

B-0293 10:57**CEUS evaluation in the pseudarthrosis before and after treatment with autologous transplantation of bone marrow stem cells: preliminary results**S. Pozza¹, A. De Marchi¹, M. Petrazz¹, D. Aloj¹, G. Biino², C. Faletti¹; ¹Turin/IT, ²Pavia/IT (simona.pozza@tin.it)

Purpose: To demonstrate the effectiveness of CEUS in evaluating the process of reparative bone regeneration by monitoring angiogenesis around the fracture site in patients with pseudarthrosis who were treated with transplantation of marrow-derived mesenchymal stem cells.

Methods and Materials: The method was used in 15 patients of the Traumatology Centre in Torino, Italy from February 2009 to May 2011. All patients were treated for delayed multifragmentary fracture evolved in pseudarthrosis. Autologous concentrate of bone marrow stem cells was applied into the area of bone defect. CEUS examination was performed before the gelatinous compound was applied and at one-, four- and twelve-week follow-up time points, in order to evaluate the physiological formation of new blood vessels. At the end of the study an X-ray confirms the presence of callus.

Results: Ecographic signs of neo-vascularisation were noted at one week in 13 of 15 patients; a steady increase in vascularity was demonstrated in 13 patients in subsequent tests; repeated measures ANOVA demonstrated statistically significant differences in the extent of vascularisation at subsequent follow-up time points ($P < 0.0001$). At the end of the study x-ray examination revealed initial attachment of calcified callus in those patients who demonstrated an increase in vascularity at CEUS. The other two patients showed no improvement because of the presence of haematoma.

Conclusion: Transplantation of stem cells is a new treatment of pseudoarthrosis; our results demonstrate that CEUS has a good predictive value on the formation of callus in that it affords the monitoring of the reparative tissue vascularity.

B-0294 11:06**Visualisation of myofascial trigger points in low back muscles by real-time sonoelastography**

N.M. Abdel Razek, O. Kattabei, M.K. Nassif, M. El Lithey; Cairo/EG (naglaabdelrazek@yahoo.com)

Purpose: Myofascial trigger points (MTrPs) are a common source of pain and has been reported to vary from 30% to 93% in musculoskeletal pain. However, there is still a lack of objective means to either quantify or visualise their core features. Purpose is to examine the ability of vibration sonoelastography (E-colour mode) to visualise MTrP; superficial as well as deep ones and to differentiate them from their immediate surrounding myofascial structure. Also, to compare between active and latent MTrPs, in the quadrates lumborum, longissimus thoracis, iliocostalis lumborum, piriformis and gluteus medius muscles.

Methods and Materials: Thirty eight (38) subjects with more than two (6) MTrPs were randomly assigned to an active MTrP group and a latent MTrP group. MTrP identification was based on their essential and confirmatory criteria; also, a hand-held digital electronic algometer was used to measure MTrPs tenderness, through pressure pain threshold value. A hand-held vibrator (50 Hz) was used over MTrPs while sonoelastography readings were taken. Outcome measures; percentage of tissue stiffness of MTrP and their immediate surrounding myofascial structure, as well as their strain ratio.

Results: Vibration sonoelastography clearly differentiated with statistically significant difference between MTrPs stiffness and their immediate surrounding myofascial structure stiffness with a P-Value = 0.000 (P-Value<0.05). However, there was no significant difference between tissue strain ratios of both active and latent MTrPs with a P-Value = 0.929 (P-Value> 0.05).

Conclusion: These preliminary results indicate that vibration sonoelastography can actually visualise MTrPs and can differentiate them from its surrounding myofascial structure through tissue strain. However, it could not differentiate between active and latent MTrPs where tissue strains yield similar values.

B-0295 11:15**Sonographic-guided treatment of rotator cuff delamination tears using autologous blood: a one-year follow-up study assessing radiological features, pain scores and shoulder function**

W.A. Bashir, D. Connell; London/UK (wabashir@doctors.net.uk)

Purpose: To assess ultrasound-guided autologous blood injection (ABI) as an effective treatment for rotator cuff interstitial delamination tears which are difficult to diagnose by arthroscopy and are therefore problematic to treat. ABI offers a

new alternative minimally invasive treatment that actually targets pathophysiology of rotator cuff tendon pathology that has failed traditional non-surgical remedies.

Methods and Materials: 36 patients with clinical suspicion of rotator cuff tear underwent MRI examination. When evidence of a supraspinatus longitudinal split tear was confirmed, the patient was prospectively enrolled in the study and had US assessment; diagnosis confirmed according to echotexture, interstitial tearing and neovascularity. Individuals randomised into 2 groups; first group (18 patients, age 18-39) received standard treatment with 3 mL Bupivacaine and 40 mg triamcinolone into the subacromial-subdeltoid bursa. The second group (18 patients, age 19-39) received the standard therapy as well as ABI into the site of interstitial tearing and fibrillar discontinuity. We performed two injections and monitored any changes in the tendon with ultrasound and assessed pain scores and functional improvement using the validated Oxford Shoulder Score (OSS).

Results: Pre-procedural OSS and those at 10 days, 6 weeks, 3 and 12 months post-procedure were compared. Differences in sonographic echogenicity, neovascularity, and interstitial tear size noted. Patients in the ABI group showed statistical and clinical long-term pain relief and functional improvement as assessed by the overall OSS.

Conclusion: Autologous blood injection appears to be a viable alternative and more clinically effective when compared to standard steroid injection therapy for rotator cuff delamination tearing.

B-0296 11:24**Evaluation of echo-guided autologous platelet gel (APG) treatment in patients with tendinosis**

S. Battisti, L. Gregori, F. Arrigoni, A. La Marra, L. Zugaro, A. Barile, C. Masciocchi; L'Aquila/IT (antonio.barile@cc.univaq.it)

Purpose: Purpose of our study was to evaluate the effect of platelet gel treatment in patients with tendinosis, that today is not surgically treated. The evaluation was based on observation of clinical improvement and MRI-imaging. The platelet gel shows anti-inflammatory and regenerative effects which allow recovery of the functionality.

Methods and Materials: We evaluated 72 patients with tendinosis of supraspinatus (40 pts), Achilles' (20 pts) and patellar tendons (12 pts). Clinical as well as functional evaluations of the patients were performed, using the visual analogue scale (VAS), for pain, and Constant Scale, VISA-A and VISA-P, for functionality. The instrumental evaluation was based on US and MRI. The protocol included three infiltrations performed at a distance of 21 days the one from the other. The control MRI was performed before treatment and 30 days after the last infiltration.

Results: The VAS mean value of the supraspinatus tendon at the end of treatment improved overall by 75%, and the Constant scale by 55.4%. In the patients with tendinosis of Achilles tendons, we found an improvement of 75% (VAS) and 43% (VISA-A). The patellar tendon VAS value increased of 71% and the VISA-P value of 50%. Compared with these good clinical results, the imaging findings were less significant.

Conclusion: Besides producing very satisfactory results in terms of symptoms and functionality in patients with tendinosis, the use of platelet gel also gives signs of morphological recovery. However, further investigations are needed to confirm consistency of these results.

B-0297 11:33**Combined ultrasound (US)-guided percutaneous treatment of epitrochleitis: a randomised controlled trial**D. Orlandi¹, E. Fabbro¹, C. Martini¹, G. Ferrero¹, L. Sconfienza², G. Serafini³, E. Silvestri¹; ¹Genoa/IT, ²San Donato Milanese/IT, ³Pietera Ligure, SV/IT (theabo@libero.it)

Purpose: Epitrochleitis is a common cause of elbow pain that could be treated with conservative or surgical intervention. The purpose of our work was to compare patients with clinical diagnoses of epitrochleitis treated with a combined US-guided percutaneous approach (dry needling and steroid) and similar patients treated with either local steroid injection or dry needling.

Methods and Materials: 30 patients suffering from epitrochleitis underwent to US-guided percutaneous treatment: 10 (7 males; age 38.7±7.4 [mean±st.dev]) were treated with dry needling and local steroid injection together, 10 (6 males; age 43.2±6.8) with dry needling only and 10 (3 males; age 35.2±9.4) with local steroid injection only. A visual analogue scale (VAS from 0 to 10) was used to evaluate the degree of pain at baseline and at 2, 12, 24, 36, 48 weeks after the procedure; US scanning was performed at baseline, 24, 48 weeks.

Results: No immediate or delayed complications were observed. Patients who underwent steroid injection only had a prompt pain decrease but limited effects on a long-term basis (baseline VAS=6.9±0.3; 2 weeks VAS=1.8±0.5; 12 VAS=4.0±0.3;