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Hip arthroplasty as a chance for a normal life

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Summary

The aim of the study is to review and analyze the medical literature on hip arthroplasty. Hip arthroplasty is a popular procedure in orthopedics nowadays. Implantation of an artificial joint allows the patient to return to work, practice hobbies or sportsand most importantly have a pain free life. The paper describes the theoretical basis of hip arthroplasty, types of procedures used in orthopedics in this field, the most important contraindications and the importance of physiotherapeutic treatment. The treatment, combined with well and individually planned pre- and postoperative rehabilitation, can bring spectacular results. The postoperative rehabilitation program is selected

individually. It should be noted that every patient is different, therefore the improvement plan sometimes has to be reviewed on an ongoing basis during its implementation. The main goals of rehabilitation after artificial joint implantation are: to reduce pain, increase the range of motion of the operated joint and strengthen the muscles of the entire body.

Key words: endoprosthesis, endoprosthesis, arthroplasty, capoplasty

Introduction

The thirties of the present century brought a breakthrough in the treatment of fractures and degenerative changes of the hip joint. It was then that the patient had an artificial hip joint implanted for the first time [1]. This event turned out to be a medical breakthrough in the field of orthopedics. Nowadays, this part of medicine is constantly evolving. Scientists and clinicians are constantly striving to create an endoprosthesis that, after implantation, will resemble an anatomical joint as much as possible in terms of weight, function and, above all, will perform its role as accurately as possible. Today, around one million such procedures are performed worldwide each year. Replacing a hip joint (arthroplasty) that is not fulfill its purpose due to e.g.: primary or secondary degenerative disease or an injury is always the last resort. This procedure is always invasive [1,2,3]. However it is worth noting, that it sometimes gives spectacular results in eliminating the pain (with which patients live for years) and in improving its function [2,4]. Surgical treatment must always be supplemented with physiotherapy [3,4,5,6]. The success of treating a patient after implantation of an artificial hip joint often depends on rehabilitation and has a huge impact on the previously performed work of an orthopedic surgeon. The improvement plan introduced by the physiotherapist should always be selected individually. The following are important: the patient's age, accompanying diseases, the type of implanted endoprosthesis and even the lifestyle he/she led before the surgery. Rehabilitation begins just a few hours after the procedure and if carefully conducted, it gives the patient a high chance of quickly returning to the activities of everyday life and prevents unnecessary complications. The aim of rehabilitation after artificial joint implantation is to restore its functions as much as possible and teach the patient how to live with an endoprosthesis [3,5]. In addition, patients who decide to undergo this type of surgery want to free themselves from the pain (lasting even several years). According to the statistics, most hip arthroplasty is performed in elderly patients, over 65 years of age. Today, around one million such procedures are performed

worldwide each year. Taking into account the fact that the society is becoming older and older, an increase in the performance of hip arthroplasty is expected in the near future [7].

Definition and types

Endoprosthesoplasty, in other words: arthroplasty, arthroplasty, arthroplasty is a procedure involving the surgical removal of anatomical elements of the joint (which are affected by pathology or by trauma) and replacing them with artificial ones [3].

Alloplasty is the treatment of choice. It allows the patient to be free from pain, return to professional work, hobby and improve the patient's quality of life [8]. Two types of arthroplasty can be distinguished. The first type is arthroplasty, which come from the very definition: primary, in which the anatomical elements of the hip joint are replaced with artificial elements. Among them, the following can be distinguished:

- ➔ partial (half), which is used only for fractures of the neck of the femur; the head and part of the femoral neck are replaced with a metal head, which is to cooperate with the cartilaginous surface of the acetabulum;
- ➔ total surface, where, as the name suggests, only articular surfaces are replaced (used in young, active people);
- ➔ full (total), in which the acetabulum and the head are replaced with artificial elements (it is most often used in advanced degenerative changes of the joint);
- ➔ resection, used mainly in oncological operations, the entire joint and part of the femoral shaft are replaced [3,9].

The choice of using one of the abovementioned arthroplasty depends on: the patient's age, general condition and, first of all, the type of joint damage [3].

The second type of arthroplasty is secondary (revision) arthroplasty. During this procedure, loose or worn elements of the artificial joint are replaced with new ones [3].

A special type of arthroplasty is capoplasty. It is a procedure consisting in replacing only the damaged surface of the joint: the resection covers the cartilage and the subchondral layer [9, 10].

Indications and contraindications

Decision to replace the anatomical joint with an artificial orthopedic doctor is made after a detailed interview, examination, and analysis of the patient's medical history, guided mainly by their good. Particular attention is paid to the elderly, who often have comorbidities [3].

The most common cause of endoprosthesis implantation is coxarthrosis (that is, degenerative changes in the joint) [5,9]. It is a chronic, non-inflammatory disease of multifactorial origin. Unfortunately, it is a progressive disease that destroys the articular cartilage of the entire joint over time. As the disease progresses, it slowly wears off, losing its shock-absorbing properties. Eventually, the bone surfaces of the joint are exposed. Over time, bones are damaged and the synovium becomes inflamed. It is manifested by pain and a slow loss of hip function [10,11]. There is a slow limitation (with time to a greater extent) in the mobility of the joint. This affects the pathology of gait biomechanics. Alloplasty is performed in the case of primary and secondary degenerative changes. In the case of idiopathic changes, capoplasty is the standard procedure, and in secondary degenerative disease, total arthroplasty is performed [9].

Another indication for implantation of an artificial hip joint are osteoporotic fractures, which most often affect people over 60 as a result of injuries. In this case, arthroplasty is the safest method of bone fixation. In the case of idiopathic coxarthrosis, orthopedic surgeons most often decide on capoplasty [10].

The most common contraindications include obesity. However, in this case it is a topic for discussion. It should be remembered that a patient with advanced osteoarthritis of the hip joint is accompanied by pain all the time. In such cases, it is recommended to reduce body weight by introducing an appropriate diet and moderate physical activity [3, 12]. Patients with blood clotting problems, anemia or neoplastic diseases are also qualified for arthroplasty after prior consultation with doctors of the appropriate specialization [3]. Illnesses such as hepatitis B, HIV, AIDS are not an absolute contraindication to this type of surgery. In the case of such patients, special procedures from admission to hospital to discharge are undertaken and initiated. It is done for the safety of the patient and staff [3,9,12].

Physiotherapy

We can divide rehabilitation into two parts: preoperative and postoperative.

The first stage is important for both the patient and the physiotherapist. This is the time spent in achieving the best possible physical condition. Properly conducted rehabilitation before the procedure may shorten the convalescence process and speed up the recovery time.

In the first stage after the surgery, the patient learns to breathe properly. These exercises are always performed at the beginning of physical therapy, at the end, and also between exercises [7, 13]. It is important at this stage to strengthen the upper torso and upper limbs.

After the procedure, the patient is obliged to unburden the operated lower limb for several months using a walker or elbow crutches. Strengthening the muscles of the body parts mentioned above will facilitate the entire rehabilitation process for the patient after the surgery. For this purpose, active free exercises as well as resistance exercises with the use of balls, bands and weights are used. The resistance is selected individually to the patient's abilities. At the same time, of course, the core muscles are strengthened as well as the muscles of the lower limbs. The increase in the strength of these muscles will accelerate regeneration and recovery after arthroplasty. After the procedure, patients are forbidden to perform certain movements in the hip joint to minimize the risk of complications, such as dislocation of the artificial joint. Therefore, it is also important in the preoperative period to teach the patient to walk with a walking frame and / or crutches on a flat area and up stairs [11, 13, 14].

The postoperative rehabilitation stage begins just a few hours after the surgery, when the patient is awake. Then, anticoagulation exercises are performed with the patient (to avoid thromboembolic complications) and respiratory exercises in order to open the bronchial tree [8, 10]. 24 hours after the procedure, active upright standing is introduced. If the patient's condition allows, in the next stage it is possible (with protection) to try to walk. The physiotherapist supports, corrects the posture and reminds about the proper offloading of the operated limb [5,10].

Already on day 3-4, the patient can start exercising more intensively. Active free and resistance exercises are introduced gently. The goal of postoperative rehabilitation is to increase muscle strength and to develop the greatest possible range of motion in the operated hip joint. An inseparable element of rehabilitation after arthroplasty is learning the correct gait.

Post-hospital rehabilitation should be continued in a sanatorium or in a specialized rehabilitation department. The aim of this action is to further improve the function of the operated lower limb as well as to improve the condition and efficiency of the whole body [3,4,8,9].

Conclusion

Hip arthroplasty is a popular procedure in orthopedics nowadays. Implantation of an artificial joint allows the patient to return to work, practice hobbies or sports. The paper describes the theoretical basis of hip arthroplasty, types of procedures used in orthopedics in this field, the most important contraindications and the importance of physiotherapy. The postoperative

rehabilitation program is selected individually. It should be mentioned that every patient is different, therefore the improvement plan must be reviewed on an ongoing basis during its implementation. The main goals of rehabilitation after artificial joint implantation are: to reduce pain, see the range of motion of the operated joint and strengthen the muscles of the entire body.

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