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Analysis of the Early Clinical Effect of Simultaneous Ipsilateral Total Hip and Knee Arthroplasty in the Treatment of End-Stage Hemophilic Arthritis

Xu Peng, Shirong Chen*, Xiangjun Cheng, Xiaowei Xie, and Mao Nie

Department of Joint Surgery, The Second Affiliated Hospital of Chongqing Medical University, Chongqing, China

***Corresponding author:** Shirong Chen, Department of Joint Surgery, The Second Affiliated Hospital of Chongqing Medical University, Chongqing, 400010, China, Tel: +86-23-636393570; Fax: +86-23-636393570; E-mail: cqjoint@hotmail.com

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Abstract

Object: To investigate the clinical efficacy of simultaneous ipsilateral Total Hip Arthroplasty (THA) and Total Knee Arthroplasty (TKA) in the treatment of advanced hemophilic arthritis.

Method: The clinical data of 8 patients with advanced hemophilic arthritis who underwent ipsilateral THA and TKA in the Second Affiliated Hospital of Chongqing Medical University from January 2018 to may 2021 were retrospectively analyzed, ages are (31.6 ± 6.2) years old (25-38 year). There were 6 cases of hemophilia A and 2 cases of hemophilia B. The preoperative level of coagulation factor VIII was 1.8% ± 1.3%, Partial Prothrombin Time (APTT) was (131.2 ± 35.3). Coagulation factor VIII arthroplasty therapy was used for type a hemophilia during perioperative period, and coagulation factor X arthroplasty therapy was used for type B hemophilia during perioperative period. All patients had informed consent to the treatment plan and were approved by the hospital ethics committee. Harris score before and 0.3-1 year after operation was compared to evaluate hip function, HSS knee score and KSS score.

Result: During the follow-up of (1.4 ± 1.1) years, no intra-articular bleeding and skin dehiscence were found in the early postoperative period, and no joint infection, bleeding, prosthesis loosening and sinking were found in the last follow-up. Harris score increased from (16.8 ± 4.4) preoperatively to (77.6 ± 7.1) postoperatively, HSS knee score increased from (41.8 ± 4.2) preoperatively to (76.0 ± 5.8) postoperatively, KSS clinical score increased from (35.6 ± 10.8) preoperatively to (79.2 ± 6.9) postoperatively, The KSS score increased from (22.8 ± 8.4) preoperatively to (72.0 ± 5.9) postoperatively at the last follow-up. The differences were statistically significant ($P<0.05$).

Conclusion: The same side THA and TKA in the treatment of advanced hemophilic arthritis can effectively relieve pain, improve hip and knee joint function, and improve the quality of life, which is a safe and effective measure for the treatment of advanced hemophilic arthritis.

Keywords: Hemophilic arthritis; Total hip arthroplasty; Total knee arthroplasty; Coagulation factor

Introduction

Hemophilia is a hereditary hemorrhagic disease caused by the deficiency of coagulation factors. It can be divided into hemophilia A (deficiency of coagulation factor VIII) and hemophilia B (deficiency of coagulation factor IX), which are mostly transmitted from female carriers to male offspring [1]. Hemophilia patients are prone to bleeding in joints, muscles and deep tissues since they are young, especially in large joints which are easy to be injured or loaded [2]. Hemophilic Arthritis (HA) is one of the major complications of hemophilia, which can cause joint contracture, joint deformity and joint pain, which eventually lead to obvious limitation or disability of joint function, which seriously affects the quality of life of patients. Incidence rate of knee joint, elbow joint and hip joint are in turn [3]. Although prophylactic coagulation factor arthroplasty therapy can significantly reduce the bleeding frequency, it cannot completely prevent the progression of joint disease in hemophilia patients [4]. As an important means of HA treatment, surgical intervention can greatly improve the quality of life of patients, which is particularly important. Due to the particularity of HA patients, age structure, severe preoperative joint deformity, intraoperative and postoperative bleeding and hemostasis and other problems, the surgical treatment of HA is much more difficult than the general patients. With the use of coagulation factor preparation, total joint arthroplasty has become the main method for the treatment of advanced type a hemophilic arthritis, which can significantly improve the joint function, correct joint deformation, reduce pain and improve the long-term quality of life of patients [5]. Due to the high cost of coagulation factors, patients usually have multiple joint diseases. Total Hip Arthroplasty (THA) or Total Knee Arthroplasty (TKA) can significantly relieve pain, improve joint function, reduce disability rate and save treatment cost, however, the benefits and risks of simultaneous ipsilateral THA and TKA in patients with advanced hemophilic knee arthritis are still

controversial, and there are few relevant literature reports [6]. From January 2018 to may 2021, we treated 8 patients with advanced HA with simultaneous ipsilateral total hip and total knee arthroplasty, and achieved good clinical results.

Clinical Data

General information

Eight patients, aged 25-38 years (mean 31.6 years), were all male. There were 6 cases of hemophilia A and 2 cases of hemophilia B. they had a history of Hematology diagnosis and treatment and coagulation factor infusion. All patients had routine detection of 4 coagulation factors, factor VIII and factor IX inhibitors and 10 immunization (hepatitis, syphilis and HIV antibody tests were negative). The average activity of factor VIII in 6 patients with type a hemophilia was (2.1 ± 2.3)%, and that of factor IX in 2 patients with type B hemophilia was (1.5 ± 1.4)%. Preoperative factor VIII inhibitor test of all patients with type A hemophilia was zero, and factor IX inhibitor test of all patients with type B hemophilia was zero. All patients had different degrees of ipsilateral knee and hip pain and decreased range of motion, and had different degrees of joint deformity, which seriously affected the quality of life. Conservative treatment was ineffective. Six patients (6 knees) had genu varus (10-25 degrees), and two patients (2 knees) had genu valgus deformity (12-20 degrees).

Inclusive criteria: 1. All patients were patients with hemophilic ipsilateral hip and knee arthritis. 2. Patients with hemophilia whose hip joint function was obviously impaired and whose knee joint was classified as stage IV or V according to Arnold-Hilgartner imaging classification had no factor VIII or factor IX inhibitor before operation. 3. All patients had informed consent to the treatment plan and were approved by the hospital ethics committee.

Exclusion criteria: 1. Joint infection; 2. Hip and knee arthroplasty was performed on the other side or at the same time; 3. Osteoarthritis, rheumatoid arthritis and so on. 4. The detection of factor VIII inhibitor in type A hemophilia was positive, and the detection of factor IX inhibitor in type B hemophilia was positive.

Perioperative coagulation factor arthroplasty therapy

In the perioperative period of THA and TKA, the monitoring of coagulation factor arthroplasty therapy is mainly determined by measuring Activated Partial Thromboplastin Time (APTT), the activity and concentration of coagulation factor, and the presence of coagulation factor inhibitor [7]. After admission, please consult with hematology department and make a schedule. Hemophilia A A: select keyuqi recombinant VIII preparation from Bayer company of Germany, the supplementary dose (U)=body weight (kg) × (Required factor VIII: C level% -actual factor VIII: C level%)/2. The half-life of factor VIII is 8-12 h, so half of the first dose should be supplemented every 8-12 h to maintain the level of factor VIII. Blood coagulation factor VIII was infused at a dose of 25 IU/kg every 8-12 hours 1-3 days after operation to keep its activity at 60%-80%. Factor VIII was infused every 8-12 hours at a dose of 20 IU/kg 4-7 days after operation, and its activity was maintained at 50%-60%. 1-2 weeks after operation, factor VIII was infused intravenously at the dose of 20 IU/kg to maintain the plasma factor VIII: C level of 30%-50%. After that, according to the bleeding situation and f factor VIII: C level, the amount of coagulation factor supplement was reduced until discharge. Hemophilia B: choose Pfizer's bFGF IX preparation. Supplementary dose (U)=body weight (kg) × (Required f IX: C level% -actual factor IX: C level%). The half-life of factor IX is 12-24 h, so it is given 1-2 times a day. Blood coagulation f IX was infused at a dose of 25 IU/kg every 12-24 hours 1-3 days after operation to keep its activity at 60% -80%; F IX was infused every 12-24 hours at a dose of 20 IU/kg 4-7 days after operation, and its activity was maintained at 50%-60%; 1-2 weeks after operation, factor IX was infused intravenously at the dose of 20 IU/kg to maintain the plasma factor IX: C level of 30%-50%. After that, according to the bleeding situation and factor IX: C level, the amount of coagulation factor supplement was reduced until discharge.

Operation method

In this study, all patients were operated in the order of first hip and then knee after general anesthesia.

Total Hip Arthroplasty: 1. The patient was in the healthy lateral position, and the surgical field was routinely disinfected and covered with towel; 2. The posterolateral incision of the affected hip, about 10-12 cm long, was used to cut the skin and subcutaneous adipose tissue, and the fascia lata surface was properly stripped to form a "moving window" (also conducive to close the incision tightly). The fascia lata (gluteal fascia) was cut along the posterior margin of trochanter by electric knife, and then the gluteus maximus fiber bundle was separated by electric knife to expose the posterior outer fat layer of joint capsule. Confirm the posterior edge of gluteus medius and gluteus minius, slightly rotate the affected limb, peel off the insertion point of piriformis along the piriformis fossa at the posterior edge of trochanter, "U" shape incision joint capsule to reach the lateral apex of acetabulum, expose the femoral neck and head. 3. The affected limb was straightened in the neutral position, and marked with an electric knife at the midpoint of the greater trochanter. A single suture was sutured and fixed on the skin of the iliac crest along the long axis of the limb. The operator pulled the suture to the marked position with appropriate tension, cut and retained it, so as to evaluate whether the limb length was balanced after the prosthesis implantation. 4. The hip dislocation was caused by extreme internal rotation and adduction of the femur. The femoral neck osteotomy was protected by acetabular retractor with 90° internal rotation of the affected limb, 45° hip flexion and 90° knee flexion. According to the preoperative X-ray measurement results, the femoral neck osteotomy was performed with the femoral distance of 1-1.5 cm reserved, and the femoral head was removed with a head extractor. 5. The acetabulum was exposed step by step and the labrum was cleaned by using the acetabular retractor of Minimally Invasive Surgery (MIS), and the thickened joint capsule, osteophyte and round ligament residue were removed until the bone acetabulum edge was completely exposed. Firstly, the acetabulum file with the size of femoral head was selected to grind the acetabulum to the bottom of the horseshoe fossa of the acetabulum, and then the grinding file was increased in turn to completely remove the cartilage surface around the acetabulum, resulting in punctate bleeding, especially after the weight-bearing area at the top of the acetabulum, the non cemented acetabulum was placed under the protection of packaging film (to prevent soft tissue embedding). After confirming the proper position of the prosthesis, hammer and press the cup. The hook needle is used to detect whether the interface between the cup and the bone is tightly pressed through the screw hole, and whether there is soft tissue embedded in the edge of the cup. After the press fit is satisfied, titanium screws can be selected according to the patient's age and bone condition. Some patients with excellent bone and ideal press fit can be fixed without screws. For the patients with obvious limitation of hip joint movement before operation, it is necessary to use MIS hook to expose reasonably, make full use of "mobile window" to release the peri hip gradually, especially the anterior and medial adhesion scar tissue and joint capsule, and gradually increase the range of motion; If there is bone defect, autogenous femoral head or allogeneic cancellous

bone graft should be used, and acetabular prosthesis should be implanted after the preparation of bone acetabulum is satisfactory. The ceramic liner was implanted along the direction of the prosthesis to avoid soft tissue embedding. 6. Bend the knee and rotate the femur 90° so that the leg is perpendicular to the operating table. The proximal femur was lifted with "Jaws" arc retractor, and the acetabular retractor was placed in the greater and lesser trochanter of femur. After the anteversion angle of 15-20° was determined, the box osteotome slotter was used to slot and ream the pulp manually along the direction of the femoral anterior arch (when the affected limb was placed at 45° hip flexion, 90° knee flexion and 90° femur internal rotation, the angle between the vertical axis of the leg and the handle of the impactor was marked as the anteversion angle of reaming), The proximal femur was ground with a cone-shaped grinding drill. After reaming to the appropriate model in turn, the femoral stem test mold and test mold head were placed and the hip joint was reset. The range of motion and stability of the hip joint were tested (hip flexion >100°, hip extension >10° and internal rotation >60°), and the prosthesis was placed after the length of both lower limbs was balanced (the distance between the end of skin suture and the greater trochanter mark was increased, compared with the preoperative X-ray template measurement value and the comprehensive evaluation of solid measurement). 7. A large amount of normal saline was used to wash and stop bleeding thoroughly. After checking the instruments and gauze, a normal pressure drainage tube (open after clamping for 6 hours) was placed and sutured layer by layer and bandaged. Then the patient was placed in the supine position, the tourniquet was tied at the root of the affected thigh, and the affected limb was routinely disinfected and covered. The anterior patellar incision of the affected knee joint was about 12 cm in length. The skin, subcutaneous tissue and fascia were cut in turn, and the electrocoagulation was used to stop bleeding. The tibial plateau and femoral condyle of the knee joint were exposed, the patella was turned over to the outside, and the fibrous tissue of the patella was removed with an electric knife. Because of the severe deformity of femoral condyle and tibial plateau, complete loss of joint space, severe congestion and edema of synovium, the force line of lower limb was preliminarily determined by vertical line rod. The tibial plateau is surrounded by a large number of proliferative synovial tissue and osteophytes. Therefore, the medial and lateral sides of the tibial plateau are released respectively. The osteophytes on the femoral condyle and tibial plateau are removed with bone biting forceps to fully expose the tibial plateau. Check the knee joint flexion 90 degrees, drill the hole in front of the attachment point of the posterior cruciate ligament of the distal femoral intercondylar fossa, suck out the pulp content, and insert the anteroposterior femoral dimension measurement guide into the hole. Methods: release the adhesive tissue around the medial and lateral sides of the femoral condyle, remove the hyperplastic osteophyte, perform proximal tibial osteotomy, locate the medial and lateral center of the tibia, install the alignment system of the extramedullary osteotomy guide, fix it safely, place the osteotomy plate and extramedullary locator on the tibia, parallel the rod with the medial tibial muscle, slide and adjust the angle of the guide, so that the body of the guide is parallel to the anterior tibial shaft, The position of the cutting plate was measured with a tibial osteotomy thickness gauge. The osteotomy plate was nailed to the tibia, and the tibial plateau was cut along the osteotomy device with a pendulum saw. The osteotomy was performed at the back of the femur, and the bone defect of the lateral tibia was filled with the osteotomy bone graft, and the suitable tibial pad was placed. The knee joint was straightened to see good flexion and extension. Analgesic drugs (morphine hydrochloride injection 8 mg, morphine hydrochloride injection 8 mg, morphine hydrochloride injection 4 mg, morphine hydrochloride injection 8 mg) were injected into the posterior capsule, quadriceps femoris tendon and around the incision respectively Ropivacaine 40 mg, Diprospan 1 mg, mixed with normal saline (60 ml in total). The femoral and tibial bone cement prostheses were installed respectively. A large amount of normal saline was used to wash and stop bleeding thoroughly. After checking the instruments and gauze, a normal pressure drainage tube (open after clamping for 6 hours) was placed and sutured layer by layer, and pressure bandaged.

All patients were given tranexamic acid before operation. Tranexamic acid is an antifibrinolytic drug that inhibits the activation of plasminogen. As an antifibrinolytic drug, tranexamic acid can reduce blood loss and transfusion demand in patients with hemophilia. It has good safety and effectiveness, and has no thromboembolic events or other adverse reactions. Cefazolin sodium powder injection (Shandong Lukang Pharmaceutical Co., Ltd.) was given 1.0 g intravenous drip 0.5 hours before operation.

Postoperative management

After operation, according to the supplementary requirements of calculating coagulation factor activity, recombinant human coagulation factor VIII was infused into hemophilia A type A, and recombinant human coagulation factor IX powder injection was infused into hemophilia B to maintain the activity of plasma f VIII. The wound was routinely iced, and the postoperative analgesia pump was generally used for 48h. The drainage tube was removed after the drainage volume was less than 50 ml the previous day. Foot pump exercise and pressure therapy were used to prevent postoperative DVT without anticoagulation. The wound dressings were changed every day for the first 3 days after operation, and then every two days until the stitches were removed 2 weeks after operation. After the operation, the patient returned to the ward to take the supine position. The affected limb was abducted in the neutral position. A trapezoidal pillow was placed between the legs. The affected foot wore t-shoes to prevent external rotation. The affected limb was raised. A soft pillow was placed at the middle and lower 1/3 of the leg to make the knee joint fixed and straight; One or two days after the operation, we strengthened the isometric contraction of quadriceps femoris, ankle flexion and extension, heel sliding, passive knee extension and elevation, and walking aids; Three or four days after the operation, knee extension and flexion exercises were performed along the edge of the bed; After discharge, they continued to do isometric contraction of quadriceps femoris and active knee flexion and extension exercises. The blood routine, four coagulation items and the concentration of coagulation factors were monitored, and the input of coagulation factors was adjusted timely. Tranexamic acid 1 g twice a day was used within 1 week after operation. The patients were followed up 6 weeks, 3 months, 6 months, 1 year and every year after the operation. The clinical function and imaging were evaluated at each visit.

Postoperative observation index

The intraoperative blood loss, the decreasing trend of postoperative hemoglobin and the postoperative drainage of knee joint were observed; The incision was observed early after operation; The anteroposterior and lateral X-ray films of the knee joint at 1.5, 3, 6 and 12 months after operation were used to evaluate the loosening of the prosthesis. Harris score, American Hospital for Special Surgery (HSS) knee score and American Knee Association Score (KSS) were collected and compared before and 0.3-1 year after operation. During the follow-up, the X-ray films were examined to find out the signs of implant loosening. If the implant migration or dissolution >2 mm was detected in the interface, the implant was defined as loosening.

Data statistics

SPSS 25.0 software (IBM, USA) was used to analyze the data. The measurement data were expressed as (±s). Paired t test was used for continuous variables and normal distribution data. Nonparametric test was used to compare continuous variables with non normal distribution χ^2test to compare categorical variables. P<0.05 for the difference was statistically significant.

Result

All 8 patients were followed up. The intraoperative blood loss was (550 ± 50) ml, the postoperative hemoglobin content was (105.1 ± 16.5) g/L, and the postoperative drainage volume was (525.5 ± 75.5) ml. The level of factor VIII: C increased from 1.5% ± 1.3% preoperatively to 118.6% ± 12.8% on the 1st day postoperatively, and the level of factor IX: C increased from 1.2% ± 1.19% preoperatively to 106.1% ± 12.8% on the 1st day postoperatively (P<0.05). 8 patients were followed up for (1.4 ± 1.1) years. There was no intra-articular bleeding, skin dehiscence, deep venous thrombosis, aseptic loosening and sinking of prosthesis at the last follow-up. Typical cases are shown in figure 1.

Hip and knee function score: Harris score increased from (16.8 ± 4.4) preoperatively to (77.6 ± 7.1) postoperatively, HSS knee score increased from (41.8 ± 4.2) preoperatively to (76.0 ± 5.8) postoperatively, KSS clinical score increased from (35.6 ± 10.8) preoperatively to (79.2 ± 6.9) postoperatively, The KSS functional score increased from (22.8 ± 8.4) preoperatively to (72.0 ± 5.9) postoperatively at the last follow-up. The differences were statistically significant (all P<0.05) (see Table 1). There were no adverse reactions such as infection, allergic reaction, immune reaction and rejection.

Discussion

To fully understand the pathogenesis of HA is helpful to the diagnosis and treatment of HA. Joint bleeding is the initiating factor in the pathogenesis of HA. After acute joint hemorrhage, it takes about one week for type A cells in the synovial intima composed of macrophage like cells to clear the blood from the joint cavity [7]. Because hemophilia patients are prone to recurrent intra-articular bleeding, the amount of intra-articular bleeding far exceeds the level of synovial tissue clearance, resulting in intra-articular hematocele and blood degradation metabolites deposition in the joint [8]. Animal studies have shown that early intra-articular bleeding is positively correlated with HA disease progression [9]. The frequency of joint bleeding was positively correlated with the severity of coagulation factor deficiency in patients with hemophilia. The probability of joint bleeding in patients with hemophilia A was higher than that in patients with hemophilia B. Some studies have shown that 90% of hemophiliacs develop hemophilic arthritis in the second and third decade of their lives [4,10].

Total joint arthroplasty is the gold standard for the treatment of advanced hemophilic hip and knee arthritis. Carulli C, et al. [6,11] showed that 23 patients with hemophilic hip arthritis were treated with the, with an average follow-up of 8.4 years. When discharged, all patients were able to walk with full weight. The average preoperative hemophilia joint health score (HJHS) was 12.5 (range: 10-22). At the last follow-up, the score was 1.5 (range: 1-5). During the last follow-up period, the overall survival rate was 100%. B. El Mabrouki B, et al. [12] also reported the improvement of quality of life in patients with hemophilia after knee arthroplasty.

Table 1: Preoperative and postoperative hip and knee function score.

	Harris score	HSS score	KSS Clinical Score	KSS Functional Score
Before operation	16.8 ± 4.4	41.8 ± 4.2	35.6 ± 10.8	22.8 ± 8.4
Final follow-up	77.6 ± 7.1	76.0 ± 5.8	79.2 ± 6.9	72.0 ± 5.9
P value	<0.05	<0.05	<0.05	<0.05

Compared with osteoarthritis, rheumatoid arthritis and other diseases, the prosthesis survival rate of hemophilic arthritis after TKA is relatively low. Tagariello G, et al. [3] reported that the incidence of TKA complications and revision rate up to 8 years in patients with hemophilia (n=3396) and vascular hemophilia (n=1379) were evaluated by using the national database, and compared with the matched cohort of patients with non hemorrhagic diseases (n=427132 and n=394657). Compared with the control group, hemophilia and von Willebrand disease were significantly associated with the incidence of infection, blood transfusion, medical complications and revision after TKA. The incidence of hemophilia, venous thromboembolism and blood transfusion was significantly higher than that of patients with vascular hemophilia and control group after TKA. In the study of 11 male patients (12 cases of THA), Colgan G, et al. [14] found that the average intraoperative blood loss was 502 ml (100-1250 ml), and the hemoglobin decreased by 3.25 g/dl within 48 hours. Only one patient needed an intravenous infusion of two units of concentrated red blood cells. There was no hematoma formation and other complications. Lin YCHU, et al. [15] reported the 30-year follow-up results of 17 cases of THA and 8 cases of TKA, and only 2 cases had prosthesis loosening. Perez Botero J, et al. [16] studied 42 patients with hemophilia A or B who underwent THA or TKA joint surgery (71 cases). They were followed up for more than 39 years. All patients used compression stockings for 6 weeks after surgery, 6 patients (10.5%) used lower extremity sequential intermittent compression device, and 2 patients (2.8%) received low molecular weight heparin. One patient (1.4%) who received low molecular weight heparin treatment developed deep venous thrombosis of lower extremity 10 days after hip arthroplasty for traumatic fracture, suggesting that hemophilia patients can undergo joint arthroplasty without conventional drug VTE to prevent the risk of thromboembolic events. This study suggests the use of non pharmacological deep venous thrombosis prevention measures, such as early foot pump exercise, lower extremity pneumatic pump. Because DVT usually occurs in elderly patients, non drug prevention of DVT may be more effective than drug prevention in hemophilic patients undergoing joint arthroplasty.

In hemophilia patients, coagulation factor arthroplasty therapy needs the assistance of Hematology Department, and the cost greatly exceeds the cost of prosthesis implantation [17]. Due to the high cost of coagulation factors and high perioperative consumption, hemophilia patients hope to solve as many problems as possible after a single infusion of coagulation factors. In this study, homolateral tha plus TKA did not increase the overall risk, and the perioperative cost was significantly reduced. Tonogai I, et al. [18] found that simultaneous bilateral surgery has advantages in reducing coagulation factor consumption, reducing hospital costs and shortening hospital stay. Repeated injections of coagulation factors are also associated with the risk of the formation of inhibitory antibodies to coagulation factors in hemophilia patients. When a large number of coagulation factors are used, the risk will increase. Therefore, staged and multiple operations may increase the risk of the formation of inhibitory antibodies. Perioperative coagulation factor inhibitor plasty increases the incidence of complications, which is very dangerous and even fatal for patients. The results showed that simultaneous THA and TKA is a cost-

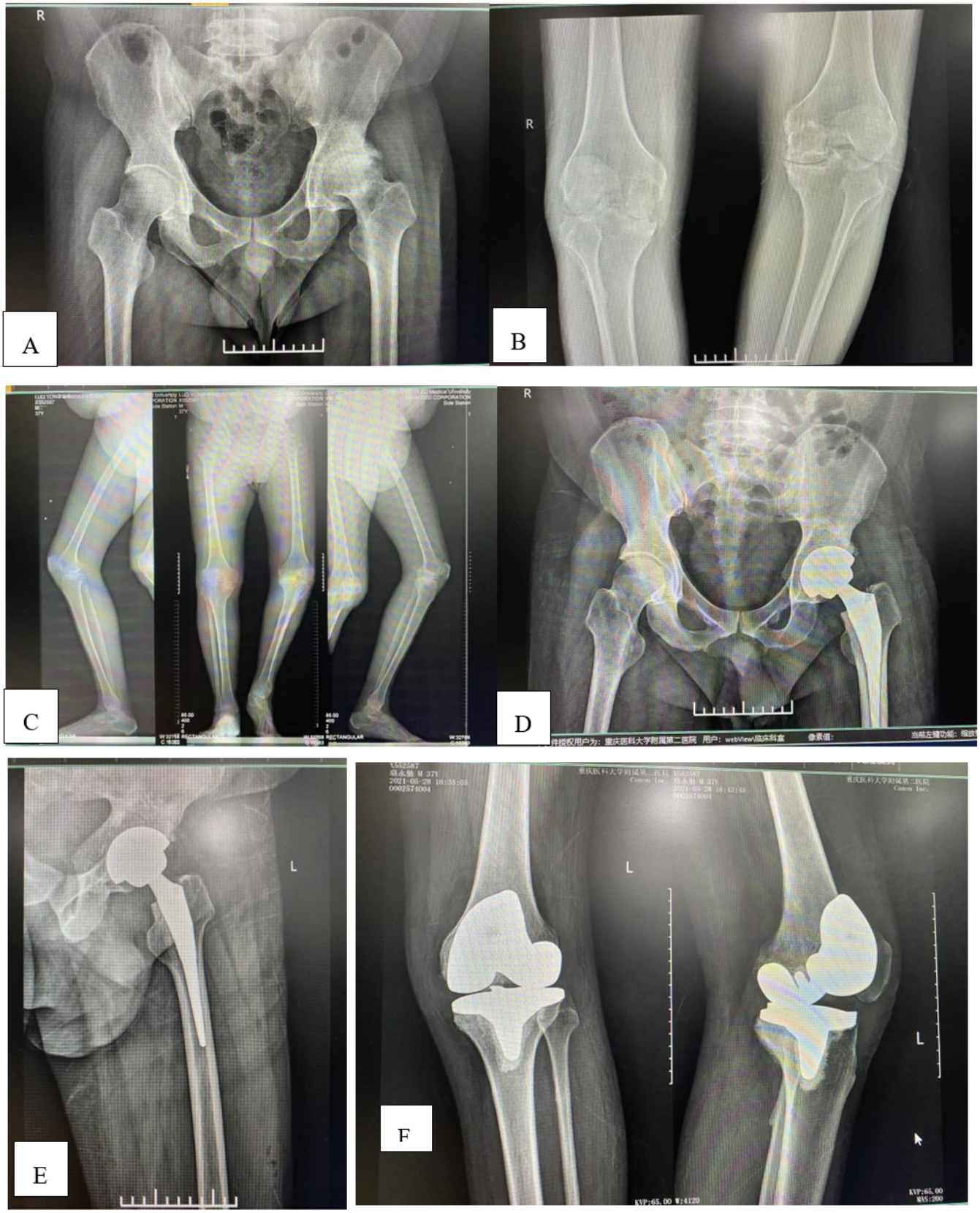

Figure 1: Perioperative X-ray films of typical cases: A was preoperative pelvic plain film; B was anteroposterior and lateral X-ray of both knees before operation; C was preoperative full length film of both lower limbs; D was postoperative pelvic plain film; E was lateral X-ray of left hip after operation; F was the X-ray of the left knee postoperatively.

effective surgical method. The consumption of coagulation factors, hospitalization expenses, length of stay, and various human costs can be even less than staged THA and TKA. With the improvement of living standards, hemophilia patients have higher requirements for quality of life and ability to resume work and other factors, joint arthroplasty cases will continue to increase, and the economic benefits of ipsilateral THA and TKA in the same period will be more significant. The operation sequence of this study is the operation first, then TKA operation. The reasons are as follows: 1. The operation will affect the length of lower limb, rotation center of femoral head, femoral valgus angle and force line, and then TKA operation can be carried out according to the "index" after THA operation; If the sequence is reversed, there may be the risk of early prosthesis failure due to the change of TKA reference force line; 2. It is helpful for patients to carry out rehabilitation exercise and avoid the problem of mutual restriction of hip and knee joint activities, and establish a good foundation for contralateral limb diseases in the future; 3. This study did not consider the simultaneous arthroplasty of more than three joints, because it will further increase the operation time, surgical bleeding, high risk of infection, so we think that for such patients, simultaneous arthroplasty of two joints is more appropriate.

The limitation of this study lies in the small number of cases, the retrospective study design, the lack of control group and the short follow-up time. Therefore, we need indicators with larger sample size, longer follow-up time and better quality.

Conclusion

In conclusion, the authors believe that close cooperation and joint management strategy with hematology expert team is the key to ensure the safety of operation, and long-term maintenance of coagulation factor VIII/factor IX level is also needed to help prevent hip and knee joint bleeding after joint arthroplasty. On the premise of sufficient coagulation factor arthroplasty therapy, simultaneous ipsilateral THA and TKA have significant clinical efficacy in the treatment of advanced ha, which can significantly improve joint function, relieve pain and improve the quality of life. However, ipsilateral THA and TKA still have great challenges in the treatment of hemophilic arthritis, which requires the cooperation of joint surgeons and hematologists.

Typical Case

Luo, male, 37 years old, suffered from repeated pain and swelling of left hip and knees for 14 years. He was diagnosed as "hemophilia type A" at the age of 1 year and was effective after transfusion of coagulation factor VIII. After repeated joint bleeding swelling and pain. The basic activity of factor VIII was 0.1%, APTT: 104 s. At present, the treatment is on demand, 2000 IU, and the exposure day is more than 150 days. Under the management of MDT team, left total hip arthroplasty and left total knee arthroplasty were performed at the same time.

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