CASE REPORT

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Comparison of knee society scores in osteoarthritis patient before and after total knee arthroplasty: a case report

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ABSTRACT

Introduction: Osteoarthritis is a degenerative disease characterized by joint pain in the cartilage. It requires further management, especially in severe conditions that have not responded to pharmacological therapy, such as Total Knee Arthroplasty (TKA). Therefore, the authors aim to compare the knee quality of patients with Knee Society Scores (KSS) before and after TKA surgery.

Case description: Female patient, 55 years old, came with the chief complaint of stiffness and pain in both knees for the last two years. The patient had previously undergone regular treatment and is now getting worse. The radiological found the impression of right and left knee osteoarthritis was grade IV, and the KSS assessment results were 40. The patient was then treated with TKA surgery. After the total knee arthroplasty procedure was observed for one month, the patient had no complaints of joint stiffness and did not feel severe pain in both knees. The KSS assessment results were 71 with good interpretation results.

Conclusion: There was an improvement in the knee quality of patients with KSS before and after TKA surgery.

Keywords: Osteoarthritis, Total Knee Arthroplasty (TKA), Knee Society Score (KSS).

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INTRODUCTION

Osteoarthritis (OA) is a degenerative joint disease involving cartilage, joint lining, ligaments, and bone that can cause pain and stiffness. Osteoarthritis is almost 70% experienced by those over 50 years old and is characterized by structural damage in joints. The disease is mostly located in the hands, hands, and joints that support the body's weight, such as knees, knees, hips, and back due to the continuous pressing process for many years.[1]

The main symptoms most commonly felt by people with Osteoarthritis are pain and stiffness in the joints. Joint pain can occur when there is too much activity. Due to the absence of movement or activity, stiffness in the joints usually occurs in the morning when just waking up or after resting during the day.[2] Joints may also experience redness and warmth accompanied by tenderness, stiffness, immobility, and deformity. The formation of osteophytes in the joints of the hands or feet can cause swelling or joint deformity that can limit the patient's range of motion and interfere with and affect physical well-being so that the patient is disturbed in carrying out activities daily, which results in a decrease in the quality of life in patients Osteoarthritis.[3]

Total knee arthroplasty (TKA) is a successful treatment for knee osteoarthritis (OA), a progressive musculoskeletal disorder affecting an ever-growing population. The demand for prosthetic surgery increases due to people's aging and the preservation of quality of life.[4] The indications of TKA are also expanding to younger patients, such as implants and surgical techniques continuing to improve. Usually, this surgery improves symptoms significantly; registries and meta-analyses report a satisfaction rate of 80 to 85%.[5] Nevertheless, many patients suffer from different symptoms after this procedure.[6] Several studies indicate a dissatisfaction rate of 15-30% after three months, particularly due to lack of functional improvement and persistent pain.[7,8] Analyzing these patients, most have no identifiable causes of pain, and the symptoms worsen with time despite treatments.[9,10] A painful articulation could have a good objective evaluation, range of motion and correct implant positioning on x-rays.

The knee society score was created to objectively assess the functional ability of the knee and the patient's abilities, such as walking, and climbing stairs, before and after TKA surgery. System This scoring has been used globally to determine the outcome of arthroplasty procedures knee. Scores assessed include the VAS pain index when walking and climbing stairs, coverage of the joint movement, assessment of ligaments and ligament stability, as well as assessment of flexion contractures and lag extensions and supplemented by a subjective survey of patients who assess

the patient ability to perform activities of daily living, level of satisfaction patients and patient expectations.[11] Therefore, the authors aim to compare the knee quality of patients with Knee Society Scores (KSS) before and after TKA surgery.

CASE REPORT

In this case, a 55-year-old woman came to the Bali Mandara Hospital orthopedic polyclinic with complaints of right and left knee pain felt two years ago. The pain is getting worse and worse until it interferes with daily activities. In addition to pain, the patient complains of stiffness in the joints of both knees when he wakes up, which lasts approximately one hour. The patient also said that it was difficult to walk and had to be helped with a stick; the patient also noted that it was difficult to climb stairs, but he could still use the handrail, but he couldn't get down the stairs. The patient denied previous medical history. The patient denied a history of systemic disease. The patient denied a history of the same disease in the family and a history of systemic disease in the family. The patient's previous medical history was treated by an internist at the Klungkung Hospital in less than two years. During control at the internist, the patient was given pharmacological therapy, namely paracetamol 500 mg and diclofenac sodium 50 mg. While taking medicine from the internist, the complaints began to decrease, and he could do light activities. Still, after two years, the pharmacological therapy from the internist started to be ineffective in treating pain in both knees of the patient. During the past two years, after pharmacological treatment did not affect the patient's pain management, the patient began to experience a decrease in his quality of life because he began to find it difficult to carry out activities. And on the advice of an internist at the Klungkung Hospital, it is recommended to consult an orthopedic doctor. After the consultation with the orthopedic doctor on physical examination, orthopedic examination on the look was found on both right and left genu hyperemia and slightly edematous.

On examination of feel, there was minimal crepitus on both knees of the patient, warm on both knees and touch, and minimal edema on both knees. The move examination found that the ROM (+) was limited to pain, limited to flexing both knees 0-110°. From the orthopedic doctor, it is recommended to do a genu x-ray photo (Figure 1). The x-ray of the left genu in the Anteroposterior and Lateral positions found osteophytes on the lateral and medial condyles of the left and right femur and tibia, posteroinferior osteophytes on the right and left patellar bones, sclerotic on the subchondral bone layer with multiple sunchondral cysts and visible soft tissue swelling right and left genu with the impression of both knee radiographs of a patient with right and left knee osteoarthritis of grade IV. The orthopedic doctor took surgery because of complaints of stiffness and difficulty in moving by replacing both knee joints using metal back materials-the technique used by orthopedic doctors with posterior prostitute arthroplasty. The operation was carried out on March 10, 2022 (Figure 2).

From the observations of the TKA operation for one month (Figure 3), the patient started walking at a leisurely pace about 10-15 meters away but still needed help with a stick. The patient said that to climb the stairs, the patient could climb the stairs but needed the aid of another person or support the stairs, but to get down the stairs, the patient still could not. The patient can fully extend his knee, and there is no discomfort when flexing his knee. The patient no longer complains of

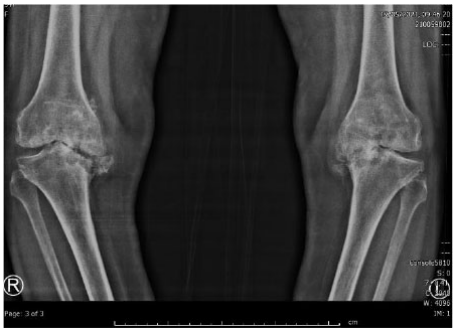

Figure 1. X-ray photo of both knee patients before TKA.

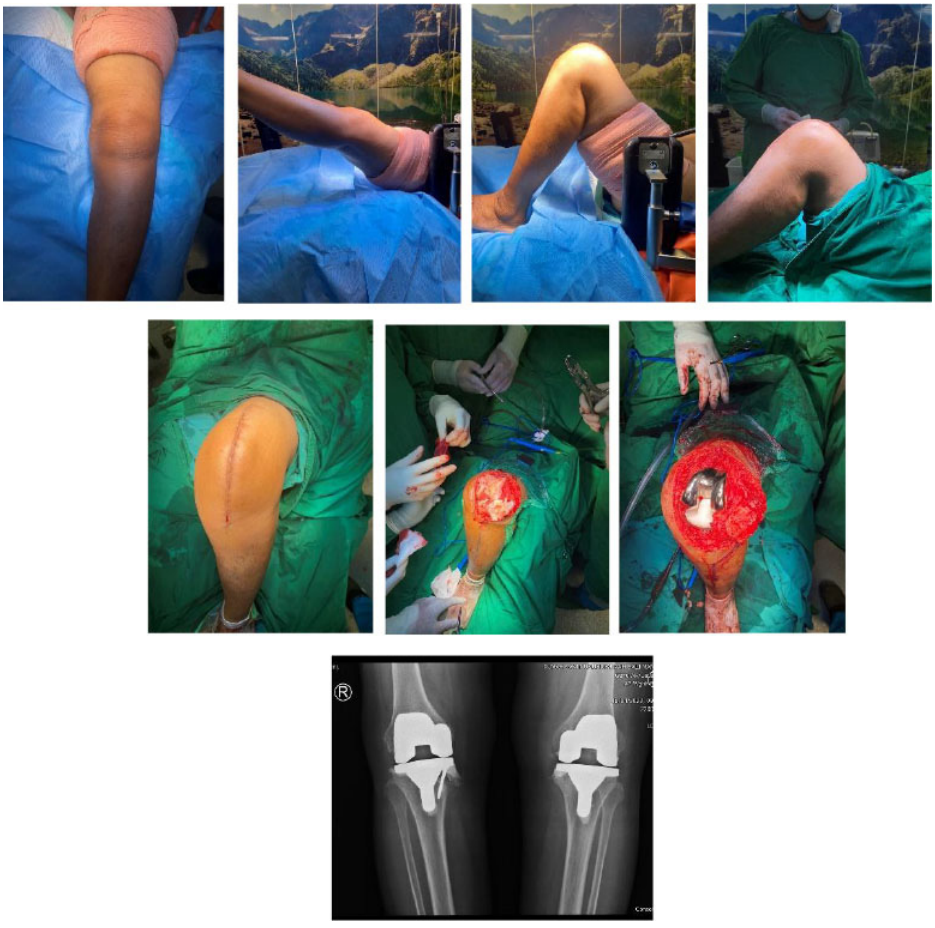

Figure 2. The procedure of TKA surgery and the result of an x-ray on both knees after TKA.

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Figure 3. Improvement of KSS after one month of TKA procedure.

joint stiffness, inability to straighten his legs, or severe knee pain.

DISCUSSION

In this case, the patient was 55 years old and female. The patient complained of joint stiffness and pain in both of the patient's knees for the last two years. The patient had tried to use medical treatment, but over time the effectiveness of the drug began to decrease and even no longer had an effect.

From the radiological examination, photos of the right genu left in the Anteroposterior and Lateral positions found osteophytes on the lateral and medial condyles on the femur. The left and right tibia, osteophytes on the posteroinferior bones of the right and left patellar bones, sclerotic on the subchondral bone layer with multiple subchondral cysts, showed soft tissue swelling request and left genu. With the impression of both knee radiographs of a patient with right and left knee osteoarthritis of grade IV.

Many radiological grading systems are available, such as the Kellgren-Lawrence, Ahlback, Menkes, or OARSI (Osteoarthritis Research Society International). However, the most frequently used grading system is the Kellgren-Lawrence (KL) system. This system assesses the radiological appearance of knee OA from a score of 0-4 by looking at the appearance of osteophytes and joint space narrowing.[12] Grading Kellgren and Lawrence of Knee OA:

- Grade 0: Normal, There is no picture of OA.
- Grade 1: Possibility of osteophytes, doubtful joint space narrowing
- Grade 2: Definite osteophytes, possible joint space narrowing
- Grade 3: Moderate osteophytes, joint space narrowing, slight sclerosis
- Grade 4: Large osteophytes, severe joint space narrowing, severe sclerosis.[13]

According to the Kellgren-Lawrence (KL) classification, the patient has entered the severe stage, namely, grade 4, so it requires more invasive measures because medical treatment has no effectiveness. Here the orthopedic doctor chose total knee arthroplasty (TKA) as the definitive therapy for this patient. TKA is a surgical procedure on a damaged knee joint with complaints of decreased function and pain caused by rheumatoid arthritis and Osteoarthritis.

TKA surgery is performed by replacing the cartilage ends with a pair of artificial joint implants made of plastic and metal (polyethylene). Oxinium implant and titanium material (standard) were given to patients with advanced or grade IV calcification of the joints.[14]

In this case, the orthopedic doctor used the posterior stabilized TKA technique. TKA with posterior stabilization uses implants to replace the function of the PCL to prevent anterior translation of the femur to the tibia and allow femur rotation during flexion.[14,15] The advantages of using the TKA posterior stabilization surgical technique are a less complicated procedure with easier ligament balancing, more stable implant components and less implant damage, no anterior translation under load, avoidance of PCL rupture, and no femoral rollback of the knee. Passive flexion and an increase in Range of Motion.[15] Disadvantages of TKA posterior stabilization surgery are damage and destruction of the tibial post, excessive bone resection, complications of "Patellar Clunk," and tibiofemoral dislocation.[16] On the previous examination, he complained of right and left knee pain felt two years ago. The pain is getting worse and worse until it interferes with daily activities. In addition to pain, the patient complains of stiffness in the joints of both knees when he wakes up, which lasts about an hour.

The patient also said that it was difficult to walk and had to be assisted with a cane; the patient also noted that it was difficult to climb stairs but still could with the help of the handrail, but to get down the stairs, the patient was unable, and on physical examination orthopedic on examination look was found on both right genu and left hyperemic and slightly edematous. On review of feel, there was minimal crepitus on both knees of the patient, warm on both knees and touch, and minimal edema on both knees. The move examination found that the ROM(+) was limited to pain, limited to flexing both knees 0-110°. The total Knee Society Score obtained from the history and physical examination was 40. Post-operatively, based on the results of post-TKA observations for one month, the patient was able to start walking at a distance of approximately 10-15 meters but still needed assistance with a cane.

The patient said that to climb the stairs, the patient could climb the stairs but needed the help of another person or support on the stairs and but to get down the stairs, the patient still could not. The patient can fully extend his knee, and there is no discomfort when flexing his knee. The patient no longer complains of joint stiffness, complaints of not being able to straighten his legs, or severe pain in both knees, with a total Knee Society Score (KSS) score of 71, where this value can be interpreted well.[11]

CONCLUSION

There was an improvement in the knee quality of patients with KSS before and after TKA surgery. In clinical importance, we obtained TKA surgery increases knee patients' quality and reduces the pain after one month of observation.

CONFLICT OF INTEREST

We declare no conflict of interest in writing this article.

ETHICAL CLEARANCE

Patient approval has been obtained in this study and fulfilled ethics approval from the International Committee of Medical Journal Editors (ICMJE).

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AUTHOR'S CONTRIBUTION

All authors have the same contribution to writing and editing this article.

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