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Back pain, mechanical musculoskeletal problems, local soft tissue disorders

AB0909

EFFICACY AND SAFETY OF ULTRASOUND GUIDED ASPIRATION AND INTRA-LESIONAL CORTICOSTEROIDS INJECTION OF RUPTURED BAKER'S CYST

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Background: Baker's cyst is the most common mass in the popliteal fossa and results from fluid distension of the gastrocnemio-semimembranosus bursa. The most common complication of Baker's cyst is the rupture or dissection of fluid into the adjacent proximal gastrocnemius muscle belly, which results in a pseudothrombophlebitis syndrome mimicking symptoms of DVT.

Treatment of ruptured Baker cysts ranged from conservative management to surgical resection.

Ultrasonographic guided aspiration and corticosteroids injection may be an effective and easy method of management of these cases.

Up to the best of our knowledge, this is the first study to detect the efficacy and safety of ultrasonographic guided aspiration and injections of ruptured Baker cysts.

Objectives: To evaluate the efficacy and safety of ultrasonographic guided aspiration and local corticosteroids of ruptured Baker cysts based on follow-up clinical and sonographic results.

Methods: A retrospective study was conducted on 42 patients (12 males and 30 females, mean age 36 +/- 10 SD years) affected by a ruptured Baker cysts associated to knee joint disorders in the period between January 2013 to January 2019. The diagnosis was done by clinical presentation of acute calf pain, swelling, tenderness at the calf muscles and ultrasonographic evidences of ruptured backer cysts in the form of free fluid collection in the calf connected to a well defined cyst at the back of knee.

All cases were treated by ultrasonographic guided aspiration and intra-lesional injection of corticosteroids once or twice one week a part. Follow up were done on a weekly basis until complete resolution of symptoms then 3 months later. Visual analogue scale (VAS) for calf pain and Rauschnig-Lindgren and Lysholm Knee Scoring Scales were used to assess pre/post-injection knee functions.

Results: The primary diagnoses to patients presented with ruptured Baker cyst in this study were as follow: 18 (42.8%) cases with rheumatoid arthritis, 15 (37.5%) cases with osteoarthritis and 9 (21.4%) cases with psoriatic arthritis.

Clinical parameters (VAS for calf pain and Rauschnig-Lindgren score) improved significantly in all patients at both post injection evaluation visits.

Rauschnig-Lindgren score was significantly lower after US guided injections (mean, 0; range, 0-1) than at baseline (mean, 2; range, 1-2); $p < 0.001$ (table1).

VAS for calf pain also significantly lower after US guided injections (mean, 0.5; range, 0-1) than at baseline (mean, 9.5; range, 0-10); $p < 0.001$.

Ultrasonographic features improved significantly with complete disappearance of free fluid at the calf in 35 (83.3%) cases one week after the injection.

As regards Baker cyst only 5 (11%) cases showed complete disappearance of the backer cyst and in the majority of cases 37 (88%) there were persistent Baker cysts.

No side effects were reported in all cases.

Abstract AB0909 Table 1. Clinical results of Baker cyst excision (Rauschnig and Lindgren scale and VAS for calf pain)

	Pre injection	1 week later	3 months later
grade 0	0	30	39
Grade 1	0	8	3
Grade 2	6	4	0
Grade3	36	0	0
VAS for calf pain	9.5	1.5	0.5

VAS; visual analogue scale

Conclusion: Ultrasonographic guided aspiration and intra-lesional corticosteroids injection is an effective and safe method in management of ruptured Baker cysts.

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AB0910

EFFECTIVE RESTORING MOTION AND EFFECTIVE TREATMENT OF MYOFASCIAL AND NEUROPATHIC LOW BACK PAIN BY TARGETED DRY NEEDLING USING ULTRASOUND GUIDANCE

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Background: Low back pain (LBP) involves both myofascial and neuropathic components of pain. Neuropathic pain is a widespread problem, require continuous consumption of medications. Muscle spasticity might evoke nerve compression, dry needling (DN) of myofascial trigger points (MTrP) under ultrasound (US) guidance is effective method for treatment myofascial pain [1,2] restoring posture [3] and can be effective for neuropathic pain.

Objectives: The aim was to evaluate efficacy of dry needling under US guidance for treatment myofascial and neuropathic components of LBP.

Methods: We included 52 patients, 37 females, aged 18-84 years (the average was 55 years) with clinically diagnosed chronic low back pain with neuropathic component with clinically diagnosed low back pain over 3 month with neuropathic component and reduced motility in spine, pelvis and lower extremity. All patients had symptoms over 3 month, underwent general exam, including MRI, laboratory, neurologic, orthopedic tests. We conducted precise physical tests and neuromuscular ultrasound using M-mode and evaluated nerves and motion in intervetebral spaces, pelvis, intrinsic foot and leg muscles. We conducted ultrasound survey at the levels of predicted nerve injury. Patients received DN of MTrP under US guidance according to approach by R.Bubnov [1,2], considering nerve entrapment area. Visual analogue scale (VAS, 0-10) and Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) scores were measured before, immediately after, 24 hours, and 7 days after intervention.

Results: After 7 days, VAS scores showed pain improvement from 7.4 to 2.2; LANSS scores improved from 16 to 4. In diabetic and postherpetic neuropathy cases we obtained similar results as in rest of patients ($p < 0.05$). US demonstrated improvement nerve structure, increasing motility, contractility (muscle contracted/rested thickness) on M-mode during functional tests and walking in all levels. Improvement of neuropathy signs as decrease of fascicles diameter from 2 to 0.9 mm measured on US in sciatic nerve, both in tibial, peroneal portions, data correlated with self-assessment pain decrease ($r > 0.8$). Preferably MTrP were identification in supinator muscle (wrist pain); rotator muscles (infraspinatus, supraspinatus, subscapular and teres minor muscles); scalene muscles; obliquus capitis muscles, and also in fascial tissue.

Conclusion: Dry needling under US guidance effectively reduce myofascial pain, ameliorate symptoms of neuropathy and local muscle hypomotility in low back pain. Further research needed for development US patterns and study causation in chain spasticity-contraction- motion-neuropathic pain.

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AB0911

REFRACTORY LOW BACK PAIN AND LUMBAR CT-GUIDED STEROID INFILTRATION. STUDY OF 582 PROCEDURES FROM THE SAME CENTER

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Background: Mechanical low back pain which is refractory to analgesic and rehabilitative treatment is an important cause of disability. The primary objective of corticosteroid (CS) lumbar infiltration is to accelerate the recovery process and to avoid surgery. However, its use is not without controversy.

Objectives: To review the indications, efficacy and complications of lumbar computed tomography (CT)-guided CS infiltration.

Methods: Retrospective study (January 2012 - April 2018) of lumbar CT-guided CS infiltrations performed in a single center. The epidemiological variables, underlying pathologies, approach of injection, used CS (dexamethasone during the whole period and triamcinolone until February 2015), efficacy after 1 and after 3 months and complications were registered. In addition, a comparative study of the efficacy according to indication, type of CS and approach of injection was performed.

Frequencies and percentages were used in qualitative variables, mean $\pm$ SD in quantitative and for the comparison between groups Chi2 test or Fisher test was used in categorical variables and Student T test or U of Mann-Whitney in quantitative. Statistical analysis was performed with IBM SPSS v.23.

Results: 582 procedures were performed in 445 patients (1 infiltration in 445 patients, 2 in 106, 3 in 23, 4 in 7 and 5 in 1). The mean age $\pm$ SD was 58.6 $\pm$ 14.8 years with a male/female ratio of 224/221. Traumatology was the service with highest demand (88.8%) followed by rheumatology (4.8%). The indications were disc herniation (43.1%), lumbar spinal stenosis (36.4%), postoperative fibrosis (14.8%), spondyloarthritis (2.7%) and other [lithesis, synovial cyst and facet joint syndrome] (2.8%). Posterior epidural access was performed in 27.1% of the procedures, foraminal in 17.9% and lateral recess in 55%. The used CS were dexamethasone (66.3%) and triamcinolone (33.7%). In 86% of patients the oral analgesic treatment had been ineffective.

Improvement was observed in 68% of patients at the first month (table) regardless of the indication, approach of injection and CS used and in 63.2% at 3 months.

Only 124 patients (21.3%) required surgery due to the persistence of pain, mostly within the first year after infiltration (66.9%).

Clinical efficacy showed no statistically significant differences regarding to the indication of the procedure. On the other hand, we observed a significantly higher improvement of the pain through the foraminal and lateral recess than through the epidural at 3 months ($p = 0.002$). Regarding the CS used, the improvement was significantly greater with triamcinolone compared to dexamethasone in the first and third months ($p = <0.001$). Concerning safety, there were 16 cases (2.7%) of local complications (5 punctures of the thecal sac, 4 extravasations of the contrast and 7 transient pain in lower extremities) and 5 (0.9%) systemic complications (3 allergic reactions and 2 syncope due to low blood pressure), without clinical relevance and they were not associated with the indication, approach of injection and CS used.

Conclusion: In our series disc herniation, lumbar stenosis and postoperative fibrosis were the most common indications. Improvement was observed in 68% and in 63.2% of the patients in the first and third months respectively.

TABLE. Clinical evolution of pain at the first month according to indication, approach of injection and used steroid.

INDICATION	Total response, n (%)	Partial response, n (%)	No response, n (%)	Worsening, n (%)	TOTAL, n (%)
-Disc herniation	12 (4.8%)	167 (66.5%)	66 (26.3%)	6 (2.4%)	251 (43.1%)
-Lumbar spinal stenosis	5 (2.3%)	131 (61.8%)	75 (35.4%)	1 (0.5%)	212 (36.4%)
-Postoperative fibrosis	1 (1.2%)	56 (65.1%)	29 (33.7%)	0 (0%)	86 (14.8%)
-Spondyloarthritis	1 (6.2%)	11 (68.8%)	4 (25%)	0 (0%)	16 (2.8%)
-Other (lithesis, synovial cyst and facet joint syndrome)	1 (5.9%)	11 (64.7%)	5 (29.4%)	0 (0%)	17 (2.9%)
APPROACH					
-Lateral recess	14 (4.4%)	207 (64.7%)	94 (29.4%)	5 (1.5%)	320 (55%)
-Epidural	3 (1.9%)	94 (59.5%)	60 (38%)	1 (0.6%)	158 (27.1%)
-Foraminal	3 (2.9%)	75 (72.1%)	25 (24%)	1 (1%)	104 (17.9%)
STERIOD					
-Dexamethasone	8 (2.1%)	234 (60.6%)	140 (36.3%)	4 (1%)	386 (66.3%)
-Triamcinolone	12 (6.1%)	142 (72.5%)	39 (19.9%)	3 (1.5%)	196 (33.7%)
TOTAL n=582	20 (3.4%)	376 (64.6%)	179 (30.8%)	7 (1.2%)	582 (100%)

Figure 1

Only 21% required surgery. Triamcinolone (although its use is currently discouraged because it is a particulate CS), foraminal infiltration and lateral recess proved to be more effective for pain control.

In this study, lumbar CT-guided CS infiltration in patients with refractory low back pain is an accessible, minimally invasive, safe and effective procedure in long term.

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AB0912

EXTRACORPOREAL SHOCKWAVE VERSUS MUSCULOSKELETAL MESOTHERAPY FOR ACHILLES TENDINOPATHY IN ATHLETES

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Background: Achilles tendinopathy (AT) is considered as one of the common tendon pathologies, which occurs mainly in athletes. Different conservative treatment options have been introduced and used for symptoms relief of AT but with short-term effect.1 Extracorporeal shockwave treatment (ESWT) provides longer effects and could be used in cases fail to respond to conservative treatments.2 Mesotherapy is widely practiced in sports medicine as multiple injections, often of anti-inflammatory medications into the subcutaneous fat overlying a region of musculoskeletal pain. The effect appears unclear but may be due to localized tissue uptake of anti-inflammatory medication which may provide symptomatic relief especially in insertional Achilles tendinopathy 3

Objectives: In this study, we aimed to evaluate the effect of extracorporeal shockwave treatment

(ESWT) and mesotherapy on chronic Achilles tendinopathy in athletes

Methods: 40 patients with chronic AT were diagnosed clinically & using high resolution ultrasound (US) according to the Eular guide lines and randomly allocated in two groups, first receive ESWT, other group underwent mesotherapy (MT) one session once a week for 4 weeks to the 2 groups. Pain, ankle-hindfoot scale of the American Orthopedic Foot and Ankle Society (AOFAS) 4 & US were recorded at baseline, 4 and 12 weeks after intervention

Results: Both groups improved during the treatment and follow-up period. The mean VAS score decreased from 7.55 to 3 in the ESWT group and from 7.70 to 4.30 in MT group. There was no significant difference in terms of AOFAS and VAS scores between both groups at 4 weeks follow up while Mean AOFAS & VAS scores were significantly different between ESWT and MT groups at 12 weeks of follow-up ($P = 0.013$) ($P = 0.47$). US assessment significantly improved after 12 weeks in ESWT group as regards tendon thickness, calcifications (figure 1,2) and doppler signal.

Conclusion: ESWT showed improvement of pain and inflammation of AT than MT injections which was documented by the decreased VAS, increased AOFAS scores as well as US improved findings shortly after the treatment as well as on late follow up.

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