: MARS MRI or ultrasound	Recommended in all cases	**No** - unless concern exists for cohort or patient becomes symptomatic	Recommended in all cases	**No** - unless concern exists for cohort or patient becomes symptomatic	Recommended in all cases	Recommended if blood metal ion levels rising	Recommended in all cases	Recommended in all cases
1st blood metal ion level test	**Yes**	**No** - unless concern exists for cohort or patient becomes symptomatic	**Yes**	**No** - unless concern exists for cohort or patient becomes symptomatic	**Yes**	**Yes**	**Yes**	**Yes**
Results of 1st blood metal ion level test	*Blood metal ion level >7ppb indicates potential for soft tissue reaction*		*Blood metal ion level >7ppb indicates potential for soft tissue reaction*		*Blood metal ion level >7ppb indicates potential for soft tissue reaction*	*If blood metal ion level >7ppb then second blood test required 3 months later*	*Blood metal ion level >7ppb indicates potential for soft tissue reaction*	*If blood metal ion level >7ppb then second blood test required 3 months later*
2nd blood metal ion level test	**Yes** - 3 months after 1st blood test if result was >7ppb		**Yes** - 3 months after 1st blood test if result was >7ppb		**Yes** - 3 months after 1st blood test if result was >7ppb	**Yes** - 3 months after 1st blood test if result was >7ppb	**Yes** - 3 months after 1st blood test if result was >7ppb	**Yes** - 3 months after 1st blood test if result was >7ppb
Results of 2nd blood metal ion level test	*Blood metal ion level >7ppb indicates potential for soft tissue reaction especially if greater than previously*		*Blood metal ion level >7ppb indicates potential for soft tissue reaction especially if greater than previously*		*Blood metal ion level >7ppb indicates potential for soft tissue reaction especially if greater than previously*	*If blood metal ion levels rising - further investigation required including imaging*	*Blood metal ion level >7ppb indicates potential for soft tissue reaction especially if greater than previously*	*Blood metal ion level rising indicates potential for soft tissue reaction*
Consider need for revision	If imaging is abnormal and/or blood metal ion levels rising		If imaging is abnormal and/or blood metal ion levels rising		If imaging is abnormal and/or blood metal ion levels rising	If imaging is abnormal and/or blood metal ion levels rising	If imaging is abnormal and/or blood metal ion levels rising	If imaging is abnormal and/or blood metal ion levels rising

Notes and guidance below


YOU TESTED POSITIVE FOR BEING TOO NEGATIVE.
STAHLER
3/31
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PAPERS:

1. LEVEL OF EVIDENCE
2. EVIDENCE BASED MEDICINE
3. MUTICENTRE-RCT
4. KEY PAPERS
5. HOW & WHEN TO QUOTE?
   - (NAME/YEAR)
   - LAST 1-2 MINS OF VIVA

DRAFFT (MULTICENTRE RCT)

Abstract

Objectives To compare the clinical effectiveness of Kirschner wire fixation with locking plate fixation for patients with a dorsally displaced fracture of the distal radius.

Design A multicentre two arm parallel group assessor blind randomised controlled trial with 1:1 treatment allocation.

Setting 18 trauma centres in the United Kingdom.

Participants 461 adults with a dorsally displaced fracture of the distal radius within 3 cm of the radiocarpal joint that required surgical fixation. Patients were excluded if the surgeon thought that the surface of the wrist joint was so badly displaced it required open reduction.

Interventions Kirschner wire fixation: wires are passed through the skin over the dorsal aspect of the distal radius and into the bone to hold the fracture in the correct anatomical position. Locking plate fixation: a locking plate is applied through an incision over the volar (palm) aspect of the wrist and secured to the bone with fixed angle locking screws.

Main outcome measures Primary outcome measure: validated patient rated wrist evaluation (PRWE). This rates wrist function in two (equally weighted) sections concerning the patient's experience of pain and disability to give a score out of 100. Secondary outcomes: disabilities of arm, shoulder, and hand (DASH) score, the EuroQol (EQ-5D), and complications related to the surgery.

Results The baseline characteristics of the two groups were well balanced, and over 90% of patients completed follow-up. The wrist function of both groups of patients improved by 12 months. There was no clinically relevant difference in the patient rated wrist score at three, six, or 12 months (difference in favour of the plate group was −1.3, 95% confidence interval −4.5 to 1.8; P=0.40). Nor was there a clinically relevant difference in health related quality of life or the number of complications in each group.

Conclusions Contrary to the existing literature, and against the rapidly increasing use of locking plate fixation, this trial found no difference in functional outcome in patients with dorsally displaced fractures of the distal radius treated with Kirschner wires or volar locking plates. Kirschner wire fixation, however, is cheaper and quicker to perform.

Trial registration Current Controlled Trials ISCRTN 31379280. UKCRN 8956.

- Percutaneous fixation with Kirschner wires versus volar locking plate fixation in adults with dorsally displaced fracture of distal radius: randomised controlled trial*BMJ 2014; 349 doi: http://dx.doi.org/10.1136/bmj.g4807 (Published 05 August 2014). Matthew L Costa, professor (warwick)*

PROFHER TRIAL (multicentre RCT)

JAMA. 2015 Mar 10;313(10):1037-47. doi: 10.1001/jama.2015.1629.

Surgical vs nonsurgical treatment of adults with displaced fractures of the proximal humerus: the PROFHER randomized clinical trial.

Rangan A[1], Handoll H[2], Brealey S[3], Jefferson L[3], Keding A[3], Martin BC[3], Goodchild L[1], Chuang LH[4], Hewitt C[3], Torgerson D[3]; PROFHER Trial Collaborators.

⊕ Collaborators (38)

⊕ Author information

Abstract

IMPORTANCE: The need for surgery for the majority of patients with displaced proximal humeral fractures is unclear, but its use is increasing.

OBJECTIVE: To evaluate the clinical effectiveness of surgical vs nonsurgical treatment for adults with displaced fractures of the proximal humerus involving the surgical neck.

DESIGN, SETTING, AND PARTICIPANTS: A pragmatic, multicenter, parallel-group, randomized clinical trial, the Proximal Fracture of the Humerus Evaluation by Randomization (PROFHER) trial, recruited 250 patients aged 16 years or older (mean age, 66 years [range, 24-92 years]; 192 [77%] were female; and 249 [99.6%] were white) who presented at the orthopedic departments of 32 acute UK National Health Service hospitals between September 2008 and April 2011 within 3 weeks after sustaining a displaced fracture of the proximal humerus involving the surgical neck. Patients were followed up for 2 years (up to April 2013) and 215 had complete follow-up data. The data for 231 patients (114 in surgical group and 117 in nonsurgical group) were included in the primary analysis.

INTERVENTIONS: Fracture fixation or humeral head replacement were performed by surgeons experienced in these techniques. Nonsurgical treatment was sling immobilization. Standardized outpatient and community-based rehabilitation was provided to both groups.

MAIN OUTCOMES AND MEASURES: Primary outcome was the Oxford Shoulder Score (range, 0-48; higher scores indicate better outcomes) assessed during a 2-year period, with assessment and data collection at 6, 12, and 24 months. Sample size was based on a minimal clinically important difference of 5 points for the Oxford Shoulder Score. Secondary outcomes were the Short-Form 12 (SF-12), complications, subsequent therapy, and mortality.

RESULTS: There was no significant mean treatment group difference in the Oxford Shoulder Score averaged over 2 years (39.07 points for the surgical group vs 38.32 points for the nonsurgical group; difference of 0.75 points [95% CI, -1.33 to 2.84 points]; P = .48) or at individual time points. There were also no significant between-group differences over 2 years in the mean SF-12 physical component score (surgical group: 1.77 points higher [95% CI, -0.84 to 4.39 points]; P = .18); the mean SF-12 mental component score (surgical group: 1.28 points lower [95% CI, -3.80 to 1.23 points]; P = .32); complications related to surgery or shoulder fracture (30 patients in surgical group vs 23 patients in nonsurgical group; P = .28), requiring secondary surgery to the shoulder (11 patients in both groups), and increased or new shoulder-related therapy (7 patients vs 4 patients, respectively; P = .58); and mortality (9 patients vs 5 patients; P = .27). Ten medical complications (2 cardiovascular events, 2 respiratory events, 2 gastrointestinal events, and 4 others) occurred in the surgical group during the postoperative hospital stay.

CONCLUSIONS AND RELEVANCE: Among patients with displaced proximal humeral fractures involving the surgical neck, there was no significant difference between surgical treatment compared with nonsurgical treatment in patient-reported clinical outcomes over 2 years following fracture occurrence. These results do not support the trend of increased surgery for patients with displaced fractures of the proximal humerus.

UKUFF TRIAL

Bone Joint J. 2017 Jan;99-B(1):107-115. doi: 10.1302/0301-620X.99B1.BJJ-2016-0424.R1.

Effectiveness of open and arthroscopic rotator cuff repair (UKUFF): a randomised controlled trial.

Carr A[1], Cooper C[1], Campbell MK[2], Rees J[1], Moser J[3], Beard DJ[1], Fitzpatrick R[4], Gray A[4], Dawson J[5], Murphy J[5], Bruhn H[2], Cooper D[2], Ramsay C[2].

Author information

Abstract

AIMS: The appropriate management for patients with a degenerative tear of the rotator cuff remains controversial, but operative treatment, particularly arthroscopic surgery, is increasingly being used. Our aim in this paper was to compare the effectiveness of arthroscopic with open repair of the rotator cuff.

PATIENTS AND METHODS: A total of 273 patients were recruited to a randomised comparison trial (136 to arthroscopic surgery and 137 to open surgery) from 19 teaching and general hospitals in the United Kingdom. The surgeons used their usual preferred method of repair. The Oxford Shoulder Score (OSS), two years post-operatively, was the primary outcome measure. Imaging of the shoulder was performed at one year after surgery. The trial is registered with Current Controlled Trials, ISRCTN97804283.

RESULTS: The mean OSS improved from 26.3 (standard deviation (sd) 8.2) at baseline, to 41.7 (sd 7.9) two years post-operatively for arthroscopic surgery and from 25.0 (sd 8.0) to 41.5 (sd 7.9) for open surgery. Intention-to-treat (ITT) analysis showed no statistical difference between the groups at two years (difference in OSS score -0.76; 95% confidence interval (CI) -2.75 to 1.22; p = 0.452). The confidence interval excluded the pre-determined clinically important difference in the OSS of three points. The rate of re-tear was not significantly different between the two groups (46.4% for arthroscopic and 38.6% for open surgery; 95% CI -6.9 to 25.8; p = 0.256). Healed repairs had the most improved OSS. These findings were the same when analysed per-protocol.

CONCLUSION: There is no evidence of difference in effectiveness between open and arthroscopic repair of rotator cuff tears. The rate of re-tear is high in both groups, for all sizes of tear and ages and this adversely affects the outcome. Cite this article: Bone Joint J 2017;99-B:107-15.

KEYWORDS: Arthroscopic surgery; Open surgery; Randomised controlled trial; Rotator cuff repair

PMID: 28053265 DOI: 10.1302/0301-620X.99B1.BJJ-2016-0424.R1

PAEDIATRICS:

- Uglow and Clarke. Southampton. JBJS 2004

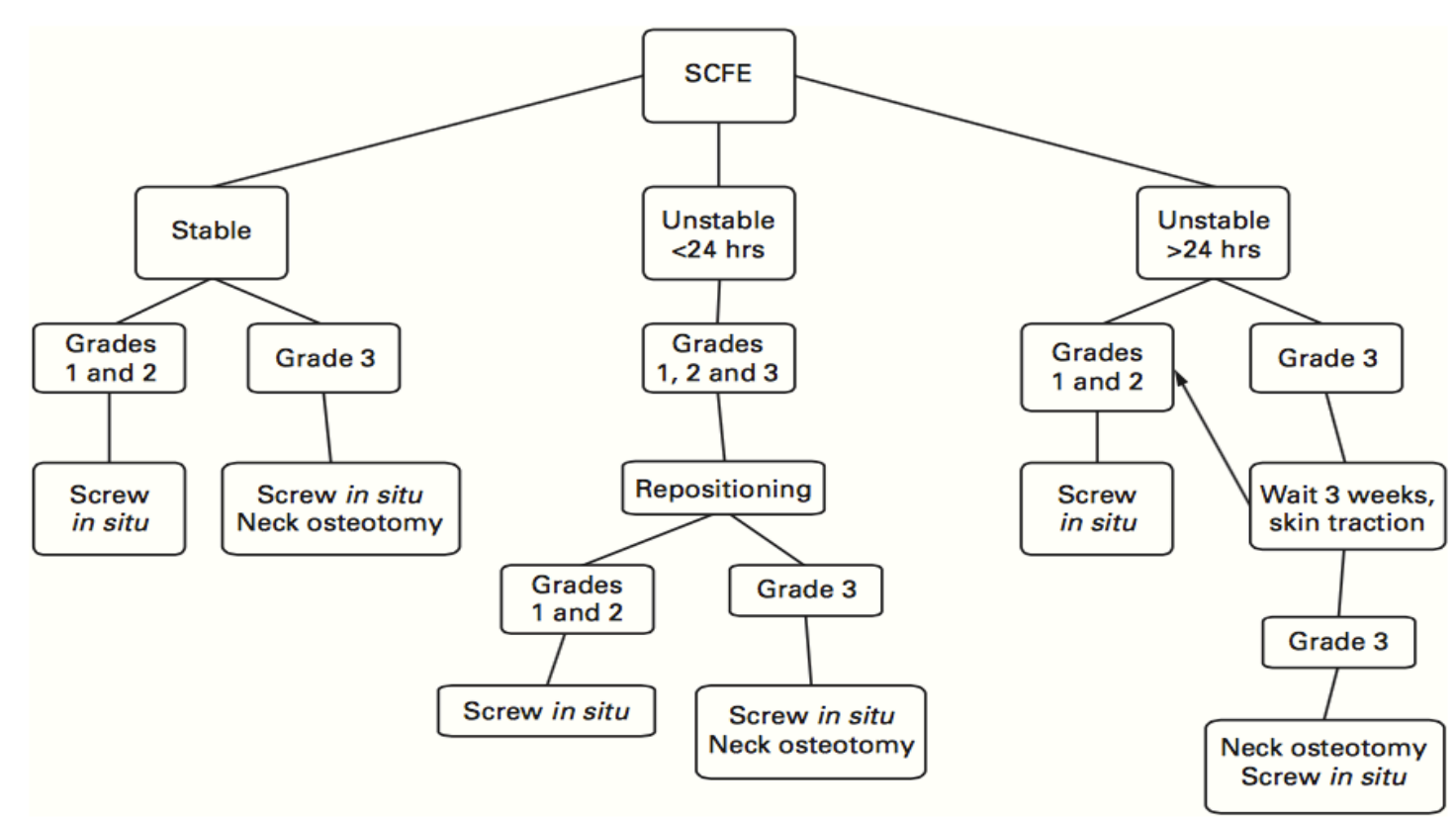

Fig. 4

An algorithm for the treatment of SCFE.

PAPERS:

CMCJ

Davis JHS 2011. Nottingham. Long-term f/u. Trapeziectomy only is enough (compared to PL interposition / ligament repair of FCR)

Drains

Parker JBJS 2004 meta-analysis. Increases blood loss. No effect on infection.

Tumours

Saifuddin JBJS 2000. 98% accuracy for USS guided biopsies

Spine:

- Cauda equina decompression. No difference between <24h and <48h decompression.
- Bad if >48hrs. Spine 2000. Meta-analysis.

Papers:

Hip

Exeter THR. Howell JBJS 2009. 17yr results. 100% stem survivorship; 90% acetabulum survivorship

Knee

Pavlou. Meta-analysis JBJS 2011. No evidence of improved outcome of patella re-surfacing in 7000 TKRs

Ankle

TAR vs. fusion. Haddad JBJS 2007 Systematic review. No real difference in terms of outcome at 10yrs.

Papers

Knee dislocation

Robertson JBJS 2006 review article. Edinburgh. Fix MCL and LCL (after vascular repair) and staged cruciates 6-12 weeks. Early repair does better.

Tibial nail

- SPRINT trial JBJS 2008. Reaming makes No difference if open or closed tibia fracture (multicentre blind RCT. 1319 pts)
- Don't re-operate for non-union atleast till 6 months. (some will heal)

Ankle

Ramsey + Hamilton 1976: 1mm talar shift decreases contact area by 42%

Papers:

Calcaneus

1. Buckley. Canadian Calcaneus Registry JBJS 2002. (displaced intra-articular fracture) 471 patients. Surgery better in women, young, severe, comminuted, increase Bohler's angle, anatomical post-op reduction., no worker compensation.
2. Griffin (2014) BMJ-RCT-NO difference BW surgical & Non Surgical.

Achilles

1. Khan JBJS(A) 2005. Meta-analysis. Operative reduces re-rupture but increased risks. Functional brace reduces complications.
2. Warwick current concepts paper. JBJS Jan 2012. Early functional rehab whatever you do.
3. JBJS 2011. Edinburgh. RCT Operative vs non-operative – no difference

Papers:

Distal radius

1. McQueen JBJS 2011. Poor radiological predictors of outcome:

   AP: 2mm +ve ulna variance, gap 2mm. Lateral: 2mm gap, carpal malalignment more than neutral tilt

1. JTO (2009) Arora et al. For 70 yr + patient ORIF vs CAST same outcome.

Scaphoid

1. McQueen JBJS 2008 - Undisplaced waist fracture. Earlier union and return to work (30 patients in each arm) 9 wks vs 14 weeks.

Clavicle

1. Canadian multicentre trial JBJS(A) 2007. Improved outcome and lower non-union and malunion at one year.
2. 132 pts, 65 sling (union at 28 wks) 7 non unions
3. 67 orif (union at 16 weeks) 2 non unions, 5 metal removed, 3 wound inf

Humerus and radial nerve palsy

Giannoudis. Systematic review JBJS 2005. No difference in final result with expectant or early exploration

90% radial nerve recovered, 88.1% Healed.

If closed – observe. USS within 3/52. If open – explore.

Hip

Baumgaertner JBJS(A) 1995. Tip apex distance 25mm. Strongest predictor of failure

THANKS


Have a seat Kermit. What I'm about to tell you might come as big shock...