

Predictive value of ultrasound guided intraarticular injection with local anesthesia and glucocorticosteroid before hip arthroscopy for Femoro-Acetabular Impingement Syndrome (FAIS)

Christian Dippmann¹, Finn Johansen², Line Borreskov Dahl³, Michael Rindom Krogsgaard¹

¹ Section for Sports Traumatology, Department of Orthopedic Surgery, Bispebjerg-Frederiksberg Hospital, Denmark

² Institute of Sports Medicine Copenhagen, Department of Orthopedic Surgery, Bispebjerg-Frederiksberg Hospital, Denmark

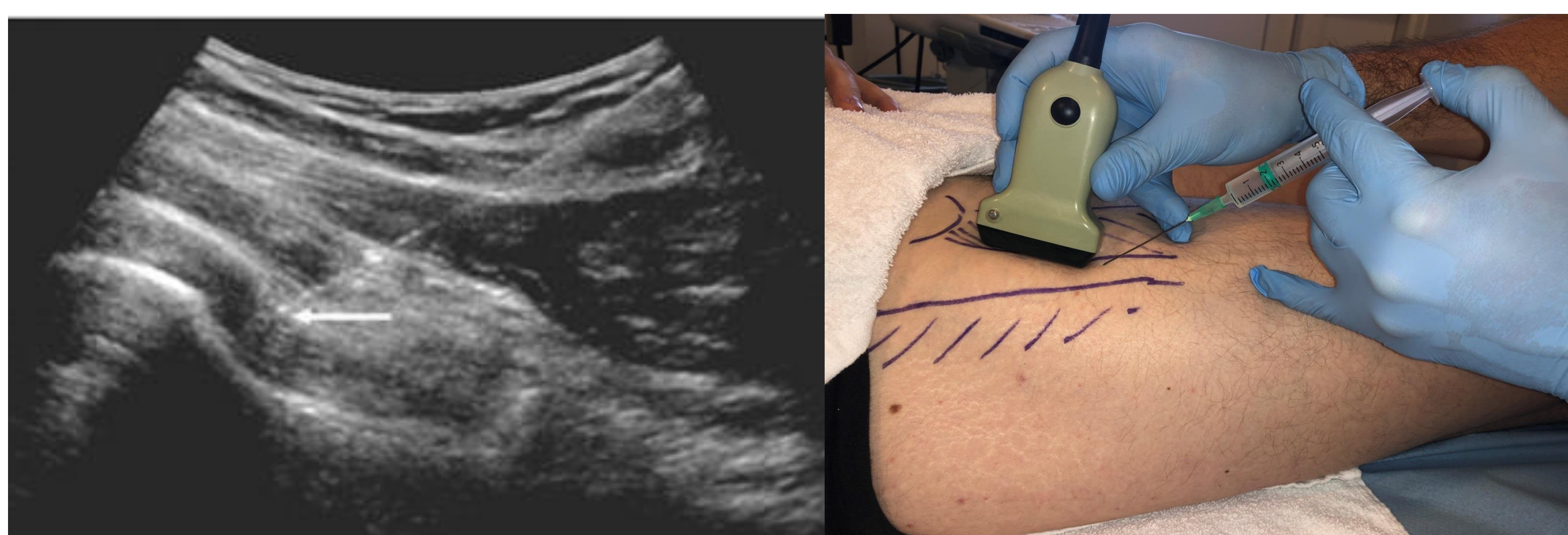
³ Elective Surgery Center, Silkeborg Regionshospital, Denmark

Purpose / Aim

The purpose of this study was to determine whether the duration of the effect of an ultrasound guided intra-articular injection (UGII) with local anaesthesia and corticosteroid could indicate degenerative or inflammatory changes in the hip joint.

Introduction

Ultrasound guided intraarticular injection (UGII) with local anesthesia (LA) is frequently used to confirm joint related hip pain in patients with femoro-acetabular impingement syndrome (FAIS) [1]. In combination with glucocorticosteroid (GCS) it may result in long-lasting pain relief in individuals with inflammatory or degenerative joint pathologies [2]



Picture 1 : Ultrasound Guided Intraarticular Injection (UGII) with no-touch technique in a clinical setting for patient suspect for an intraarticular pain source.

The Section of Sports Traumatology, Bispebjerg Frederiksberg Hospital, has implemented a structured triage algorithm (fig. 1).

All patient with clinical signs of an intraarticular hip pathology, where triaged according to our algorithm, using a standard pelvic x-ray for evaluation [3]. Patients with radiological signs of osteoarthritis, acetabular retroversion or dysplasia of the hip, where referred to our colleagues for possible open surgery, while patients without these radiologic findings were considered potential candidates for hip arthroscopy. All patients were tested with a ultrasound guided intraarticular injection with LA and GCS.

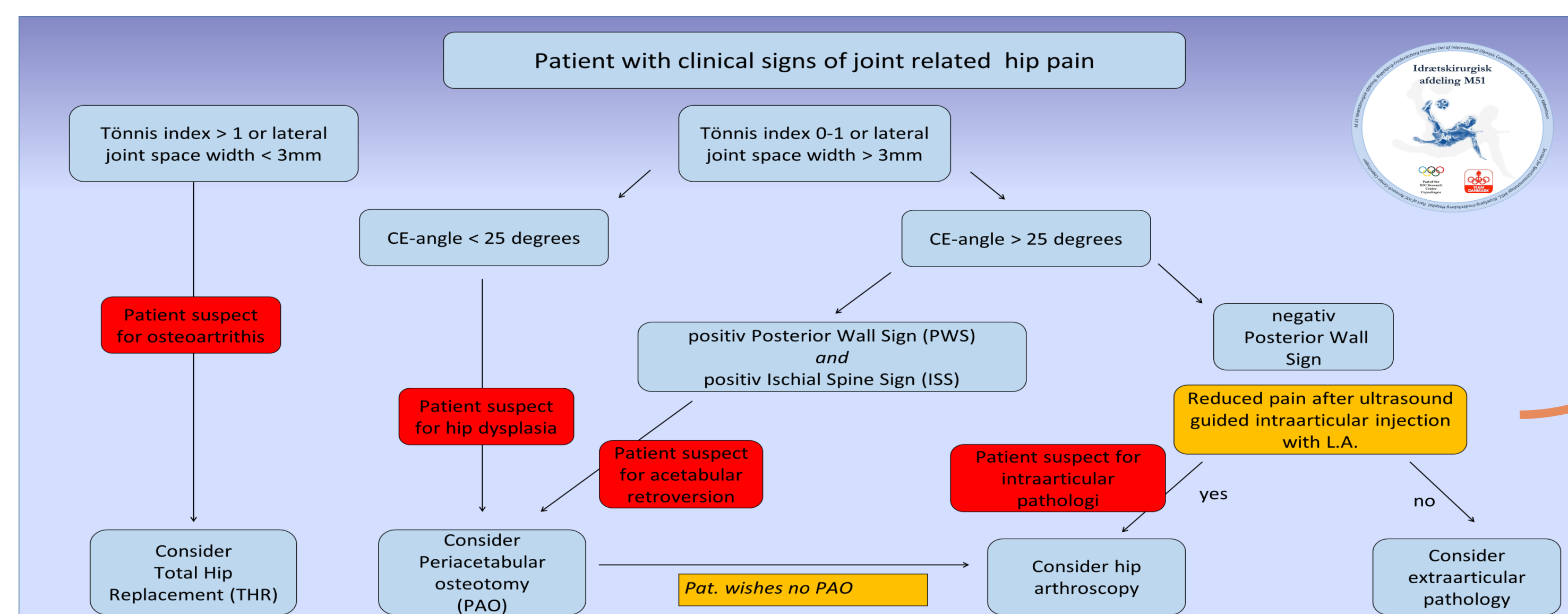


Figure 1 : Clinical decision making algorithm to triage patients with joint related hip as it is used at Section of Sport Traumatology, Bispebjerg Hospital.

Material and Methods

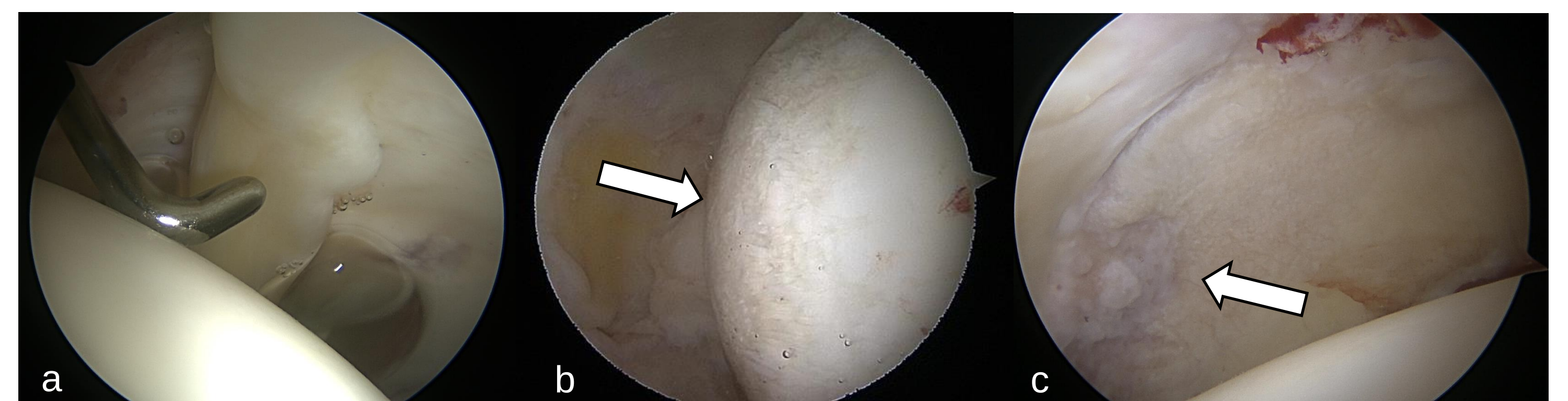
All patients with a significant pain relief (NRS reduction by at least 2 points (range 0-10) 15 min after UGII in clinical examination were offered hip arthroscopy. Two weeks later the patients were evaluated for positive long term effect of the UGII (reduced pain, increased range of motion or increased physical activity level).

References:

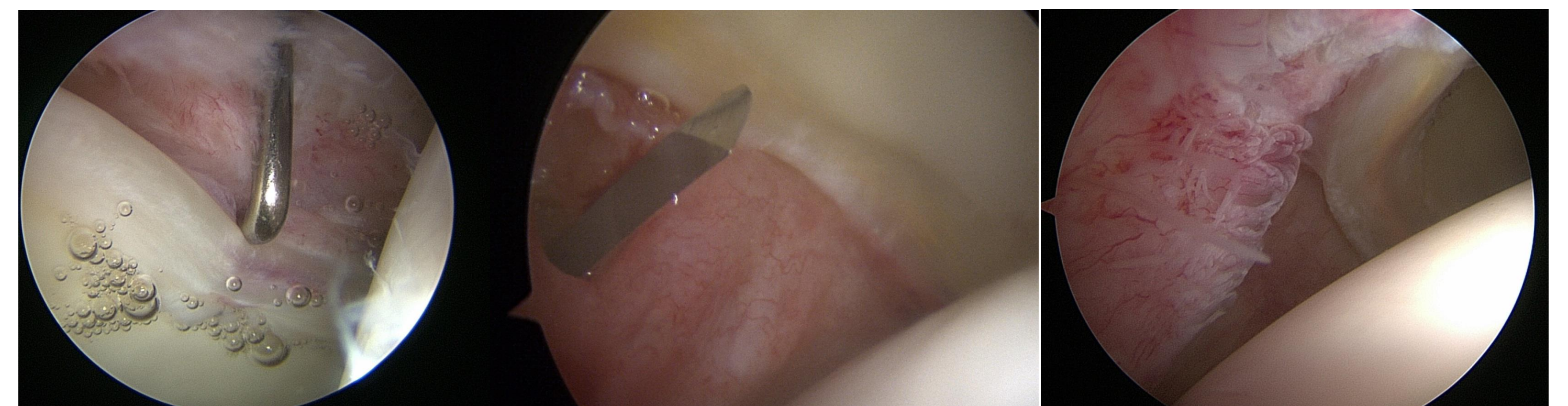
1. Krych et.al. Limited therapeutic benefits of intra-articular cortisone injection for patients with femoro-acetabular impingement and labral tear Knee Surg Sports Traumatol Arthrosc (2014) 22:750–755
2. Park et.al. Efficacy of Intra-articular Steroid Injection in Patients with Femoroacetabular Impingement Korean J Pain 2013 April; 26, 2: 154-159.
3. Tannast et al. Femoroacetabular impingement: radiographic diagnosis--what the radiologist should know. S AJR. American journal of roentgenology 2007 vol: 188 (6) pp: 1540-52

Intraoperative evaluation

The presence of intraarticular pathologies such as generalized synovitis, labrum and cartilage lesions, their extent, localization and severity were documented. Cartilage injuries were reported according to the ICRS classification, with grade 3 (50% reduction of cartilage) and grade 4 (no cartilage, bare bone) representing the most severe pathologies (pic. 2). The presence of generalized synovitis was reported as present – not present (pic. 3). All patients, but one, underwent labrum reinsertion with acetabular rim-trimming, femoral cheilectomy and capsule closure.



Picture 2 : Intraoperative finding left to right: a. hip joint with hypertrophic labrum, but without femoral or acetabular cartilage injuries. b. grade 3 cartilage injury on the femoral head. C. grade 3-4 cartilage injury in the acetabular roof.



Picture 3 : Intraoperative finding left to right: a. focal synovial reaction around a labral injury . b. moderate generalized synovitis and c. severe generalized synovitis.

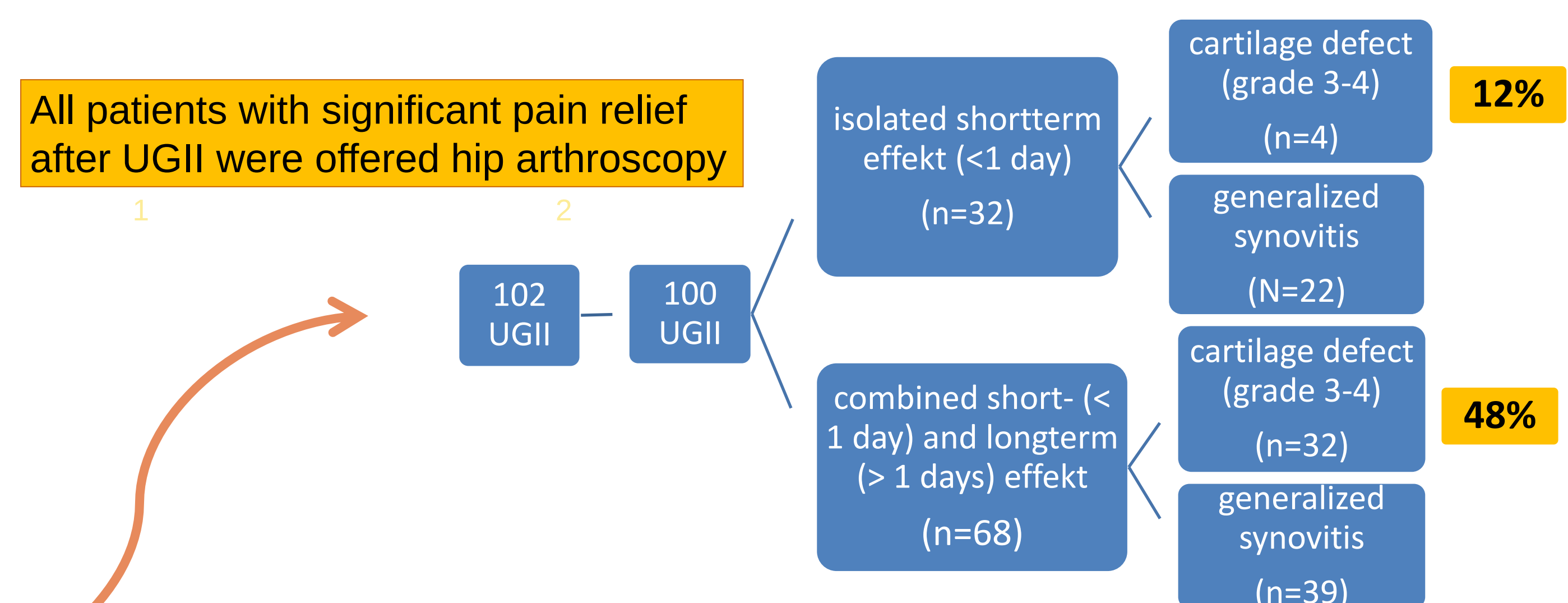


Figure 2: Patient flow-chart

Results

From July 2016 to August 2019 102 patients (42 males, 100 females) underwent hip arthroscopy. 68 patients confirmed both a positive short- (<1 day) and long-term (> 1 day) effect, while 32 patients reported an isolated, temporary pain relief (<1 day). Two patients were excluded (only peripheral access to the hip; no 2-weeks follow-up) (fig. 2). The average time from UGII to surgery was 103 days. While all patients presented intraarticular pathologies, no difference regarding inflammatory ($p=0.276$) changes could be seen. However, patients with grad 3 and 4 cartilage lesions were overrepresented in the group of long-lasting pain relief (48%) compared with the group of patient with short term effect only (12%), ($p<0.000$).

Discussion and Conclusion

Patients with a positive Ultrasound Guided Intraarticular Injection (UGII) all had changes in the hip joint. Long lasting pain relief may indicate severe cartilage injuries.