

## Hip revision case studies



Revisions today are anything but routine. As more patients have their first total hip at a younger age, it's becoming common for many to have multiple revision surgeries in their lifetime for infections, fractures, implant subsidence and wear. Each patient deserves the best possible fit and function from their implant and the surgeon expects a revision hip system that helps them achieve personalized patient treatment as quickly and effectively as possible. REDAPT<sup>®</sup> Revision Femoral is uniquely designed to address the needs of today's revision hip patient.

**One system for all revision types**

REDAPT was developed to specifically provide one system that allows the surgeon to treat mild to severe femoral revision and has been used in all Paprosky types. The Proximally Fluted stem was designed for cases where proximal defects are limited and the Modular Sleeved stem was designed for cases where metaphyseal and cortical defects are prevalent.



## Surgeons



### **Reid B. Brown, MD**

Dr. Brown is a board certified orthopedic surgeon, practicing in Louisville, KY. He completed a joint replacement fellowship at the University of Western Ontario in 2004. During his fellowship, Dr. Brown received special training in minimally invasive and computer assisted hip and knee replacements. In addition, his fellowship training focused on complicated hip and knee deformities, and revision joint replacements. He has been involved in numerous research projects related to joint replacement surgery.



### **Justin Klimisch, MD**

Dr. Klimisch is a board certified orthopedic surgeon in Corpus Christi, TX who is fellowship trained in adult reconstruction and joint replacement surgery. During his fellowship at Baylor College of Medicine in Houston, Texas, Dr. Klimisch trained in complex- primary and revision hip and knee replacement, hip resurfacing, partial knee replacements, hip and knee arthroscopy, computer-assisted surgery, and minimally-invasive hip and knee surgery. Dr. Klimisch is dedicated to improving the quality of life for patients with hip and knee disorders with goal of helping each individual attain their highest level of function.

## Case 1 – Revision of a Primary THA

Reid B. Brown, MD

### Patient information

47-year-old male with a loose cylindrical, proximally porous coated primary femoral stem. The loose stem resulted in thigh pain since his primary surgery 20 years prior. The patient had a Paprosky Type 3B femur with a 25mm wide canal, a large lateral femoral defect due to varus remodeling, and a non-supportive isthmus.

### Reasons for choosing REDAPT<sup>®</sup>

I chose to use the REDAPT Femoral Revision Stem to revise his primary THA because of the excellent distal fixation and initial reports of lack of stem migration as well as the ability to fine tune the joint kinematics.

### Implants used

I implanted a 240mm long, 25mm diameter, modular sleeved stem with a standard offset neck and a +0 OXINIUM<sup>®</sup> head.

Preop X-Rays



## Results

At the most recent follow up (52 months post), the patient had no pain, ran 40 minutes a day, walked 18 holes of golf three times a week, and stated that “it feels like a normal hip”. I was satisfied with REDAPT’s ability to address proximal and distal sizing needs, restore joint kinematics, and the simple, quick and efficient instrumentation. The small sleeve provided the extra fill needed with the large size 25mm stem and I was able to nearly completely restore a 3cm leg length discrepancy.

## Surgeon satisfaction

Overall, I was extremely satisfied with the REDAPT° system. The only option for reconstruction in this case was a modular stem. Given the severely damaged isthmus, the ROCKTITE° flutes provided a distal fixation option which I think is superior to the other modular stem options. This was one of the more extreme femoral revision cases and with the REDAPT, the patient has returned to a full active lifestyle without pain or limitation. I cannot think of another revision stem which would have come close to replicating the success of the REDAPT stem in this case. Despite extremely thin cortices and a non-supportive isthmus, the REDAPT stem achieved the delicate balance of no subsidence and no thigh pain.

Postop X-Rays (four year follow-up)



## Case 2 – Revision of a Primary THA

Justin Klimisch, MD

### Patient information

51-year-old female with a history of MVC in 1985 and ORIF of acetabular fracture. The patient developed AVN of the hip and had a right total hip arthroplasty in 1995. She complained of a two year history of worsening pain and decreased motion. She was using a wheelchair for longer distances and only weight-bearing for transfers. The patient's workup for infection was negative and her X-Rays were consistent with loosening of the acetabular components. The patient had severe acetabular bone loss treated with impaction grafting and a CONTOUR<sup>o</sup> Cage. This patient had a Paprosky Type 2 femur.

### Reasons for choosing REDAPT<sup>o</sup>

I chose to use the REDAPT Revision Femoral System to revise the patient's primary THA because of the excellent distal fixation, ability to address all revision types, and the ability to fine tune the joint kinematics.

### Implants used

An extended trochanteric osteotomy was performed to remove the stem in order to facilitate acetabular preparation. Once completed with the CONTOUR Cage and cementing the liner, the Paprosky Type 2 femur was prepared for the stem. I implanted a 240mm long, 17mm diameter, proximally fluted stem with a standard offset neck and a -3 OXINIUM<sup>o</sup> head. Once completed, the ETO was cabled over the implant with the ACCORD<sup>o</sup> Cables.

Preop X-Rays



## Results

At the most recent follow up (three months post), the patient was continuing to show improvement. She was walking with a cane and had no pain with ROM of the hip.

## Surgeon satisfaction

Overall, I was extremely satisfied with REDAPT<sup>®</sup> in this case. The stem was incredibly stable and allowed rapid preparation of the femur after a prolonged acetabular preparation. The neck modularity allowed confidence that I would be able to leave with a stable hip since repositioning of the acetabulum was not possible.

Postop X-Rays



## Case 3 – REDAPT<sup>®</sup> as a Primary for DDH

Justin Klimisch, MD

### Patient information

This patient was a 47-year-old male with Legg-Calve-Perthes disease and chronic bilateral hip pain. His symptoms had worsened slightly over the last year. The patient had a dysplastic hip with an anticipated low neck cut and concerns for how much length could be acquired at the time of surgery. He had pre-op motion of 85° of flexion, 20° of flexion contracture, -15° of internal rotation, 25° of external rotation, 5° of abduction, 5° of adduction, and 4/5 strength at hip abductors/adductors/flexors. This patient had a Paprosky Type 1 femur.

### Reasons for choosing REDAPT

I chose the REDAPT Revision Femoral System for this case because of the excellent distal fixation and the ability to fine tune the joint kinematics.

### Implants used

I implanted a 240mm long, 15mm diameter, proximally fluted stem with a standard offset neck, +0 OXINIUM<sup>®</sup> head, and the R3<sup>°</sup> Acetabular System.

Preop X-Rays



## Results

At the most recent follow up (three months post), the patient had 90° of flexion, full extension, neutral internal rotation, 25° of external rotation, 20° abduction, and 5° adduction with 5/5 strength in his hip abductors/adductors/flexors. He did not have any pain and felt much stronger than he did pre-operatively. He was planning on having his left hip done within a year.

## Surgeon satisfaction

The REDAPT<sup>®</sup> system allowed for more flexibility in accounting for changing leg length, offset and version. This case was a difficult exposure due to his poor preop motion. The uncertainty of knowing whether appropriate leg length could be attained was addressed with the unlimited potential of dialing in the correct hip position. I was extremely satisfied overall with the implants, instrumentation, the ability to address proximal/distal sizing needs and the ability to restore correct joint kinematics.

Postop X-Rays



## Case 4 – Revision of a Long Cemented Revision Stem

Reid B. Brown, MD

### Patient information

89-year-old female with a loose long cemented revision stem. The longstanding nature of the loose cemented revision stem had resulted in near complete destruction of the femoral canal, which led to a non-supportive diaphysis and metaphysis in the setting of severe generalized osteoporosis. This patient had a Paprosky Type 3B femur.

### Reasons for choosing REDAPT<sup>®</sup>

I chose to use the REDAPT Revision Femoral System because of the system's excellent distal fixation, ability to address all revision types and fine tune the joint kinematics, and the simple instrument design and procedural flow.

### Implants used

Due to the severely compromised bone, I placed a strut femoral allograft which was cabled to the femur prior to reaming, trialing, and implantation. I then implanted a 240mm long, 23mm diameter, modular sleeved stem with a standard offset neck and a -3 OXINIUM<sup>®</sup> head.

Preop X-Rays



## Results

At the most recent follow up (two years post), the patient was ambulating independently without an assistive device. She was 91 years old at the time with no thigh pain. REDAPT<sup>®</sup> allowed me to deal with her extreme osteoporosis and a completely non-supportive diaphysis and metaphysis. I was satisfied with the REDAPT instrumentation because of the reproducibility the instrumentation provided. The reproducibility helped to deal with the extreme bone loss and place the stem in an exact position. The use of a size 23mm stem normally concerns me in the setting of extreme distal bone loss, but the aggressive flutes locked into the bone beautifully and satisfactorily addressed the distal sizing needs. I was able to reproducibly reconstruct the leg length and offset to obtain a stable multiply revised hip.

## Surgeon satisfaction

Overall, I was extremely satisfied with the REDAPT system in this case. I think that this surgery performed with either a monoblock or a bibody modular stem would have had a much higher risk of fracture and subsidence. The combination of aggressive cutting flutes and the 3° taper worked to perfection in this case. The patient was told by her previous surgeon that there were no other viable options to fix her failed revision hip and that she should try to live with her problem. The REDAPT allowed her to continue to live her life and ambulate without pain.

Postop X-Rays (two year follow-up)



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