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Conceptual Paper

Is 4-Joint Prosthetics Justified?

Ivantsou, U. A.

Department of Traumatology, Orthopedics and Military Field Surgery, Grodno State Medical University, Republic of Belarus

***Correspondence to:** Dr. Ivantsou, U. A., Department of Traumatology, Orthopedics and Military Field Surgery, Grodno State Medical University, Republic of Belarus.

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Abstract

The article describes a unique case of a patient in whom two hip and two knee joints were replaced, describes the complications that have arisen and presents the ways to solve them.

Summary

Recently, due to the global aging trend of the population, environmental problems, there has been an increase in diseases of the musculoskeletal system, especially large joints. One of the effective methods of treating this pathology is endoprosthetics operations, the number of which is steadily growing from year to year and, according to K. Lee *et al.*, by 2030 it will approach 3 million [1].

The most widespread is total hip and knee arthroplasty, which allows to eliminate pain syndrome, restore sufficient range of motion in the joint and return the patient to a normal life [2,3]. Having received a good result after the first surgery, some patients try to get rid of pain syndrome, stiffness in other joints, persistently subjecting themselves to subsequent surgeries for arthroplasty of the affected joints. Unfortunately, patients do not always experience further problems after primary arthroplasty, and each repeated surgical intervention is fraught with the development of periprosthetic infection [4].

Results and Recommendations

We have experience in treating patient M (female sex), 68 years old, who consistently underwent total hip arthroplasty surgery in 2009 and 2010, and in 2012 total arthroplasty of the left knee joint and in 2013 - the right knee joint was performed.

In 2014, the patient was diagnosed with a deep periprosthetic infection of the right knee joint, in connection with which a two-stage revision arthroplasty was performed, which is currently the "gold standard" in the treatment of patients with periprosthetic infection [5]. However, it was not possible to stop the infectious process, despite all the methods of treatment available to us (long-term etiotropic antibacterial therapy, detoxification and immunostimulating therapy, hyperbaric oxygenation, staged sanitizing necrectomy). In this connection, the revision endoprosthesis was removed in 2016.

From 2017 to 2019, 12 surgical interventions were performed, including a number of them aimed at creating arthrodesis in the area of the knee joint using an external fixation apparatus, an intramedullary rod, and individually made extra-bone plates (photo 1), which were unsuccessful.

Photo 1: *Fixation of the femur and tibia with extra bone plates in order to form arthrodesis of the knee joint*

In May 2020, the extra bone plates were removed, part of the bone cement and the infectious process were stopped. As a result of repeated surgical interventions, the patient developed an unsupported right lower limb with flotation in the knee joint area (photo 2), which is immobilized by a removable rigid orthosis.

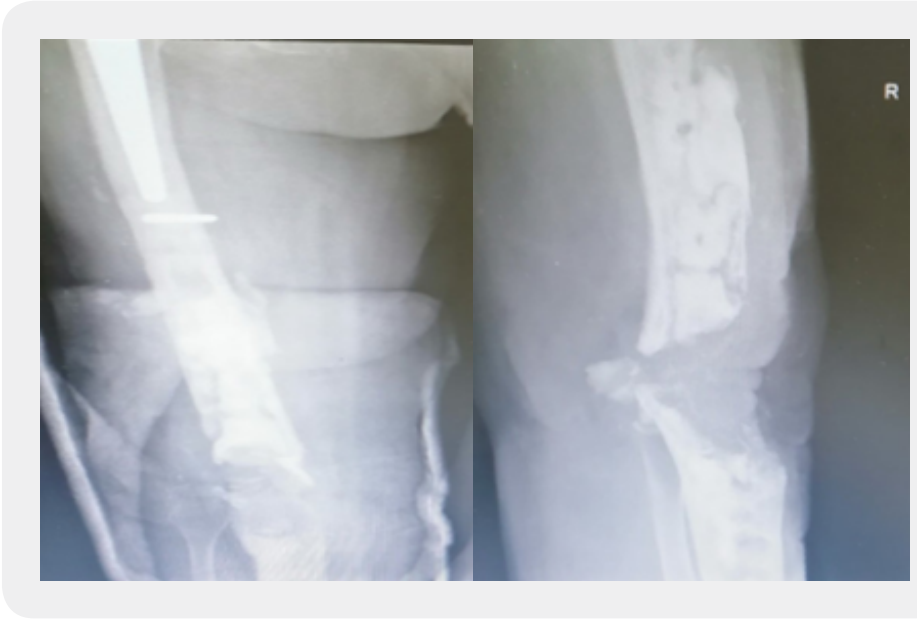

Photo 2: *Right lower limb with a bone defect and flotation in the knee joint area*

Long-term treatment for periprosthetic infection, the absence of dynamic load and full-fledged movements in intact implanted prostheses led to a decrease in their functional potential, the development of aseptic instability of the components of the hip endoprosthesis (photo 3,4) and left knee joints (photo 5).

Photo 3: *Total endoprosthesis of the right hip joint*

Photo 4: *Total endoprosthesis of the left hip joint*

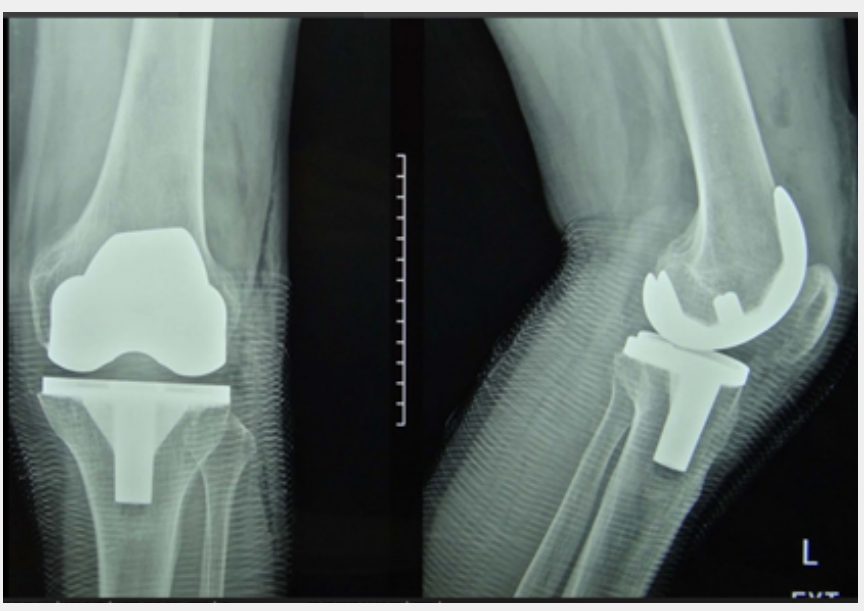

Photo 5: *Total endoprosthesis of the left knee joint*

Conclusions

Thus, performing arthroplasty of the hip and knee joints in one patient is associated with a high risk of developing various complications (aseptic instability, periprosthetic infection, etc.) and subsequent revision interventions. Multiple surgical operations to eliminate periprosthetic infection do not affect the functionality of intact implants and, ultimately, adversely affect the expected result of treatment.

Bibliography

1. Lee, K., *et al.* (2008). Current state and future of joint replacements in the hip and knee. *Expert Rev Med Devices., 5*(3), 383-393.

2. Flugsrud, G. B., *et al.* (2002). Risk factors for total hip replacement due to primary osteoarthritis: a cohort study in 50,034 persons. *Arthritis Rheum., 46*(3), 675-682.

3. Kornilov, N. V. (2000). The state of arthroplasty of large joints in the Russian Federation. Endoprosthetics of large joints: materials symp., 49-52.

4. Parvizi, J., *et al.* (2012). Management of Periprosthetic Joint Infection: The Current Knowledge. *J Bone Joint Surg Am., 94*(14), 104.

5. Goldman, R. T., *et al.* (1996). 2-stage reimplantation for infected total knee replacement. *Clin Orthop Relat Res., 331,* 118-124.