

ORTHO NEWSCAST



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Dear Doctor,

Greetings from Micro Labs. We are happy to bring you "Ortho Newscast" which contains latest and interesting news in the field of Orthopaedics.

This issue contains

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2. Children with operatively treated fractures of the lateral humeral condyle displaced 1-5 mm have a better early prognosis when using intraoperative arthrography.
3. Volar plating versus casting for unstable distal radius fractures in patients older than 65 years was compared for side effects and functional outcome in the study VOLCON.
4. Mid-term outcomes of surgical hip dislocation for subcapital realignment of a chronically slipping capital femoral epiphysis

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Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Limited

Sacroiliac joint fusion using minimally invasive techniques in a double-center observational study: outcomes after one year

Lower back pain brought on by sacroiliac joint dysfunction may be successfully treated with sacroiliac joint (SIJ) fusion. Energy and force are transferred from the pelvis to the spine through the sacroiliac joint. A good function requires both regulated ligamentous compression and articular congruity. Pathological motion is the result of these components being out of balance, and it may result in discomfort and incapacity. Blood tests and imaging frequently reveal no substantial pathological abnormalities, hence the diagnosis is primarily dependent on clinical observations.¹ The sacroiliac joint is where the majority of patients with persistent low back pain get their pain from (SIJ). The use of minimally invasive sacroiliac joint fusion (MISJF) as a therapy for SIJ dysfunction is rising. Evidence keeps growing despite the ongoing debate. In a double-center consecutive case series involving patients with SIJ dysfunction during a one-year observation period, this study assesses the clinical outcomes and safety of MISJF.²

After a history was taken, a physical exam was performed, and at least a 50% reduction in SIJ discomfort occurred 30 to 60 minutes after an image-guided injection, SIJ complaints were identified. Patient-reported outcome measurements (PROMs), which included the Visual Analogue Scale (VAS) pain score and the EuroQol 5-dimensions 3-levels, were the primary outcome measurements (EQ5D-3L). Through surveys, the viewpoints of patients on the effects of surgery were gathered. Implant placement and (severe) adverse events ((S)AE's) were used as secondary outcome measures.

There were 29 patients altogether. SIJ dysfunction had a postpartum aetiology in 44.8% of patients. Following surgery, the mean VAS-pain score decreased from 7.83 (± 1.71) to 4.97 (± 2.63) ($p < 0.001$). EQ-5D-3L score increased postoperatively from 0.266 (± 0.129) to 0.499 (± 0.260) ($p = 0.026$). 13.7% of patients experienced a (S)AE.

This study sheds light on the efficacy of MISJF in a double-center cohort of patients with SIJ dysfunction over a period of time. Overall, we saw significant improvements in pain and quality of life one year after surgery, with a low proportion of (severe) adverse events. We document a mean 2.86 point improvement in VAS-pain and a 0.232 point improvement in EQ-5D-3L. These PROMs come with a 62.1% total satisfaction rating.² This might be explained by the fact that bilateral SIJ dysfunction is a prevalent condition. Typically, there is one more symptomatic side, and occasionally, due to unresolved complaints, MISJF for one side is followed by MISJF for the other side. Because the second SIJ was still problematic and needs surgery as well, it's possible that some postoperative patients did not exhibit meaningful improvements in pain and quality of life. Compared to previous research, a

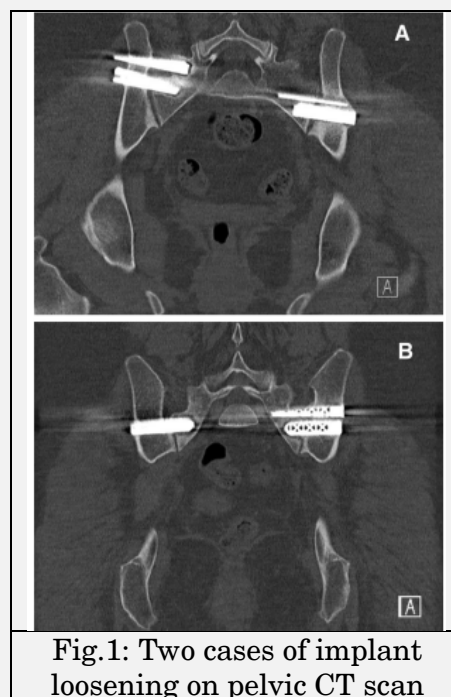


Fig.1: Two cases of implant loosening on pelvic CT scan

significant portion of the patients in this study have EDS. Chronic pain is a significant source of disability for EDS patients.³



In this cohort, MISJF seems to be a successful and secure treatment. One year after surgery, statistically significant and clinically significant improvements in pain and quality of life were seen. Future research should concentrate on the long-term effects to better assess the efficacy and safety of MISJF.

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Children with operatively treated fractures of the lateral humeral condyle displaced 1–5 mm have a better early prognosis when using intraoperative arthrography

About 20% of all distal humeral fractures in children are fractures of the lateral humeral condyle (LHCF), which typically occur as a direct result of the radial head striking the condyle directly or as a result of avulsion forces from the lateral ligament. Pediatric lateral humeral condyle fractures can result in a number of problems, such as malunion or nonunion, angular deformity, avascular necrosis, ulnar nerve palsy, and physeal arrest.¹ The articular surface has been defined using arthrography to help determine whether a closed or open reduction is required. The accuracy of utilising radiography vs arthrography to predict articular rupture in LHCF displaced 1–5 mm, however, has received little research. The lateral humeral condyle (LHCF) accounts for about 20% of all distal humeral fractures in children. This fracture is often brought on by the radial head directly contacting the LHCF or by avulsion forces from the lateral ligament. A range of issues, including malunion or nonunion, angular deformity, avascular necrosis, ulnar nerve palsy, and physeal arrest, can arise from paediatric lateral humeral condyle fractures.² Arthrography has been used to define the articular surface, which will assist doctors decide if a closed or open reduction is necessary. However, there has been minimal data on the accuracy of using radiography vs. arthrography to predict articular rupture in LHCF displaced 1–5 mm.

In this single-center prospective analysis, paediatric LHCF with a displacement of 1 to 5 mm underwent surgical treatment. Demographic information on the patient, radiographic

displacement, projected articular integrity, articular integrity on arthrograms, treatment modification, and follow-up clinical results were gathered.

There were 72 patients in all, with an average displacement of 2.6 mm and an average follow-up of 16 months. In 21% of individuals, the articular surface was disturbed. Following an intraoperative arthrogram, the reduction technique (open versus closed) was changed in 15 patients (21%). 25 patients with displacement were treated with closed reduction and percutaneous pinning because four of the patients' four mm of displacement had an undamaged articular hinge (CRPP). All patients experienced union with no serious problems that could be verified. As displacement reduces, radiography's ability to distinguish between disturbed and intact articular integrity gets worse.

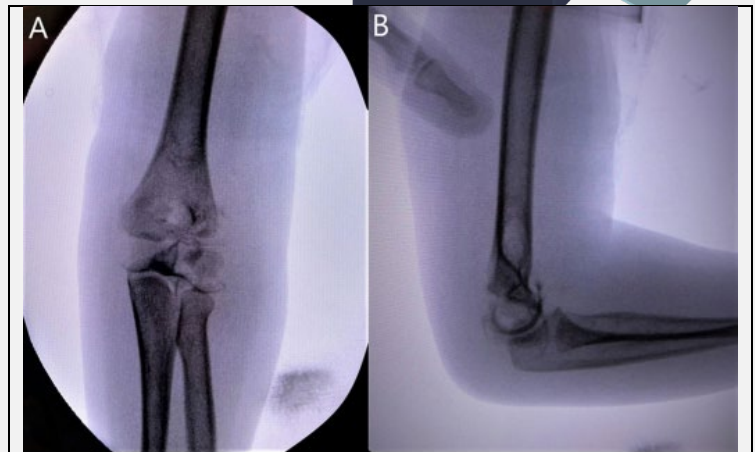


Fig.1: A) An AP view of the same patient's intraoperative arthrogram revealing an intact articular hinge. B) A lateral view of the intraoperative arthrogram revealing an intact articular hinge

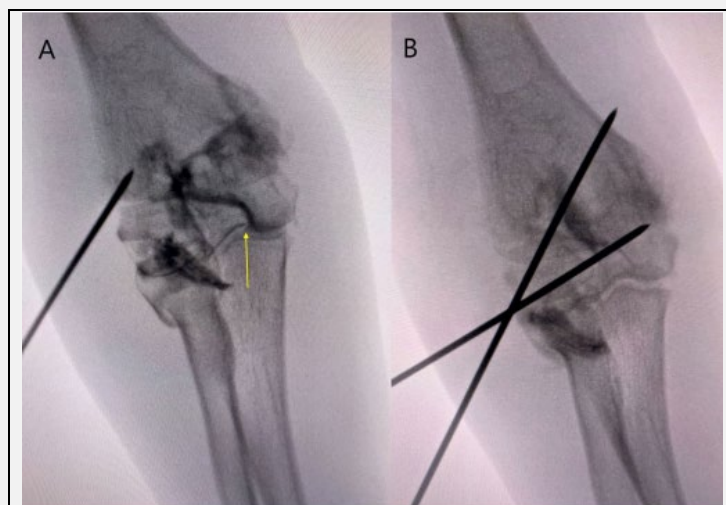


Fig.2: A) Intraoperative arthrogram of a minimally displaced LHCF revealing a disrupted articular hinge with dye leaking into the joint through the fracture (yellow arrow). B) Immediate postoperative fluoroscopic image after open reduction and pinning with a congruent articular surface

It can be difficult to extract the best treatment options for juvenile lateral humeral condyle fractures from the restricted published information. According to the most recent classification systems developed by Weiss et al. and Song et al., the integrity of the articular cartilaginous hinge has evolved into a foundation for managing treatment. The results of recent retrospective reviews indicate that non-operative treatment of minimally displaced

fractures has good results.³ In a retrospective series, Vories et al. reported a change in management in 8% of the 49 included patients, but did not find a statistically significant difference in whether the arthrogram changes management of LHCF. However, there aren't many prospective studies looking at the effectiveness of arthrograms in LHCF, therefore comparison research are required to evaluate benefits fairly. Despite having a relatively large sample size compared to earlier studies and being prospectively constructed, this study was constrained by the absence of a control group. Additionally, the inclusion of fractures displaced by 4 mm has never been evaluated in a radiography vs. arthrography comparison before.⁴

Data from this study indicate that for fractures displaced between 1 and 5 mm, predicting articular integrity based solely on the degree of displacement seen on plain radiography is insufficient. The use of arthrography directs the appropriateness and method of reduction, preventing instances of needless open reduction and insufficient closed reduction. The number of outliers with intact articular hinges over 4 mm and damaged hinges below 2 mm of displacement is also notable. Finally, adopting a lower criterion for early operational treatment, we demonstrate excellent outcomes.

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Volar plating versus casting for unstable distal radius fractures in patients older than 65 years was compared for side effects and functional outcome in the study VOLCON.

Orthopaedic surgeons continue to struggle with distal radius fractures, which account for 75% of forearm fractures and 0.17% of all bone fractures. Stable fractures make up about half of distal radius fractures. Despite the initial closed reduction of displaced fractures being effective, it should be remembered that 40% of these fractures fail to reduce and may need

surgical intervention. After volar plate fixation of distal radius fractures, there are numerous known reasons of radial collapse.¹ Since its introduction into clinical practise, open reduction and volar locking plating (VLP) has largely replaced other forms of therapy for unstable DRF due to its superior biomechanical performance and positive clinical and radiological outcomes.² This study compared the functional outcomes of treating unstable distal radius fractures (DRF) surgically versus non-surgically while adhering to national clinical guidelines for surgical treatment.³

An unstable DRF randomised controlled trial conducted in a single centre. Volar locking plate, 2 weeks of casting, and 3 weeks of orthosis for 50 patients. 5 weeks for 50 patients. The primary outcome is the assessment of the problems at 2, 5, 6, and 12 months. Quick-DASH, PRWHE, range of motion, grip strength, and EQ-5D-3L are secondary outcomes.

A total of 148 patients underwent screening. 48 patients either declined to participate in the follow-up or were unable to do so. Due to four deaths, six withdrawals, one incorrect inclusion, one emigration, one refracture, one patient with compartment syndrome, and one who was advised to undergo surgery after being randomised to non-operative treatment, only 85 of the 100 patients who were initially enrolled were eligible for full analysis. The median age was 74 years (range: 65–92), there were 81 women and 19 men, 42 people with right and 58 people with left sides of the body, 87 people who were retired, 11 smokers, and 86 people with an ASA class of 1 or 2. Between the surgical and non-surgical groups, the complication rates did not statistically differ significantly: 20.9% (9/43) vs. 16.6% (7/42) (Fisher's exact test, $p=0.78$). Sensory abnormalities were the main cause of complications. Four additional procedures were carried out: two for carpal tunnel syndrome in the non-surgical group and two for extensor tendon irritation brought on by protruding screws in the operational group. Pre-injury mean Quick-DASH differences ranged from 2.3 (95% CI 3 to 8) to 4.2 (4 to 12) at 12 months. There were no statistically or clinically significant differences between the groups for Quick-DASH and PRWHE.

The most significant finding of the current study was the lack of a statistically significant difference in complication rates, functional outcomes, or patient-reported outcomes in patients 65 years of age with unstable DRF treated surgically or non-operatively at 12 months.³ Meta-analyses combining RCTs on non-operatively versus operatively managed DRFs⁴ support the same complication rates between the operative and non-operative groups.



Fig.1: Bent volar locking plate. Lateral wrist radiograph of an operatively treated distal radius fracture patient after a new fall causing a re-fracture and bending of the volar locking plate.

After surgical and non-surgical treatment of DRF, complication rates were comparable. Volar plating had no more of an impact on the functional outcome after five weeks, six months, or a year. These results support more conservative treatment recommendations and are consistent with recent RCTs. Messages to remember: When treating older individuals with unstable DRFs, one should first seek non-surgical options; one should then select operative treatment.

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Mid-term outcomes of surgical hip dislocation for subcapital realignment of a chronically slipping capital femoral epiphysis

The most typical hip pathology in pre-teenagers and adolescents is called slipping capital femoral epiphysis (SCFE), sometimes known as slipped upper femoral epiphysis (SUFE). However, because of the chronic nature of the presentation or the atypical appearance, such as thigh or knee discomfort, this diagnosis is frequently delayed or ignored.¹ The long-term clinical and radiological result depends on the degree of slippage, the health of the femoral epiphysis, and the surgical management strategy. The goal of this study was to assess the mid-term outcomes of surgical hip dislocation used to subcapitally realign a chronic stable slipping femoral epiphysis with an open physis.²

In this study, teenagers who had subcapital osteotomy utilising the surgical hip dislocation approach exhibited moderate to severe levels of chronic SCFE. At six years of follow-up, the Harris Hip Score (HHS) was utilised to evaluate functional results. (Fig.1) A HHS score of 80 was seen as acceptable. Epiphyseal-shaft and alpha angles were used to assess postoperative radiological results. There were difficulties following the procedure.

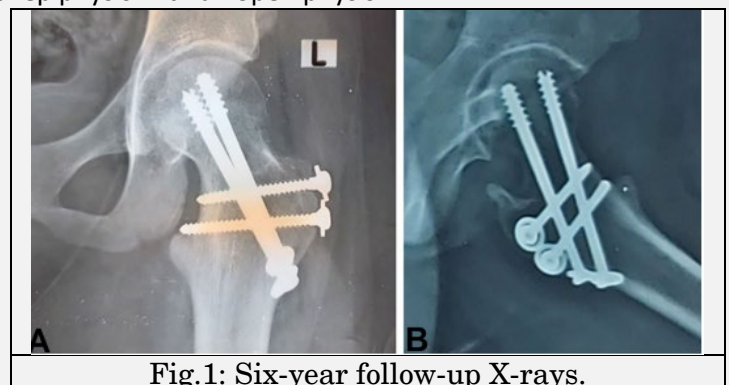


Fig.1: Six-year follow-up X-rays.

40 patients were enrolled in this study, with 32 (80%) men and 8 (20%) women, with a mean age of 14.11.8 years. The mean HHS increased statistically significantly from 45.12.3 prior to surgery to 91.811.6 after 6 years of follow-up. After surgery, the mean epiphyseal-shaft angle decreased from

60.515.3° to 10.32.4°, with a P value of 0.001. Preoperatively, the mean alpha angle was 72.510.1°; postoperatively, it was 40.46.4°, $P < 0.001$. Four (10%) patients had avascular necrosis of the femoral head (AVN).

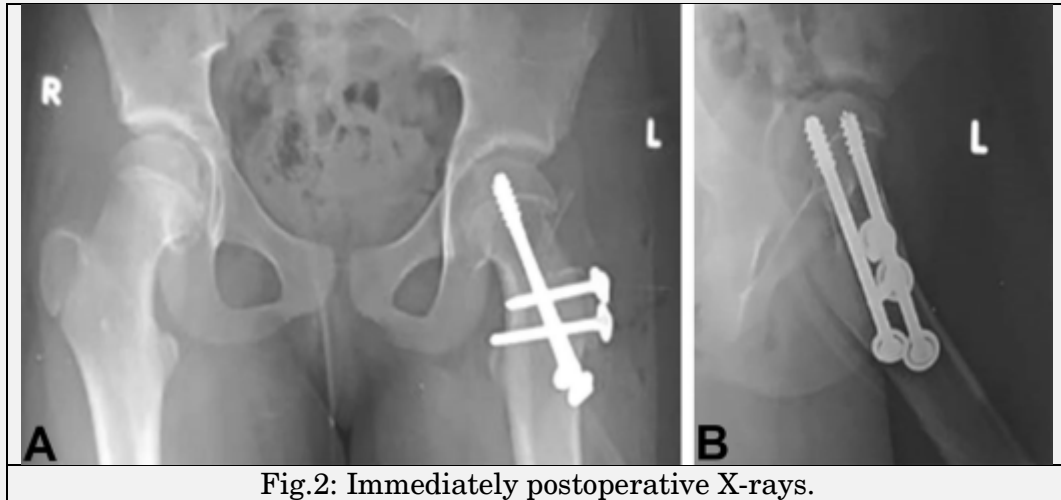


Fig.2: Immediately postoperative X-rays.

Once SCFE has been identified, it is typically treated surgically in order to stop the slippage from progressing further, to rectify deformity, and to prevent consequences like chondrolysis and AVN. The most effective way to treat SCFE, particularly for moderate and severe degrees, is a topic of significant controversy. With a relatively low rate of complications, in situ fixation was regarded as the ideal method for treating SCFE.³ In this study, individuals with chronic moderate or severe degrees of slippage had surgical hip dislocation to realign their subcapitals. The mean HHS significantly increased from 45 prior to surgery to 91.8 at the most recent follow-up. The LLD, alpha angle, and epiphyseal-shaft angle all showed considerable improvement. 85% of patients had great functional outcomes, 5% had fair results, and 10% had poor results.

Despite the danger of femoral head AVN, subcapital realignment of chronic SCFE can produce positive clinical and radiographic results.

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