including shoulder function by the Constant-Murley Score (CMS); Subjective pain by visual analogue scale (VAS score=0–100) [intolerable], and QOL by SF-12, were collected before the surgery (Baseline) and at follow-ups 1-3 and 6 months’ post-RCAS (FU1, FU3, FU6, FU-6m). The %patients achieving minimal clinical important difference (MCID) =15) and patient acceptable symptom state (PASS =17) was calculated. Groups were compared by superiority 2-sample 1 test and chi-square. Results: Baseline scores were not significantly different between groups. As expected, post-RCAS, the CMS improved over time and was similar for both groups. However, compared to sham, PBM significantly accelerated the reduction in subjective pain at 3 and 6 months (Change over baseline in VAS score, mean±SD, PBS vs Sham: FU3 32±33-vs-16±27, p=0.040; FU6 41±38-vs-23±26, p=0.038), with a significantly higher proportion of patients achieving MCID at 3 months (76% vs 48%, p=0.027) and PASS at 6 months (48% vs 23%, p=0.044). PBM also significantly improved the reported QOL at 6 months (physical component 6.8 vs 12.5; p=0.031; Mental component 8.5 vs 9.1; p=0.032). Discussion: Self-applied photobiomodulation was found to significantly accelerate reduction in pain and improvement in quality of life following rotator cuff arthroscopic surgery. These findings may indicate the usefulness of photobiomodulation for rehabilitation in other orthopedic surgeries. Sponsored by Erica Carmel ltd.

Category: Shoulder - Rotator Cuff

Short-term Outcomes of an “All-in-One” Interpositional Scaffolding Anchor Implant for Rotator Cuff Tendon Repair: A Prospective Multicenter Study

Abstract ID# 21626
All Authors: Ryan Jeffrey Krupp MD UNITED STATES
Mark A. Frankle UNITED STATES
John Nyland EdD, DPT UNITED STATES
Christopher Baker MD UNITED STATES
Brian C Werner MD UNITED STATES
Patrick St. Pierre UNITED STATES
Robert Z Tashjian MD UNITED STATES

Summary: The “all in one” interpositional scaffold anchor implant displayed good clinical efficacy, high MRI-confirmed rotator cuff tendon repair healing, excellent patient outcomes, and good survivorship.

Data: Purpose Historically, most rotator cuff tendon repair interventions have focused on “time zero” biomechanical repair strength characteristics. The primary study objective was to evaluate the survivorship of arthroscopic rotator cuff tendon repair using a novel “all in one” interpositional scaffold anchor implant designed to vent biological fluids to the repair site. A previous ovine study revealed superior biological healing and biomechanical load to failure results using this device compared to control conditions. The secondary study objective was to determine device clinical efficacy based on postoperative shoulder range of motion (ROM), shoulder muscle strength, clinical outcomes scores, and overall device safety. Methods A prospective multicenter clinical trial was performed at 7 different sites enrolling consecutive patients with 1.5 cm to 4 cm moderate-to-large size full thickness rotator cuff tendon tears that met study inclusion criteria. Seventy-one patients (64.8% men) were enrolled for surgical repair using the implant. Average subject age was 60.5 years (range = 40 to 76 years) and 11.3% were smokers. Clinical shoulder evaluations were performed using the American Shoulder and Elbow Society (ASES) score, the Veterans Rand-12 (VR-12) physical and mental health scores, and visual analogue scale (VAS) shoulder pain and instability questions at 3 month, 6 month, and 1 year follow-up. At the 6 month follow-up, repeat MRI was also performed and reviewed by a fellowship-trained, board-certified, independent radiologist. The median duration during which subjects were unable to perform daily activities because of their injured shoulder was 60 days (range = 0 to 365 days). Median symptom duration was 15 months (range = 0.5 to 120 months). Thirteen subjects had a normal biceps tendon at time of rotator cuff repair while 44 underwent tenodesis, and 14 underwent tenotomy. Results By the 1 year follow up, two device failures (97.0% device survival rate) had occurred, 10 subjects had been lost to follow up, and 1 death occurred (unrelated to the study). Patient self-reported outcome scores displayed continual improvement from study entry at each follow up period. The median preoperative ASES score of 44.2 improved to 92.5 at 1 year. Similar findings were observed with the median preoperative VAS pain score of 5.5 improving to 0.5 at 1 year, and the median preoperative VR-12 physical health score improving from 35.3 to 49.2 at 1 year. The median VR-12 mental health score did not display significant changes between the preoperative and 1 year follow up (53.7 and 57.0), respectively. The shoulder instability VAS score improved from the preoperative median score of 3.2 to 0.9 at 1 year. Shoulder ROM displayed a median 46° active forward elevation improvement (from 116.1° to 162.1°), and median 18.2° active adducted external rotation improvement (from 39.1° to 57.3°) between preoperative and 1 year follow up evaluations. At 6 months post-surgery, 52 subjects underwent repeat MRI. Sixteen subjects had experienced a rotator cuff tendon re-tear (31%). However, only 3 re-tears occurred at the footprint repair site (19% of all re-tears), with the rest occurring in tendon medial to the footprint. This observation confirmed that the previously torn tendon at the repair site had healed to the bone. One device failure was associated with an infection requiring implant removal, irrigation and intravenous antibiotic administration. No other major device related complications were observed. Conclusion Findings confirm the clinical efficacy, high healing rate, and safety of this “all in one” interpositional scaffold anchor implant for moderate-to-large size rotator cuff tendon tear repair. Significant shoulder function and symptom improvements were observed at each follow up relative to the preoperative state with good survivorship and minimal implant related complications.

Category: Shoulder - Rotator Cuff

The Arthroscopic Assisted Lower Trapezius Transfer For Non-Repairable Postero-Superior Rotatorcuff Lesions. Clinical Comparison With Latissimus Dorsi Transfer

Abstract ID# 21942
All Authors: Andreass Voss MD GERMANY
Laura Weber Student GERMANY
Laura Hauer Student GERMANY
Stefan Greiner MD, Prof. GERMANY

Summary: The LTT showed significant improvement in active ROM and SSV and outperformed the LDT in these categories.

Data: Introduction: The aim of this study is the analysis of a cohort of patients who have been treated due to a non-repairable postero-superior rotator cuff (RC) tear with an arthroscopic assisted lower trapezius transfer (LTT). This cohort will be compared to a cohort of patients having been treated for the same pathology with Latissimus dorsi Transfer (LDT). Biomechanical studies have shown a better abduction and external rotation moment arm for the LTT in comparison to the LDT. Therefore, the hypothesis of this study was that the LTT would provide better functional results in comparison to the LDT. Methods: Between 2013 and 2020 50 patients were treated with LDT and between 2018 and 2020 21 with LTT. For better comparability of the patient groups, a matched pairs analysis was carried out, in which 17 statistical pairs (34 patients: 30 males, 4 females; age (LDT): 55–+6 years, age (LTT): 55–+7 years) could be included. Matching criteria were same sex, age =+3 years, tear size according to Bateman =+1, and retraction size according to Patte =+1. The LDT was performed in a double incision technique and the LTT was performed arthroscopically assisted ussing an autologous semitendinosis interposition transplant. Clinical evaluation was included passive and active ROM and Constant-Score (CS), DASH, WORC, SSS, ADLEIR, OIS. Results: At final follow up of 43–+18 months (LDT) vs 18–+7 months (LTT) the CS improved in the LDT from 42 to 57 points (p<.01) and in the LTT group from 48 to 63 points (p<.01). Mean Flexion improved in the LDT group from 112° to 134° (n.s.) and in the LTT group from 112° to 122° (n.s.). Mean abduction from 39.1° to 57.3° (n.s.) and from 112° to 156° (p<.001). Mean external rotation improved in the LDT group from 19° to 29° (n.s.) and in the LTT group from 11° to 22° (n.s.). Mean external rotation side shift improved in the LDT group from 9° to 13° (n.s.) and in the LTT group from 11° to 18° (n.s.). Conclusion: Improved scores results and functional improvement was seen in both groups. The LTT showed significant improvement in active ROM and outperformed the LDT in these categories. However, longer follow up data and randomized controlled studies are necessary in order to further evaluate the clinical value of both methods.

Category: Shoulder - Rotator Cuff

Leukocyte-Poor Platelet Rich Plasma As An Adjuvant Of Arthroscopic Rotator Cuff Repairs Reduces Retears Rates But Does Not Improve Functional Outcomes A Double-Blind Randomized Controlled Trial

S151
Abstract ID# 22303
All Authors:
Luciano Rossi PhD ARGENTINA
Tomás David Gorodischer MD ARGENTINA
Pablo Camino MD ARGENTINA
Rodrigo Nicol Brandariz MD ARGENTINA
Ignacio Tanoira MD ARGENTINA
Nicolás Pizzi MD UNITED STATES
Maximiliano Ranalletta MD ARGENTINA

Abstract ID# 22821
All Authors:
Tiago Martinho MD SWITZERLAND
Marko Naborge MD SWITZERLAND
Alexandre Lidéer MD SWITZERLAND
Philippe Guy Collin MD FRANCE

Abstract ID# 23130
All Authors:
Ashish Gupta MBBS, MSc, FRACS AUSTRALIA
Mohammad Jomaa MD AUSTRALIA
Jashint Maharaj MBBS, FRSPH AUSTRALIA
Roberto Pareyon MEXICO
Kenneth Cutbush MBBS, FRACS, FAOrthA AUSTRALIA

Abstract ID# 23450
All Authors:
Fiorella Melchionda MD ITALY
Rodrigo Nicol Brandariz MD ARGENTINA
Ignacio Tanoira MD ARGENTINA
Philippe Guy Collin MD FRANCE

INTRODUCTION: The purpose of this study was to analyze the impact of the speed of recovery of ROM on tendon healing and functional outcome in patients undergoing an isolated arthroscopic supraspinatus (SSN) repair and the same postoperative rehabilitation protocol. We hypothesized that a faster ROM recovery would lead to a better functional outcome without compromising SSN repair healing. MATERIAL AND METHODS: This was a prospective monocentric study. All primary isolated arthroscopic SSN repairs for small to medium tears, without retraction (Patte 1), significant fatty infiltration (Goutallier <2) and associated glenohumeral osteoarthritis were eligible. Patients who did not complete all postoperative follow-ups were excluded. An experienced orthopedic surgeon performed all procedures using a standard double-row technique. All patients followed the same rehabilitation protocol postoperatively. It included the use of a sling and progressive passive overhead stretches and external rotation (ER) with the elbow at side during the first 6 weeks. An independent observer assessed all patients before and at 6 weeks, 3, and 6 months after surgery. Collected data at each follow-up included passive and active anterior elevation (EA) and ER as well as the visual analogue scale (VAS) for pain. In addition, the Constant score was obtained before and at 6 months after surgery. A single and experienced radiologist examined the healing of the repair by ultrasound at 6 months postoperatively. The integrity of the repair was classified into 5 categories according to Sugaya. Types 1 to 3 were considered as healed. RESULTS: 1323 consecutive patients between 2010 and 2020 were eligible. 169 were excluded according to the aforementioned criteria. Finally, 1154 arthroscopic SSN repairs were included. The healing rate was 87.3%. Table 1 presents the following results in detail. Preoperative characteristics of healed and non-healed repairs were similar in terms of passive and active ROM, VAS pain, and Constant score. Compared to the non-healed repairs, the healed ones were slightly younger (57.8±8.0 vs. 61.5±8.5 years; p<0.001) and had a lower passive AE and ER at 6 weeks and 3 months postoperatively. However, this difference faded by 6 months after surgery. There was no difference in Constant score and VAS pain between healed and non-healed repairs. In both cases, the SSN repair resulted in an improvement of the Constant score at 6 months postoperatively and a decrease in the VAS pain already from the 6th postoperative week. DISCUSSION: Our study shows that the speed of recovery of passive ROM influences tendon healing after isolated arthroscopic SSN repair. Indeed, repairs that resulted in healing had lower AE and ER up to 3 months after surgery compared to those that did not heal. However, this difference did not affect the level of pain and/or shoulder function, which were similar. These results illustrate the importance of the immediate postoperative rehabilitation phase on tendon healing and support the hypothesis that an initial period of rest without active mobilization or at least with protected mobilization increases the chances of tendon healing.

Category: Shoulder - Rotator Cuff
All Arthroscopic Muscle Advancement Procedure for Massive Retracted Rotator Cuff Tears: Clinical and Radiological Outcome

Abstract ID# 23450
All Authors:
Ashish Gupta MBBS, MSc, FRACS AUSTRALIA
Mohammad Jomaa MD AUSTRALIA
Andrew Ker MBChB, BSc (Hons), FIRCed (T + O) UNITED KINGDOM
Jashint Maharaj MBBS, FRSPH AUSTRALIA
Freek Hollman MD NETHERLANDS
Roberto Pareyon MEXICO
Kenneth Cutbush MBBS, FRACS, FAOrthA AUSTRALIA

Summary:
Clinical and radiological outcomes following muscle advancement for massive posterosuperior rotator cuff tears. Data:
Introduction Massive retracted posterosuperior cuff tears to the glenoid rim (with delamination) pose a challenge, they are associated with a high re-rupture rate. Primary repair of these tears is often complex due to inadequacy of stump length, peritendinous scarring and fibrosis, retraction, muscular fatty infiltration and poor tissue quality resulting in “irreparability”. These difficulties make primary repair a less-favourable option and promote other salvage procedures such as superior capsular reconstruction and tendon transfers. A tension free repair is mandatory for a successful outcome. Rather than pulling the tendon under tension, we have employed an all arthroscopic technique of releasing the cuff muscles off the scapular body allowing advancement the whole muscle-tendon unit laterally to achieve a tension-free footprint repair.2 Clinical and radiological outcomes of all arthroscopic muscle slide and advancement is reported in this prospective study. Methods 61 consecutive patients (66 shoulders) with large to massive delaminated posterosuperior cuff tears were enrolled. 47 (77%) were males. Mean age was 57 years (SD=6, range: 42-70). Nine (15%) were smokers. Mean BMI was 31.7 (SD=6, range: 21.6, 50.9) 56% of the cuff tears were in the dominant hand, and 83% of the cuff tears were traumatic. These patients underwent an all-arthroscopic rotator cuff repair that included supraspinatus and infraspinatus subperiosteal dissection from their scapular bony fossae, lateral advancement of the tendon laminae, and tension-free double-layer Lasso Loop