

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.

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4. A Case Report and Review of Current Management for Necrotizing Soft-Tissue Infections of the Upper Limb

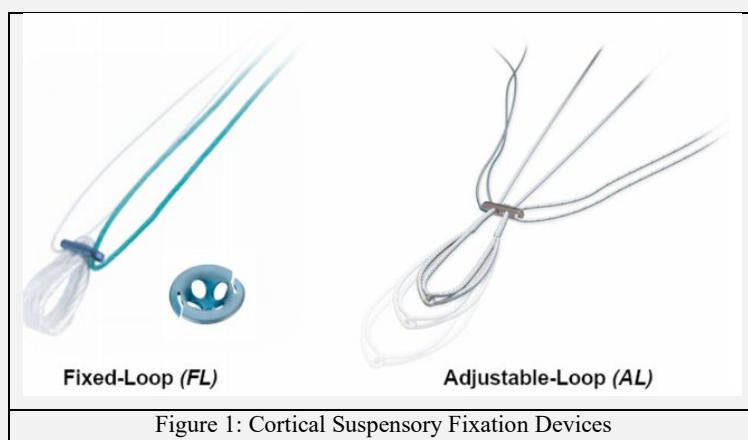
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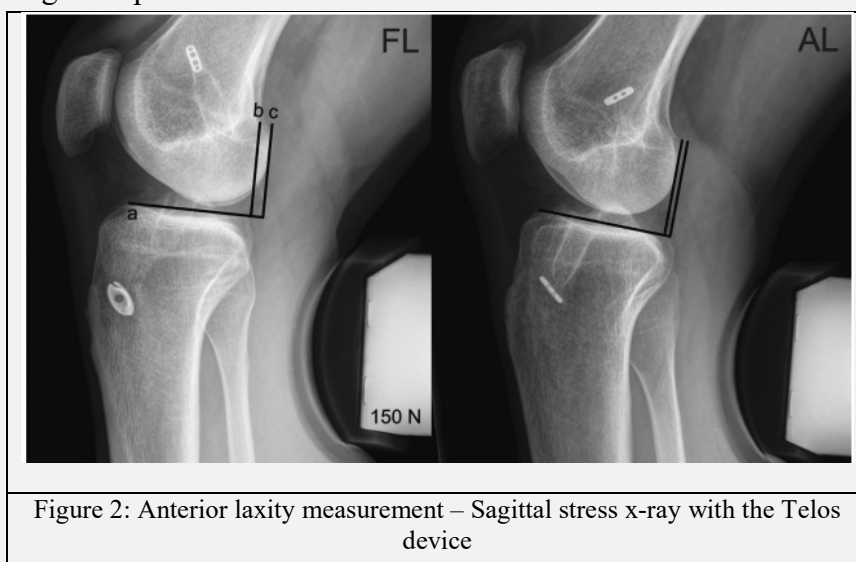
1. A retrospective cohort study comparing ACL repair using femoral and tibial adjustable loops to fixed-loop suspensory fixation.

The anterior cruciate ligament (ACL) is a soft tissue stabiliser that connects the lateral femoral condyle to the tibial plateau in the knee joint. Due to its location within the highly thrombolytic synovial fluid environment of the knee joint, partial and total ruptures of this ligament induce knee instability, and the ACL does not have the capability to repair¹. Many factors influence the effectiveness of anterior cruciate ligament (ACL) restoration, however the graft fixation

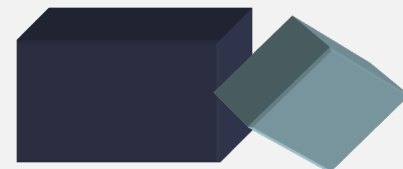


device is a key component in revision rates following original ACL surgery. Suspension devices with adjustable loops (ALDs) have been introduced in recent years. (Fig.1)² Their key advantage over fixed-loop devices is that they can fill bone tunnels of various lengths, obviating the necessity for varied loop fixed-loop devices. Adjustable-loop devices, on the other hand, have been shown in biomechanical investigations to extend during cyclic loading, creating graft laxity. The aim of the study was to compare anterior laxity and clinical outcomes following minimally invasive all-inside ACL restoration using an adjustable-loop (AL) CSF device vs a standard method with a fixed-loop (FL) CSF device³

Between 2012 and 2016, patients who underwent primary single-bundle ACL repair using a quadrupled hamstring autograft at a single hospital were evaluated. An all-inside method was used in the AL group to conduct minimally invasive popliteal tendon harvesting (femoral and tibial sockets). For tendon harvesting in the FL group, a standard anteromedial technique was adopted, and a femoral socket and entire tibial tunnel were bored. Telos x-rays and the International Knee Documentation Committee (IKDC) Objective Score were used to produce an objective clinical assessment (Fig.2). The IKDC Subjective Score, the Lysholm Knee Score, the Knee Injury and Osteoarthritis Score (KOOS), and the Tegner Activity Scale were among the patient-reported outcomes (PRO).



In this retrospective analysis, a total of 67 patients were enrolled, with a mean follow-up of 4 (1.5) years. At the outset, the groups were similar in terms of age, gender, and time to surgery. There were no statistically significant differences in anterior laxity at follow-up (AL: 2.3±3



mm vs. FL: 2.3 ± 2.6 mm, $p=0.981$). No significant differences were observed between the groups in terms of side-to-side difference in ROM, thigh circumference and objective IKDC. (Table 1) The AL and FL groups had similar PRO scores (IKDC score, 84.8 vs. 88.8, $p=0.185$; Lysholm 87.3 vs. 89.9, $p=0.380$; KOOS 90.7 vs. 91.4, $p=0.720$; Tegner 5.5 vs. 6.2, $p=0.085$). With popliteal tendon harvesting, the rate of saphenous nerve lesions was considerably lower in the AL group (8.3 percent vs. 35.5 percent, $p=0.014$).

Table 1 : Objective clinical assessment			
	Adjustable loop (n=36)	Fixed loop (n=31)	P value
Range of Motion			
Extension deficit	-1.25 ± 2.77	-0.65 ± 2.14	0.318
Flexion deficit	-2.36 ± 3.68	-2.42 ± 3.85	0.950
Thigh Circumference (cm)	-1.57 ± 1.63	-0.98 ± 1.37	0.117
IKDC objective, in (%)			1.000
Group A	23 (64%)	21 (68%)	
Group B	11 (31%)	9 (29%)	
Group C	2 (6%)	1 (3%)	

The key finding of this study was that at long-term follow-up, the minimally invasive all-inside approach with a femoral and tibial AL fixation resulted in equal anterior knee laxity to FL fixation. Furthermore, no differences in objective or subjective clinical outcomes were detected between the AL and FL groups. These findings support the concept that the clinical outcomes of AL and FL suspensory fixation on the femoral and tibial sides are equivalent. Three Te femoral sockets were made using two different techniques: anteromedial portal drilling and outside-in drilling, each using the identical anatomical landmarks. This could result in differing femoral socket angles and graft-bending angles, which could affect graft maturation and failure.⁴

When compared to a fixed-loop device, an adjustable-loop device on the femoral and tibial side provided equivalent stability and clinical results.

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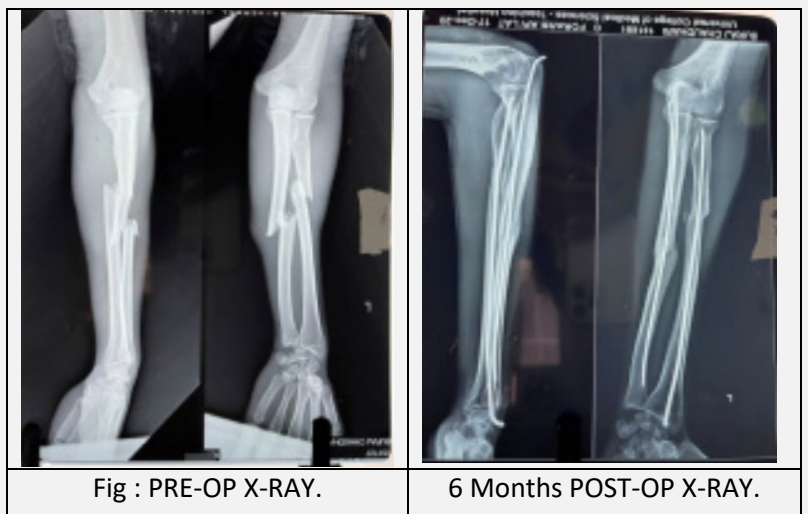
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2. Forearm Fractures Treated with Titanium Elastic Nailing System (TENS): Surgical Results

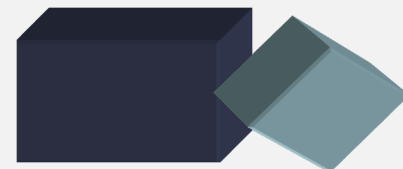
Fractures of the forearm account for up to 28.9% of all orthopaedic fractures. Open surgical management is common, with rates ranging from 6.7 percent⁴ to 20%⁵, depending on parameters such alignment, rotation, angulation, displacement, concomitant trauma, open vs. closed injuries, and patient age.¹ Operative surgery, such as intramedullary (IM) nailing or open reduction and plate osteosynthesis, is used to treat forearm fractures in which appropriate alignment cannot be accomplished or maintained by closed procedures. When compared to Open Reduction Internal Fixation (ORIF) with plating, the closed surgical method with titanium elastic nailing system (TENS) has the advantages of minimal tissue dissection, shorter operative time, rapid union, great range of motion recovery, and better cosmetic outcome. The goal of this longitudinal study was to assess the surgical outcome of forearm fractures in people treated with TENS.²

From December 2018 to April 2020, a hospital-based, longterm observational study was conducted in the Department of Orthopaedics at UCMS-TH. All patients with forearm fractures who met the inclusion criteria were enrolled in this trial and treated with TENS after receiving ethical approval (UCMS/IRC/205/18) from the UCMS-TH Institutional Review Board (IRB) and informed written permission. The patients were evaluated clinically, radiologically, and functionally six weeks, three months, and six months after surgery using the Grace and Eversman Scoring System. The data was analysed using

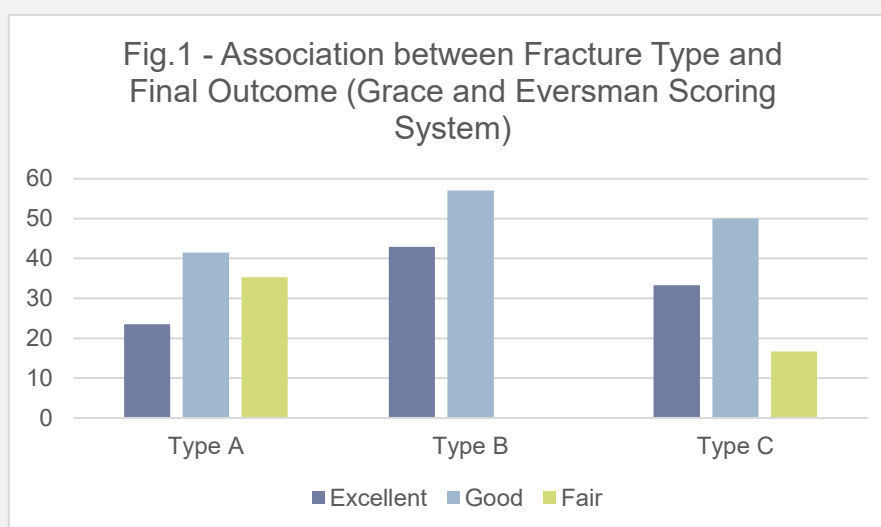


descriptive statistics such as frequency, percentage, mean, and standard deviations, and the Chi-square test and paired t-test were used to investigate the relationship between the variables. P-values of less than 0.05 were considered statistically significant.

The average age of the 120 cases in this study was 29.53 ± 10.598 years. The most prevalent type of injury was an RTA (76.7 percent). The majority of the cases (73.3 percent) were on the right side and were AO/OTA Type A. (56.7 percent). The majority of cases (43.33%) were operated on the same day of the trauma. The average surgical time was 58.67 ± 13.767 minutes, and the average hospital stay was 2.60 ± 0.77 days. The average length of time spent in union was 8 weeks. Skin irritation at the entrance site was the most prevalent post-



operative consequence (66.7 percent). There was no serious problem to speak of. At the end of six months, the functional outcome was rated as good in 46.67 percent, excellent in 30 percent, and fair in 23.33 percent, according to the Grace and Eversman Scoring System (Fig.1). In each follow-up period of 6 weeks, 3 months, and 6 months, pain assessment by VAS score dropped significantly. The mean difference was statistically significant ($p < 0.005$), according to the paired T-test. In terms of fracture union, operation duration, and hospital stay duration, the link between Type A and Type B fractures was shown to be statistically significant ($p < 0.005$).



According to a study conducted by Memeo A et al, TEN are an effective internal fixation method when used by an expert surgeon and have a very low rate of problems when utilised by an expert surgeon. None of them caused long-term harm to the patients. Alternative procedures such as subtrochanteric nailing, plates, or external fixation are recommended for older children weighing more than 50 kg.³ The following are the study's limitations: Because the sample size was small and the study was single-centered, the long-term result could not be evaluated. There aren't enough articles about TENS treatment for adult forearm bone fractures. There were no blinding tactics applied.

The titanium elastic nailing system (TENS) provides excellent functional and radiological results. It can be used as an alternative to ORIF with plate osteosynthesis in treating adults forearm fractures because it is minimally invasive, preserves fracture hematoma, requires no periosteal stripping, has a short operative time and hospital stay, and has a lower risk of refracture during implant removal.

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3. Outpatient therapy of an iliopsoas muscle abscess in a patient with severe spondylodiscitis.

The iliopsoas muscle abscess (IPA) is a rare condition that can be classified as either primary or secondary. Although the source of infection in primary abscesses is frequently unknown, these abscesses are thought to be generated by a

hematogenous spread of infection.¹ Spondylodiscitis (SD) is a word that refers to a range of spine infections, from discitis through vertebral osteomyelitis to SD, with the occasional soft-tissue abscess in between. SD refers to both osteomyelitis and

discitis of the spine.² Spondylodiscitis and iliopsoas muscle abscess (IPA) are two clinical diseases with unusual presentations and difficult management. Both are typically linked to underlying diseases like immunosuppression, and they are frequently coupled. Primary IPA results from the hematogenous transfer of a microbe to the muscle, while secondary IPA results from the direct extension of an inflammatory disease, such as spondylodiscitis. In the current care of this problem, computed tomography-guided percutaneous drainage has been established.

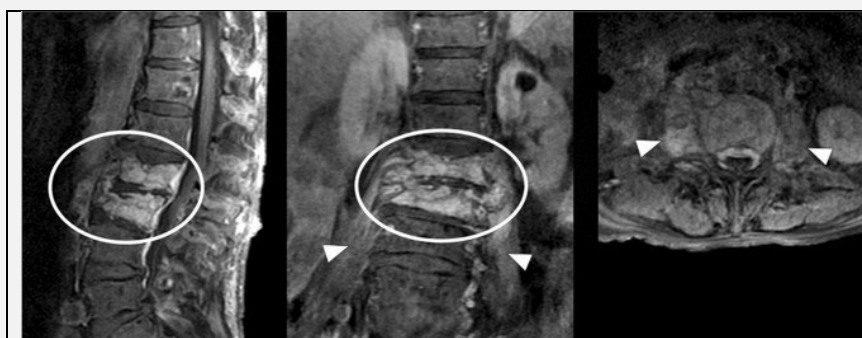


Figure: Infectious Spondylodiscitis

The aim of this study was to report and assess a case series of eight patients who were diagnosed with spondylodiscitis and IPA. Antimicrobial therapy, minimally invasive percutaneous CT guided drainage, and the addition of a short-term drain insertion in an outpatient setting were used to treat the patients.³ The following data was collected and analysed: patient demographics, clinical presentation, underlying diseases, isolated bacteria, antibiotic regimens employed, abscess size, days till catheter extraction, and ultimate treatment outcomes.

All of the patients had night-time back discomfort and local stiffness, but no fever. Inflammatory markers were found to be high in the lab testing. In all of the cases, radiological signs of spondylodiscitis with unilateral or bilateral IPA were evident. Three patients had *Staphylococcus aureus* and two had *Mycobacterium tuberculosis* (Table 1). The remaining three patients had negative cultures. Percutaneous computed tomography-guided abscess drainage and drain implantation were part of the treatment plan, as was a



course of targeted or empiric antibiotic therapy. There was no need for the patient to be admitted to the hospital because all of the procedures were performed in an outpatient setting.

Table 1: Culture results and antibiotic treatment

Microorganism	n	Antibiotic treatment	Duration
<i>Shaplylococcus aureus</i>	3	Rifampicin PO Vancomycin IV	2wk
		Rifampicin PO Linezolid PO	6wk
<i>Mycobacterium tuberculosis</i>	2	Rifampicin PO - Isoniazid PO Ethambutol PO	9 mo
Negative cultures, renal impairment patients	2	Vancomycin IV Ciprofloxacin PO	8 wk
Negative cultures, IV drug user	1	Ciprofloxacin PO Clindamycin PO	4 wk
		Ciprofloxacin PO Rifampicin PO	3 wk

Patients on renal dialysis, HIV-infected patients, and IV drug users all had a greater prevalence of IPA in the current study. Furthermore, due to spinal involvement, TB is connected to secondary IPA. With the advancement of interventional radiology in recent years, minimally invasive percutaneous draining of retroperitoneal abscesses, using IPA, has become the treatment of choice.^{3,4}

Outpatient minimally invasive IPA management is a safe and effective treatment option with a high success rate and low morbidity

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4. A Case Report and Review of Current Management for Necrotizing Soft-Tissue Infections of the Upper Limb

Necrotizing fasciitis, also known as necrotizing soft-tissue infection (NSTI), is a rare condition that necrotizes the fascia. It's a fast-spreading infection that usually starts with a contaminated incision and spreads quickly along fascial planes, causing severe morbidity and mortality. Such pathology, on the other hand, seldom happens in an atraumatic manner, that is, without a wound through the skin.¹ According to recent worldwide recommendations, necrotizing soft-tissue infections (NSTI) require early diagnosis, adequate early surgical source control, and proper antibiotic therapy. Despite early treatment of NSTI, however, morbidity and mortality rates remain high.²

A 57-year-old man discovered a little spot on his right mid forearm's dorsal region. He appeared with an extremely painful, inflamed, and infected cut on the posterolateral aspect of his right forearm, which had risen fast in size. There had been no previous insect bites or injuries. A mild tachycardia (pulse 107) and a respiratory rate of 16 were discovered during the examination. Blood pressure (133/78) was within normal ranges. A 12 x 8 cm incision with necrotic centre, erythema, and swelling up to the elbow proximally and the wrist distally (region marked) was found on the dorsal surface of the right mid-distal forearm (Figure 1). Blood cultures and wound swabs were taken. Clindamycin, piperacillin/tazobactam, gentamicin, and teicoplanin were administered intravenously, as well as high-dose wide spectrum antibiotics (clindamycin, piperacillin/tazobactam, gentamicin, and teicoplanin).



Figure 1: Necrotising soft-tissue infection

All necrotic tissues were debrided down to the deep fascia, with a 2 cm swelling tissue region circumferentially up to healthy bleeding tissues (Figure 1). After that, the patient was referred to a plastic surgeon for skin grafts. The patient's recovery was uneventful. The CRP dropped to 7 and the WCC to 6 after four days. Microbiology studies revealed that β -haemolytic Group A *Streptococcus* grew rapidly (GAS).³



Figure: Surgical debridement

Type I, polymicrobial infection (at least one anaerobic species in combination with one or more facultative anaerobic species); type II, monomicrobial infection, most commonly caused by Group A Streptococci (less frequently caused by other *Streptococci* or *Staphylococci*); type III, monomicrobial, usually Gram negative, including marine organisms; and type IV, fungal infection. The upper limb (10–48 percent), lower extremities (28 percent), perineum (21 percent), and trunk (18 percent) are the most prevalent locations of NF, from which it spreads to contiguous areas.⁴ The treatment of necrotizing fasciitis is time-sensitive, and broad surgical debridement, in addition to intensive care monitoring and medical treatment with antimicrobial medicines, remains the life-saving approach. Surgical debridement, which is usually vigorous, frequently results in disfiguring consequences. Furthermore, large wounds frequently necessitate skin grafting as part of the reconstruction process.⁵

NSTI is a life-threatening surgical emergency that necessitates multidisciplinary team coordination among surgeons, critical care doctors, and microbiology experts. This method has now been shown to reduce the high death rate of this illness by 50%.

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