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Asep Santoso[1,2]

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Artificial Intelligence (AI) has become a significant area of interest in orthopedic surgery research, with a focus on enhancing clinical decision-making, improving patient outcomes, and optimizing surgical procedures. The integration of AI into orthopedics encompasses various applications, including image analysis, predictive modelling, patient monitoring, and the development of intelligent systems for surgery and rehabilitation. AI's role in clinical image analysis is one of the most prominent areas of research. Machine learning algorithms, particularly neural networks, have been developed to detect and classify fractures from imaging data. These systems have the potential to improve the detection of subtle fractures and ensure that injuries are not overlooked, especially in patients with multiple traumas.[1] However, it is crucial to recognize that AI does not possess "intelligence" in the conventional sense; it statistically predicts the presence of what it is trained to find within an image.[1]

AI has shown promise in personalizing risk prediction for patients. By analyzing large datasets, AI can help tailor treatment plans to individual patient profiles, potentially leading to better outcomes. This approach is particularly relevant in orthopedic surgery, where patient-specific factors can significantly influence recovery and success rates.[2] The use of wearables and smart devices for patient monitoring is another area where AI is making strides. These technologies can track patient movement and recovery, providing valuable data for clinicians to assess progress and adjust treatment plans accordingly.[3] Additionally, AI can assist in real-time rehabilitation monitoring, offering insights into patient adherence and the effectiveness of prescribed exercises.[4]

AI is also being applied to surgical navigation and robotic-assisted surgery. These technologies aim to increase precision during procedures, reduce the risk of complications, and improve overall surgical outcomes. AI-driven simulations and 3D modelling are tools that can enhance the training of orthopedic surgeons and the planning of complex surgeries.[3] Despite the potential benefits, there are challenges and limitations associated with the use of AI in orthopedics. One significant concern is the quality of data used to train AI systems. The validity of AI research findings heavily depends on the data's accuracy and representativeness.[2] Additionally, there is confusion among orthopedic surgeons regarding the definition of AI and how to validate AI research, leading to cautious optimism about its role in the field.[5]

Ethical considerations, such as the potential for research misconduct and the introduction of misinformation into clinical literature, are critical issues that need to be addressed. The use of AI tools like ChatGPT in scientific writing raises concerns about the misuse of these technologies and the need for strict regulations and honest utilization by researchers.[6,7] The use of AI in orthopedic surgery research is a rapidly evolving field with the potential to revolutionize patient care. While AI offers exciting possibilities for improving diagnostics, treatment planning, and surgical procedures, it is essential to approach its integration with a critical eye towards data quality, ethical use, and the development of standardized reporting and validation frameworks.[2,4,5,8] As AI continues to advance, it is imperative for the orthopedic community to stay informed and actively participate in shaping the future of AI applications in the field.[9]

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Open Reduction versus Closed Reduction with Internal Fixation for Femoral Neck Fracture: A Systematic Review and Meta-Analysis

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prolonged extension with an internal rotation position, and circulation to the femoral head that is not smooth, which over time results in avascular necrosis.[8] The type and severity of complications are known to vary in parts of the world.[9,10]

Therefore, the management of femoral neck fractures is still controversial. This meta-analysis aims to compare the occurrence of postoperative non-union, malunion (coxa-vara), and avascular necrosis between ORIF and CRIF.

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A systematic review was done according to PRISMA guideline flowcharts and diagrams; a literature review was conducted in May 2023 using PubMed, Science Direct, Cochrane Library, Google Scholar, and Biomedcentral (BMC). [16] The search database is limited to English, and the year of publication is at least 20 years. The search used the terms: Femoral Neck Fracture, Open Reduction Internal Fixation (ORIF), and Closed Reduction Internal Fixation (CRIF).

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Inclusion and exclusion criteria were determined before conducting a literature search. Studies that meet the inclusion criteria are as follows: (1). patients with a diagnosis of fracture of the neck of the femur, (2). compare ORIF with CRIF, (3). reported the results of one of the outcomes in the form of avascular necrosis (AVN), non-union, and malunion (coxa-vara), (4). The study design was in the form of a Randomized Controlled Trial (RCT) and observation (prospective or retrospective cohort), while the exclusion criteria were: (1) femur fractures other than the neck of the femur or multiple femur fractures, (2) articles that could not be obtained in full text. All authors carried out this review process.

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Data extraction was carried out by including the first author's name and the article's year of publication used for identification purposes. The author extracts data independently and conducts discussions to determine existing problems.

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There are three outcomes analyzed in this study, namely: (1) avascular necrosis (AVN), (2) non-union, and (3) malunion, in this case coxa-vara.

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All study designs were RCTs according to inclusion criteria, so The Cochrane Collaborations Tool for Assessing Risk of Bias was used with low risk, unclear risk, and high-risk scores. This tool is used to assess the quality of the RCT methodology by assessing selection, performance, detection, attrition, reporting, and other biases.[8] As for observational studies, the New Castle Ottawa Scale was used to assess case-control or cohort studies (retrospective or prospective), with a score of 6-9: good quality, 3-5: medium quality, and 0-2: poor quality. The level of evidence (LE) was assessed for each included study according to the Oxford Center for Evidence-Based Medicine criteria. For each study, the more items meeting the requirements, the higher the quality considered. This procedure was carried out independently by all authors. Any disagreements are resolved by discussion.

Meta-analysis was performed using Software Review Manager (RevMan V.5.3, Cochrane Collaboration, Oxford, English). Odds Ratio (OR) and Risk Ratio (RR) combined summary statistics are calculated for dichotomous variables, including all outcomes in this case. OR and RR are reported with 95% Confidence Intervals (CI). The Cochrane Chi-Square test and inconsistency (I2) were used to assess study heterogeneity. The value of p <0.05 indicates a significant difference for each variable, while I2 <50% indicates acceptable heterogeneity.

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The stages of the article search results are shown in Figure 2, which produces 124 articles in the search results that have continuity or relevant study potential. After reviewing according to the PRISMA guidelines, seven pieces that met the requirements were found, of which a total of 203 ORIF cases and 396 CRIF cases were obtained. The case was then processed in a statistical meta-analysis based on predetermined selection criteria.

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The characteristics of each study included in the inclusion criteria are shown in Table 1. Determination of the Level of Evidence in seven studies, in which there were six retrospective cohorts (LE; 3b) and one prospective cohort (LE; 2b), and the quality of the methodological assessment is presented in Figure 1.

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In the AVN outcome, there was no significant difference between ORIF and CRIF (OR 1.06, 95% CI 0.49 to 2.29, p = 0.08, figure 3) with heterogeneity (I2 = 44%). This shows that the chance of AVN from the two procedures is the same.

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Outcome Comparison of Open Surgery and Arthroscopic Surgery In Treating Lateral Epicondylitis: A Systematic Review

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performing provocative maneuvers such as Maudsley's test and Mill's sign. An ultrasound or MRI may be performed to confirm the diagnosis.[1]

One of the treatments for lateral epicondylitis is through the open surgery technique which has been carried out since 1979 with an improvement rate of 97% and only 2 failures among 88 procedures. The emergence of minimally invasive surgical techniques, namely arthroscopic surgery, in 1990 and continues to develop today.[10] There are several advantages of the arthroscopic technique, including restoring functional quality more quickly and reducing pain more effectively.[11] Apart from that, arthroscopic surgery also has disadvantages such as a longer operating time.[12,13] This study aims to compare the outcomes between open surgery and arthroscopic surgery in the treatment of lateral epicondylitis by looking at several indicators such as Visual Analog Scale (VAS), Quick Disabilities Arm, Shoulder, and Hand (QuickDASH), time of surgery and return to work.

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This study was designed with a systematic review. We evaluated and interpreted the qualified studies using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). The literature search was performed comprehensively to gather a full-length, peer-reviewed paper in English on the evaluation of Open Surgery vs Arthroscopic Surgery for Lateral Epicondylitis. The literature was searched through PubMed, Google Scholar, Science Direct, and Cochrane Library using Boolean operators with the following keywords "Lateral Epicondylitis," "Open Surgery" “Open Release,” and "Arthroscopic Surgery." We used PRISMA guidelines in this review. The formula diagram of PRISMA is shown in Figure 1 below. We found six journals for this review on inclusion criteria.

" ! Flow diagram based on PRISMA

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2.	Kundu B., et al	2022	India	International Surgery Journal	Prospective Cohort	II
3.	Solheim E., et al	2013	Norway	The Journal of Arthroscopic and Related Surgery	Case-Control Study	III
4.	Clark T., et al	2018	Canada	The Journal of Arthroscopic and Related Surgery	Lower Quality RCT	II
5.	Kwon B., et al	2017	Republic of Korea	Journal of Elbow and Shoulder Surgery	Retrospective Cohort	III
6.	Alameda S., et al	2021	Spain	Journal of Elbow and Shoulder Surgery	Retrospective Cohort	III

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Functional Outcome Comparison Between Single Bundle Versus Double Bundle in ACL Reconstruction: A Meta-Analysis

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The management of injuries to the Anterior Cruciate Ligament (ACL) is evolving alongside advancements in surgical techniques, protocols for rehabilitation, and an increasingly deep understanding of the biomechanics of the knee. Within the spectrum of surgical options available for ACL reconstruction, a significant area of debate and investigation lies in the choice between the Single Bundle (SB) and Double Bundle (DB) techniques. Both methods share the common goal of restoring knee stability and functional outcomes for patients recovering from ACL injuries, yet they diverge in terms of their fidelity to the anatomical structure and biomechanical principles.

The single-bundle approach involves using a single graft to replicate the function of the original ACL, whereas the double-bundle technique employs two grafts to imitate the anteromedial and posterolateral bundles of the native ligament. Advocates of the Double Bundle technique contend that it more faithfully restores typical knee kinematics and stability, potentially resulting in better clinical results. However, some surgeons prefer the Single Bundle technique due to its simplicity and shorter surgical duration, which could reduce the chances of complications associated with a more intricate procedure.

Over time, numerous clinical studies have explored the effectiveness of these two techniques, but the outcomes have been inconsistent and frequently contradictory. Elements such as patient selection, graft selection, fixation methods, and surgical proficiency can all impact the consequences of ACL reconstruction surgeries. As a result, consolidating the existing body of evidence via a comprehensive meta-analysis can yield valuable insights into the relative efficacy of the single-bundle and double-bundle approaches.

This meta-analysis seeks to methodically assess and evaluate the available literature to address critical inquiries regarding the clinical outcomes of ACL reconstruction using both single-bundle and Double Bundle techniques. The findings of this meta-analysis can carry substantial implications for clinical practice, aiding in the refinement of surgical strategies and the enhancement of patient outcomes in ACL reconstruction procedures. Ultimately, a thorough comparison of single-bundle and Double Bundle techniques can contribute to an evidence-driven strategy that optimizes both short-term recovery and long-term knee function for individuals recuperating from ACL injuries.

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The research was carried out following the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines statement.

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The review sought to answer the following questions using the population, intervention, comparison, and outcome approach: among patients with ACL rupture, who undergo either Single Bundle or Double Bundle ACL Reconstruction, which option yields the most clinical improvements. The researchers screened multiple medical databases including PubMed, Embase, and Scopus for relevant scientific reports, using a combination of keywords such as "ACL Rupture or Injury," "single bundle," "double bundle" and "ACL Reconstruction" (MeSH). The search was last conducted in August 2023, and two reviewers independently screened the abstracts and reference lists, with any discrepancies resolved through consultation with a third author

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The following were the criteria for including studies: 1) prospective or retrospective comparative English studies comparing "single bundle" vs. "double bundle" reconstruction technique in patients with anterior cruciate ligament tear, and 2) reporting outcomes measurements such as the International Knee Documentation Committee (IKDC) score, and Lysholm Score.

International Knee Documentation Committee (IKDC) score subjective Knee Form, an 18-item, region-specific instrument designed to measure symptoms, function, and sports activity.[33,34] The instrument contains 18 selected items designed to measure symptoms assess pain, stiffness, swelling, joint locking, and joint instability, while other items designed to measure knee function assess the ability to perform activities of daily living. Items purported to measure the respondent's activity levels such as the ability to run, stop, jump, and start quickly, ascend and descend stairs, stand, kneel, squat, sit and rise from a chair.

The IKDC Subjective Knee Evaluation Form is assessed by adding the results of each item's scores and then converting the result to a scale from 0 to 100. IKDC Score Calculation: (sum of all items/maximum score (87)) and multiplied by 100. Higher scores indicate higher levels of function, when there are responses to at least 90% of the items, the IKDC Subjective Knee Form score can be determined.

The Lysholm Scoring Scale is an assessment for the patient used to evaluate the functional status of the knee joint. The Lysholm Scoring Scale consists of eight questions that measure pain, swelling, locking, limping, and the ability to ascend and descend stairs, squatting, and weight bearing. Each question is scored on a scale from 0 to 10, with a total possible score of 100. A score of 95-100 points is excellent knee function, 84-94 points is good knee function, 65-83 points is fair knee function, < 65 points is poor knee function. In addition, a change of at least 10-15 points is considered to be

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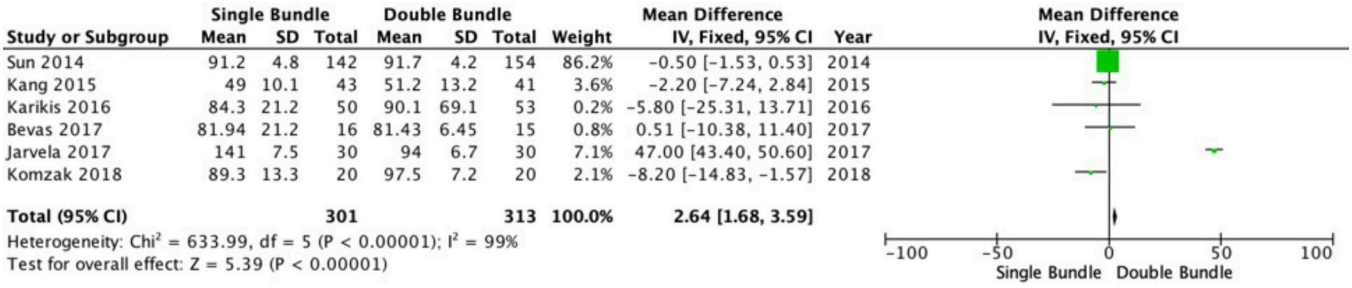


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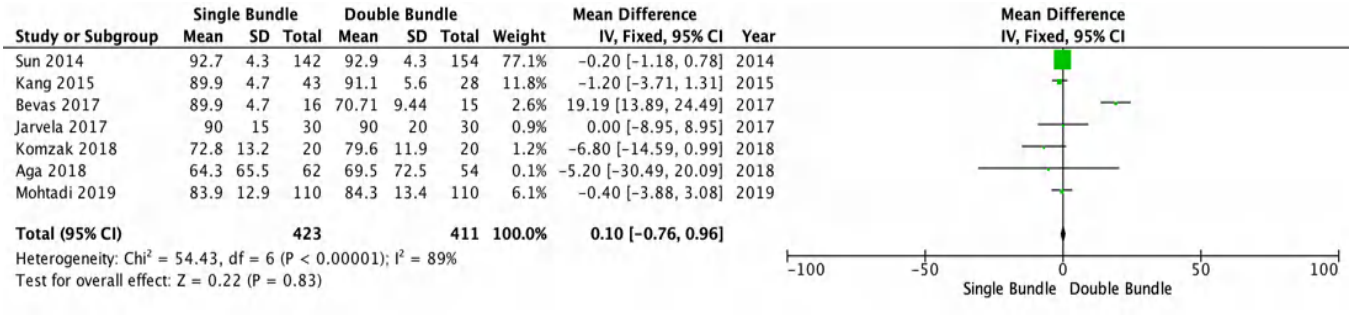


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Acute Traumatic Bilateral Anterior Shoulder Dislocation in A Geriatric Patient: A Case Report

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" ! Shoulder radiographs showing simultaneous bilateral anterior shoulder dislocation (anterior-posterior view)

" ! Shoulder radiographs showing the bilateral glenohumeral joint post-reduction.

At the six-week follow-up, there was a noticeable improvement in both shoulders. However, some stiffness persisted. Eight weeks post-reduction, there was an improvement in the movement on both shoulders with minimal pain. The patient regained nearly normal function and was able to flex both shoulders 0 to 150 degrees and abduct 0 to 150 degrees. The Disabilities of the Arm, Shoulder, and Hand (DASH) score ranged from 88.3 to 16.7 for the left shoulder and 86.7 to 13.3 for the right shoulder. At the ten-week follow-up, she returned to her daily activities without experiencing any pain.

0 !

Unilateral shoulder dislocation is the most common joint dislocation in the human body concerning 85%.[2] In contrast, bilateral shoulder dislocations are rare conditions. Bilateral posterior shoulder dislocation is more common than bilateral anterior shoulder dislocation and usually caused by seizure or convulsion due to epilepsy, electric shock, or other reasons. Bilateral anterior dislocation commonly happens as a result of trauma (>50%), seizure, and or post-ictal (30%). There were many mechanisms resulting in bilateral anterior dislocation. The indirect force mechanisms played a role. In this case, the mechanisms are posterior to anterior force on the shoulder in hyperextension, abduction, and external rotation (EXABER). It typically happens when a patient is trying to prevent falling backward from a standing position.[3] Furthermore, older women have higher risk of falling due to balance issues and a decline in cross-linked collagen capsular tissue, leading to joint instability.[4] A study showed bilateral anterior shoulder dislocation is commonly misdiagnosis due to unusual clinical presentation, approximately 15%. In cases of bilateral shoulder dislocation, the absence of clinical asymmetry can be a pitfall in diagnosis.[5,6] Additionally, anterior bilateral shoulder dislocation is sometimes associated with trauma. Consequently, the presence of trauma and distracting injuries.[7] This might impede timely diagnosis and result in late reduction and poorer outcomes.[8]

Many mechanisms of injury have been reported for bilateral shoulder anterior dislocation (BSASD). Malick et al. reported two cases of BSASD. The case involved a 27 and 30-year-old male patient who experienced BSASD after falling from bed due to an inaugural epileptic grand mal seizure. Involuntary muscular contraction is the most common mechanism for bilateral shoulder dislocation. This can occur during epileptic seizures, electrocution, intoxication, hypoglycemia, extreme emotional states (such as nightmares and fear of death), or even due to vibrations produced by a digging machine.[3] Egemen et al. reported a case involving a 46-year-old male with bilateral anterior shoulder dislocation. The mechanism of injury was attributed to the halter violently tractioning his arms when the horse suddenly reared while he was riding.[9]

Yousef et al. reported a case involving a 19-year-old male with bilateral asymmetrical anterior shoulder dislocation, along with an avulsion fracture of the left greater tuberosity. In this case, the mechanism of injury was traumatic, resulting from a collision with other individuals during a football match.[10] It's noted that greater tuberosity fractures in bilateral anterior shoulder dislocations are often associated with a traumatic mechanism of injury.[3]

Many techniques can be used to reduce anterior shoulder dislocation such as the Kocher technique, Boker-Billmann technique, Cunningham technique, Eskimo technique, FARES method, Hippocratic method, Legg reduction maneuver, Scapular manipulation, etc. Kocher technique is a shoulder reduction technique where the patient lies down in a supine position, the affected limb is adducted, and the elbow is flexed at a 90° angle. The shoulder then submitted

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Management of femoral neck fracture on prolonged steroid

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management of femoral neck fractures and reviews the role of the inter-professional team in evaluating, diagnosing, and managing the condition. Femoral neck fractures are associated with low-energy falls in the elderly. In younger patients sustaining a femoral neck fracture, the cause is usually secondary to high-energy trauma such as a substantial height or motor vehicle accidents. Risk factors for femoral neck fractures include female gender, decreased mobility, and low bone density.[2] The chief source of vascular supply to the femoral head is the medial femoral circumflex artery, which runs under the quadratus femoris. Displaced fractures of the femoral neck put the blood supply at risk, usually tearing the ascending cervical branches that stem off the arterial ring supply formed by the circumflex arteries. This may compromise the healing ability of the fracture, inevitably causing non-union or osteonecrosis. This is most important when considering the younger population that sustains this fracture, for which arthroplasty would be inappropriate. In patients treated via open reduction internal fixation, avascular necrosis is the most common complication.[3]

Medical assessment should include basic labs (complete blood count, basal metabolic panel, and prothrombin/international normalized ratio, if applicable) as well as a chest radiograph and electrocardiogram (ECG).

There are many classifications for femoral neck fracture, including the most common clinical classifications by Garden and Pauwel, which include the following The Garden Classification Type I (Incomplete fracture valgus impacted nondisplaced), Type II (Complete fracture nondisplaced), Type III Complete fracture partial displaced), Type IV (Complete fracture fully displaced). The Garden classification is the most used system used to communicate the type of fracture. For treatment, it is often simplified into nondisplaced (Type 1 and Type 2) versus displaced (Type 3 and Type 4). The Pauwel classification also includes the inclination angle of the fracture line relative to the horizontal. Higher angles and more vertical fractures exhibit greater instability due to higher shear force. These fractures also have a higher risk of osteonecrosis postoperatively. Type I is less than 30 degrees, Type II is 30 to 50 degree Type III greater than 50 degrees.[4]

Nonoperative management for these fractures is rarely the treatment course. It is only potentially useful for non-ambulatory, comfort care, or extremely high-risk patients. Young patients with femoral neck fractures will require treatment with emergent open reduction internal fixation. Vertically oriented fractures such as Pauwel III type fractures are more common in younger and high-energy trauma patients. A sliding hip screw is biomechanically more stable for these fracture patterns. With displaced fractures in younger patients, the goal is to achieve anatomic reduction through emergent open-reduction internal fixation.[3]

In the years before the development of internal fixation, a fractured femoral neck in an elderly person usually triggered a series of deleterious events that led to the unfortunate victim's painful demise. From a humanitarian point of view alone, internal fixation of displaced fractures of the femoral neck is indicated. The elderly merit relief of pain no less than the young.[5]

Closed reduction and internal fixation of the fracture should be performed as soon as possible. Aspiration of the hemarthrosis at this time may minimize the risk of avascular necrosis. The reduction can usually be obtained by flexing, adducting, and then internally rotating extending the injury hip. Internal fixation of the reduced fracture can be obtained either by a DHS (also known as a compression screw plate) or by three parallel cannulated screws After satisfactory nailing of the fracture, the patient may be out of bed in a chair within a few days and allowed to walk bearing partial weight on the injured limb with the help of crutches or a walker within a few weeks.[5]

Chronic steroid use may severely decrease bone strength, thus increasing the risk of such an injury. Steroid-induced osteonecrosis of the femoral head (SONFH) is a disease characterized by the collapse of the femoral head. SONFH occurs due to the overuse of glucocorticoids (GCs) in patients with immune-related diseases.[3]

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On 01 June 2022, a 52-year-old woman came to our hospital with a history of falling in a sitting position to a height of approximately a half meter from a standing position. The patient can't stand because the pain is very severe in the left hip, and difficult to move and it gets worse when the patient tries to lift his left leg. The patient has a history of rheumatoid arthritis and has been undergoing oral corticosteroid treatment for 30 years (oral dexamethasone twice per day).

Normal lab results were found in routine blood, kidney function, liver, and electrolyte levels. pt and aptt are not elongated. Abnormal results were found in the patient's increased CRP and ESR levels, which is a marker of rheumatoid arthritis. Normal ECG and thorax photo were found in this patient. Pelvic AP X-ray shows left femoral neck fracture with mild displacement (Figure 1). Prosthetic Hemiarthroplasty Bipolar is performed immediately (Figure 2). considering the patient's history of active mobilization, pre elderly, long-term steroid consumption for 30 years, and a history of rheumatoid arthritis. Patients are treated and observed for 4 days in hospitalization, during hospitalization patients are treated together by an orthopedic doctor, internal medicine doctor, and medical rehabilitation doctor, patients get first-

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