Application of Telemedicine in Treatment of Coxarthrosis Using Cementless Endoprosthesis of the Hip Joint with Fitmore® Hip Stem

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Abstract—Coxarthrosis is a chronic degenerative disease of the hip joint which is characterized by pain and limitation of movements in the hip joint, which significantly disturbs the quality of life. Radiologically, narrowing of the joint space with destructive changes in the head and the acetabulum of the hip joint is present. Treatment of coxarthrosis in the early stage of disease is conservative, while in the later stages surgical treatment must be applied. By installing of endoprosthesis a diseased hip joint is replaced with artificial which helps eliminate the pain and provides a satisfactory range of movements in the operated hip. In this case, after complete preoperative preparation, cementless endoprosthesis of the hip joint with Fitmore® Hip Stem by Zimmer was implanted. The entire surgical procedure was broadcasted via video beam to the collegium of orthopaedic clinic, since it was a new type of stem of the hip joint endoprosthesis which was for the first time implanted into a patient at the Clinic for Orthopaedic Surgery and Traumatology Niš. The doctors from Clinic watched the whole operation via video beam from the medical room and asked questions during the operation to which they immediately received responses from surgeons from the operating room. Cementless endoprosthesis with Fitmore® Hip Stem represents the treatment of choice in patients of younger age.

I. INTRODUCTION

Coxarthrosis is a chronic degenerative disease with clinical manifestations usually in the fifth, sixth and seventh decade of life. Causes of coxarthrosis are different and most frequently quoted are congenital abnormalities of the hip joint, abnormalities obtained during growth, excessive loading of the hip joint, traumatic damage of the hip joint such as dislocation of the femoral head, fracture of the femoral head or acetabulum, microtrauma, hormonal disorders and aging process (1,2). The main signs of coxarthrosis are pain and limitation of movements which significantly alter the quality of life. Treatment of coxarthrosis depends on the stage of disease. In the initial phase of the disease treatment does not require surgical intervention while in more developed stage of the disease it is necessary by implantation of endoprosthesis of the hip joint.

II. MATERIALS AND METHODS

This paper presents a patient with advanced clinical symptoms of coxarthrosis (constantly present pain and limitation of movements in the hip joint) which was treated surgically by cementless endoprosthesis of the hip joint with Fitmore® Hip Stem by Zimmer. The entire surgical procedure was broadcasted via video beam to the collegium of orthopaedic clinic, since it was a new type of stem of the hip joint endoprosthesis which was for the first time implanted into the patient at the Clinic for Orthopaedic Surgery and Traumatology Niš. The doctors from Clinic watched the whole operation via video beam from the medical room and asked questions during the operation to which they immediately received responses from surgeons from the operating room. Cementless endoprosthesis with Fitmore® Hip Stem represents the treatment of choice in patients of younger age.

III. CASE REPORT

Patient C.D. was treated repeatedly ambulatory using antirheumatics and physical therapy, because of the pain and limitation of movements in the right hip joint, with variable success (Figure 1).

When all methods of non-operative treatment were exhausted, the patient was admitted to the Clinic for
Orthopaedic Surgery and Traumatology Niš for implantation of cementless endoprosthesis of the right hip joint. After a complete preoperative preparation surgical procedure was performed. Using approach by Gibson we came to the right hip joint and after osteotomy of the neck we processed the acetabulum and acetabular component was placed. After processing the medullary canal Fitmore® Hip Stem was placed. The head of the endoprosthesis was set and we performed repositioning. An early postoperative period was regular. On the control X-ray the implanted components of endoprosthesis shows good position (Fig. 2).

The wound healed per primam. Patient was activated using underarm crutches with relieving reliance on the operated leg. After removing the stitches the patient was sent to physical therapy. Upon the completion of physical therapy, the patient has returned to working and life activities.

Figure 1. X-ray of the right hip joint with narrowed joint space, marginal osteophytes and areas of sclerosis in the region of acetabulum and femoral head.

IV. DISCUSSION

The predominant symptoms of developed clinical features of coxarthrosis are pain and limitation of movements. In the initial stage of disease the local painful sensitivity in the region of the hip, which increases during physical stress is present. The pain appears in the upper thigh and knee due to the irritation of n. obturatorius and n. femoralis. As the disease progresses the range of movements in the hip area is getting smaller. Contracture of the hip becomes more pronounced, so problems occur during walking. Walking becomes more and more painful. The patient is helping with a stick during walking. In the later stages of the disease movements in the hip are very limited with shortening of the leg on affected side. Replacement of the hip joint with alloplastic material is one of the greatest achievements in orthopedic surgery and traumatology. Progress that has been made in alloarthroplastic replacement of the hip joint is closely related to the results of biomechanical and biotechnological research. The goal of arthroplasty of the hip joint is to achieve a painless, stable and moving hip joint. Application of Fitmore® Hip Stem is indicated for total hip arthroplasty in patients with noninflammatory degenerative hip joint disease, avascular necrosis of the femoral head, osteoarthritis, rheumatoid arthritis and revision of previously failed hip arthroplasty (3,4,5). Fitmore® Hip Stem is a curved uncemented stem with a trapezoidal cross-section, which is coated proximally with Ti-VPS (Titanium Vacuum Plasma Spray) and rough-blasted distally. To preserve bone material of the greater trochanter Fitmore® Hip Stem is characterized by curved shape and trapezoidal cross-section for maximum rotational stability. A three-dimensional shape and proximal Ti-VPS coating for press-fit fixation provides good fixation and osseointegration which is one of the requirements for re-establishment of the biomechanics of the hip joint (6,7,8).

V. CONCLUSION

Coxarthrosis is a chronic degenerative disease of the hip joint which is characterized by pain and limitation of movements in the hip joint, which significantly disturbs the quality of life. Radiologically, narrowing of the joint space with destructive changes in the head and the acetabulum of the hip joint is present. Treatment of coxarthrosis in the early stage of disease is conservative, while in the later stages surgical treatment must be applied. With implantation of endoprosthesis of the hip joint, diseased hip joint is replaced with artificial, which helps eliminate the pain, provides a satisfactory range of movements in the operated hip and stable support. Cementless endoprosthesis with Fitmore® Hip Stem represents the treatment of choice in patients of younger age.

REFERENCES


