

Two cases reported by Dr. Augusto Palermo, MD, Orthopedic Department CFO Casa di Cura Villanova in Florence, Italy. He specializes in reconstructive hip and knee arthroplasty. Dr. G. Calafiore – Dr. S. Cannizzaro

C.F.P.[®] and X-LINKed[®] polyethylene

Case 1

72-year-old man with coxarthrosis, left

The patient performed heavy physical labor as part of his job in the construction industry. He was also active in several sports, including bicycle racing. The 72-year-old patient suffers from high blood pressure, hypercholesterolemia and hyperglycemia. He is 170 cm tall and weighs 75 kg.

Diagnosis: Left coxalgia, limited internal and external rotation

When he was examined at the Department of Orthopedics at CFO Villanova Hospital, the patient had already been suffering for about a year from hip pain (coxalgia) on the left side with restricted internal and external rotation of the hip. The Thomas test result was + + +. The preoperative a-p (Fig. 1) and axial (Fig. 2) x-ray images both show signs of bilateral coxarthrosis with ovalization of the femoral head, cartilage wear and osteophytes on the acetabular cup.

Reason for surgery:

severe pain and functional limitation

I decided to implant a total hip replacement on the left side after consultation with the patient because of his severe pain and considerable functional limitations. The patient reported a marked deterioration in his quality of life as a result of his severely restricted movement with limited hip rotation and flexion. Individual findings were: flexion 70 degrees, extension 15 degrees, abduction 15 degrees, adduction 10 degrees.



Fig. 1: A-p image showing signs of bilateral coxarthrosis



Fig. 2: Axial image showing left coxarthrosis with ovalization of the head, cartilage wear and osteophytes on the acetabular cup

Prosthesis type: LINK® C.F.P.® hip prosthesis steme

No particular difficulties were anticipated in preoperative planning as the femoral neck and medullary space were normally formed. A hip prosthesis was implanted on September 23, 2010.

The following prosthesis components were used:

- LINK® C.F.P.® hip prosthesis stem: stem curvature A, small, CCD angle 126°
- LINK® T.O.P.® acetabular cup:diameter 56 mm
- X-LINKed® polyethylene insert
- BIOLOX®* delta ceramic prosthesis head, diameter 36 mm

The postoperative a–p (Fig. 3) and axial (Fig. 4) x-ray images show a well-positioned cup inserted up to the lamina, physiological femoral offset and good restoration of Shenton's line.

X-LINKed® polyethylene: better functionality, reduced wear and longer implant life

I decided to use a hip prosthesis head with a diameter of 36 mm because the patient wanted a very high level of postoperative functionality. This also made it possible to use an acetabular cup with an X-LINKed® polyethylene insert. X-LINKed® polyethylene is more resilient than conventional polyethylene and less susceptible to wear. This leads to better functionality and reduced particle shedding, resulting in longer implant life overall.

Conclusion

Six months after surgery the patient is very satisfied with the results. He has almost recovered complete mobility in the left hip joint and is now able to perform his athletic activities on a daily basis without pain. X-LINKed® polyethylene enables ceramic/polyethylene combinations to be used in a wider range of patients, and also ensures that the prosthesis functions well and has a long life.

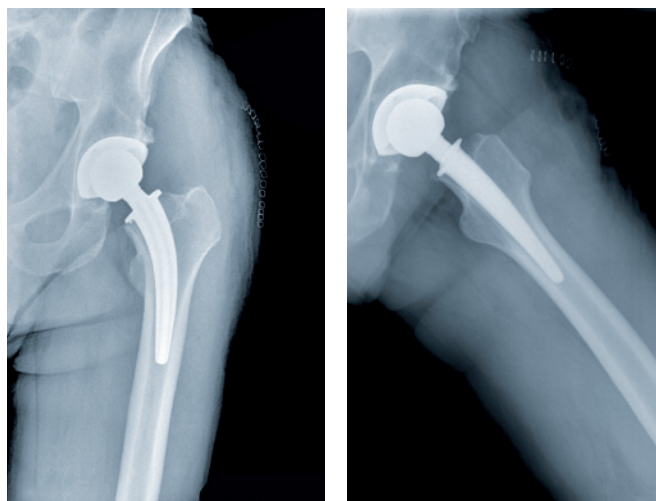


Fig. 3 and 4: The a–p and axial images show a well-positioned cup inserted up to the lamina, physiological femoral offset and good restoration of Shenton's line.

Case 2**66-year-old man with coxarthrosis, right**

The patient works in an office and has a very sedentary lifestyle. He suffers from high blood pressure, hypercholesterolemia, and ischemic cardiomyopathy. He has already received a coronary stent. The patient is 178 cm tall and weighs 85 kg.

Diagnosis:**right coxalgia, neither internal nor external rotation possible**

The patient had previously undergone treatment at a different hospital for multiple herniated disks in the L4–L5 and L5–S1 regions, receiving ozone infiltrations and physical therapy. Because of the poor overall clinical outcome of this treatment the patient was ultimately referred to CFO Villanova Hospital. Clinical examination revealed a significant limp associated with coxalgia on the right side and pain in the lower lumbar spine region. The patient was incapable of internal and external rotation of the affected hip. Individual findings were: flexion 65 degrees, extension 10 degrees, abduction 15 degrees, adduction 5 degrees.

Reason for surgery: clinical findings, x-ray image

There was little evidence that the symptoms resulted from inflammation of the right sciatic nerve. I therefore focused my attention on the right hip joint. The preoperative a–p (Fig. 1) and axial (Fig. 2) x-ray images show signs of right coxarthrosis with wear on the upper femoral head, acetabular osteophytes

*BIOLOX® delta is manufactured by CeramTec GmbH, Plochingen, Germany.

and damage to the acetabular roof. On the basis of the clinical and x-ray findings, and after consultation with the patient, I decided to implant a hip prosthesis on the right side .

Prosthesis type: LINK® C.F.P.® hip prosthesis stem

No particular difficulties were anticipated in preoperative planning as the femoral neck was normally formed. However, we focused special attention on the femoral medullary space, which showed a narrowing below the greater trochanter. A hip prosthesis was implanted on February 03, 2011.

The following prosthesis components were used:

- LINK® C.F.P.® hip prosthesis stem: Stem curvature A, small, CCD angle 126°
- LINK® T.O.P.® acetabular cup: diameter 56 mm
- X-LINKed® polyethylene insert
- BIOLOX®* delta ceramic prosthesis head, diameter 36 mm

The postoperative a–p x-ray image (Fig. 3) shows a well-positioned acetabular cup inserted up to the lamina, physiological femoral offset and good restoration of Shenton's line. The femoral component is optimally positioned and is well supported by the femoral neck.

X-LINKed® polyethylene: better functionality, reduced wear and longer implant life

As in the first case, a hip prosthesis head with a diameter of 36 mm was used because the patient required a high level of post-operative functionality. The fact that the patient was relatively young also influenced the decision. The option of using an X-LINKed® polyethylene insert for the acetabular cup was a further consideration in this case too. X-LINKed® polyethylene is more resilient than conventional polyethylene and less susceptible to wear. This results in better functionality, reduced wear and particle shedding and – overall – longer implant life.

Conclusion

Three months after surgery the patient is very satisfied with the results. He has recovered complete pain-free mobility of the hip joint and has been able to resume his normal daily activities. At present the patient is still experiencing mild back pain and is undergoing physical therapy as a result. His back pain was markedly reduced following the implantation of the hip prosthesis. This

confirms that the cartilage reduction in the hip joint caused by coxarthrosis was placing greater stress on the lumbar region.

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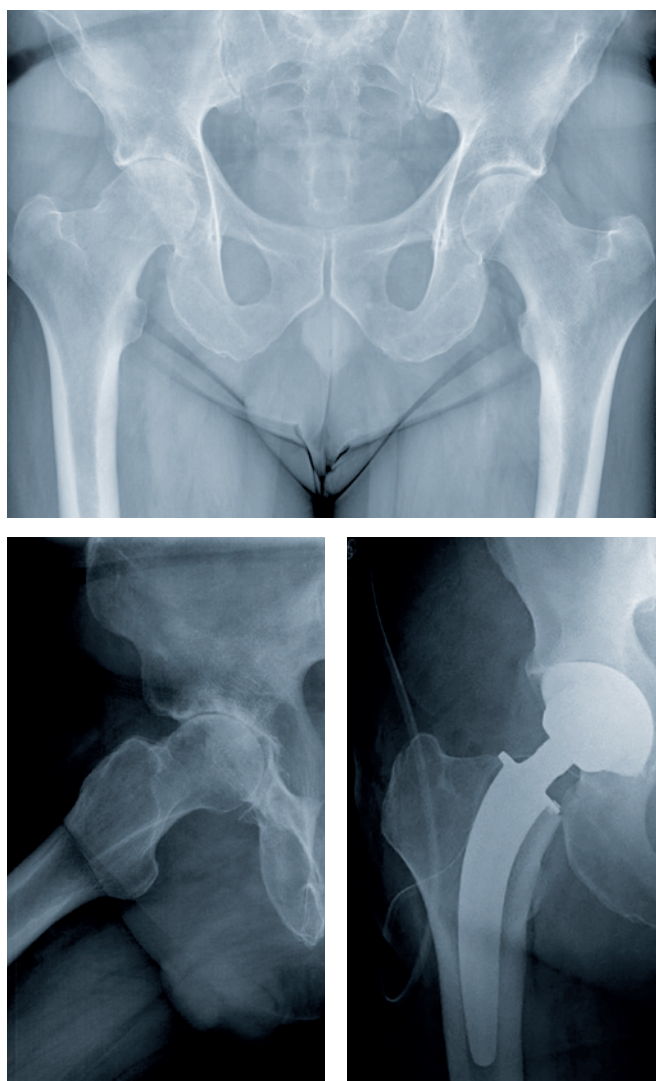


Fig. 1-3: The a–p (Fig. 1) and axial (Fig. 2) x-ray images show signs of right coxarthrosis with wear of the femoral head, osteophytes on the acetabular cup and damage to the acetabular roof. Figure 3 shows a well-positioned acetabular cup inserted up to the lamina, physiological femoral offset and good restoration of Shenton's line.

Product features



LINK® C.F.P.® hip prosthesis stem (with T.O.P.® acetabular cup)

- Minimal bone resection because femoral neck and proximal cancellous bone are preserved
- Cementless implantation with up to 87% prosthesis-to-bone contact
- Anatomical stem shape with physiological ante-version
- Different stem curvatures ensure stem is firmly supported on medial cortex
- Collar directs physiological loading back into the femur
- Blood supply to the femoral neck is maintained because the branches of the femoral circumflex artery are preserved

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Waldemar Link GmbH & Co. KG

Barkhausenweg 10 · D-22339 Hamburg, Germany

Tel.: +49 40 53 99 5-0 · Fax: +49 40 53 86 92 9
redaktiondirectLINK@linkhh.de · www.linkhh.de



LINK® T.O.P.® hip acetabular cup

- Press-fit fixation with maximal bone preservation
- Mediocaudal recess allows wider range of motion and protects the psoas tendon and femoral nerve
- Interlocking equatorial teeth give primary stability
- Tilastan® titanium alloy with HX® coating (calcium phosphate, CaP)
- Optional additional fixation with bone screws
- Secure fixation of polyethylene insert to metal casing by a »snap-lock mechanism«
- Standard polyethylene insert for normal cup angle
- Use of anti-luxation acetabular cup inserts prevents femoral head luxation where cup angle of metal casing is steep
- For X-LINKed® UHMWPE and standard polyethylene inserts
- Large range of diameters: 40 – 68 mm (15 sizes)

X-LINKed® polyethylene (UHMWPE)

Highly crosslinked polyethylene for acetabular cups and inserts

LINK's range of acetabular cups serves a wide variety of indications. LINK acetabular cups are frequently used both for young, active patients and for those who are older or undergoing revision surgery. Prosthesis heads with diameters of up to 36 mm can be used with X-LINKed® polyethylene acetabular cups to increase the range of movement and give optimal joint stability. Using X-LINKed® polyethylene greatly reduces abrasion rates and extends the life of the other implant components.