



# Hip Resurfacing After Screws for Femoral Neck Fracture - A Bold Decision with 8 Years of Follow-Up



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Submission: June 26, 2017; Published: July 05, 2017

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## Abstract

**Introduction:** Hip resurfacing (HR) is a well-known alternative for hip arthroplasty for end-stage hip osteoarthritis (OA) in younger patients. Although there's still some controversy in the use of metal-on-metal implants, HR is a viable option in terms of range of motion (ROM) and overall survivorship, although technically more demanding. Indications are becoming more restricted to young active male with big femoral heads. We present a single case report of a hip resurfacing prosthesis implanted after a femoral neck fracture treated previously, which could be considered a borderline indication. A 64 years old male, who had been operated with 3 cannulated screws for a femoral neck fracture due to a traumatic fall, started developing ipsilateral OA. The Hip Unit at our Institution decided to implant a HR (Wright - Conserve Plus ®).

**Methods:** We present a single case report of a HR prosthesis implanted after a femoral neck fracture treated previously, with 95 month of follow-up. We reviewed the radiographs and clinical records done in that time period. There was a presentational interview with the patient and registered its physical exam. We did new radiographs and answered to the UCLA, Harris Hip Score and Oxford Hip Score. We analysed the positioning of the prosthesis by an AP X-ray and measured the cervico-diaphyseal angle and acetabular position as well and registered sign and symptoms of aseptic loosening, like inflammatory osteolysis and periarticular bone loss.

**Results:** In the clinical records, there is reference to the patient's satisfaction with the implant and progressive increasing of ROM. About the physical exam, the ROM was 100° flexion, 10° extension, 40° abduction and adduction 20°, without any pain. Radiographically, there was no subsidence of the implant in this period of time. The cervico-diaphyseal angle was 43° and the acetabular index was 37° and it maintained the same. The patient responded the questionnaires with a UCLA score of 9, HHS 37 and OHS 97. There are no signs of aseptic loosening.

**Discussion:** HR shows again it is a good option for painful young hips in active patients. Although this can be considered a borderline indication for a HR implantation, the clinical and radiographical results are good/excellent. We consider that even in these cases, hip resurfacing showed its place at our Institution arsenal. The results show us that HR must be considered as an option.

**Keywords:** Resurfacing; Arthroplasty; Femoral neck fracture; Young adult

## Introduction

Hip osteoarthritis (OA) is a well-known condition that can appear at any age Oliveria SA [1]. It consists of a degenerative process where continued cartilage breakdown results from mechanical overload, causing secondary bony and synovial changes and characteristic clinical and radiographic findings [2,3]. Evidence is accumulating that primary hip OA is actually secondary to a subtle mechanical problems like mild dysplasia [4,5] or femoroacetabular impingement (FAI) [6-8]. Osteoarthritis can be managed with conservative measures, like physical therapy and pain relief but most of the times it will advance to a more degenerative hip, leading to progressive loss of range of motion (ROM) and pain, along with decreasing levels of quality of life [9]. This can be quite important when we are talking about young patients that reject any type of joint pain,

seek early advice and want solutions that allow them to maintain the previous level of activity. When a surgical option is required, it is of the utmost importance the type of prosthesis offered to the patient, especially in the young population [10]. The current options vary from a standard stem hip prosthesis, a short stem with big femoral heads or a HR [11].

## Choosing HR in a special case

The best reported results for HR are young males (< 60 years old), active patients with good bone stock and a diagnosis of osteoarthritis [12]. Since the 1990s, metal-on-metal (MoM) HRA has achieved excellent outcomes when used in the appropriate patient population. Concerns regarding the metal-on-metal bearing surface including allergy and adverse local tissue reaction (ALTR) to metal debris have recently lead to a decline

in the use of this construct. There is some controversy and no final evidence has been produced. Some authors state a direct relationship between large femoral metal-on-metal heads and increased tissue reaction, pseudotumor formation, metal patch test-reactivity and atopic dermatitis [13,14]. However, at the same time, other authors found no real association between these factors [15,16].

Indications for hip resurfacing are more restricted nowadays, due to the proof of time that transformed initial indications into contra-indications now [17]. The advantages are obvious: bone stock preservation, easy return to impact sport, low dislocation rate with increased ROM and easier revision surgery, if needed [18-20]. However, this comes with disadvantages of early implant failure with specific designs, femoral neck fracture, adverse local tissue reaction (ALTR) to metal debris and systemic increase in metal ions the need for an extended surgical exposure, and increased technical demands for implantation [21].

## Methods

We present a single case report of a 68 years old patient with a HR prosthesis implanted after a femoral neck fracture treated previously, with 95 month of follow-up. We reviewed the radiographs and clinical records done in that time period. There was a presential interview with the patient and registered its physical exam. We did new radiographs and answered to the UCLA, Harris Hip Score and Oxford Hip Score. We analysed the positioning of the prosthesis by an AP X-ray and measured the cervico-diaphyseal angle and acetabular position as well and registered sign and symptoms of aseptic loosening, like inflammatory osteolysis and periarticular bone loss.

## Results



**Figure 1:** Femoral neck Osteosynthesis with 3 cannulated screws.

This patient was a highly active 60 years old male that had a traumatic femoral neck fracture. The option was three cannulated parallel screws and the fracture healed at 6 weeks, without any residual pain (Figure 1). There is no register to cartilage damage during this surgery. However, the patient

started developing a symptomatic osteoarthritis. Later on, two years after this surgery, osteoarthritis developed and surgery was the option. The patient had all the indications for a hip resurfacing, except the former neck fracture. This would theoretically increase the risk for post-operative femoral neck fracture and revision arthroplasty. After discussing the options, as well as its advantages and disadvantages, the patient accepted and was operated. The surgeon is a Conserve Plus® prosthesis user (Wright Medical) and it was implanted by a modified antero-lateral Hardinge approach (Figure 2).



**Figure 2:** 8 years follow up resurfacing.

In the clinical records, there is reference to the patient's satisfaction with the implant and progressive increasing of ROM. About the physical exam, the ROM was 100° flexion, 10° extension, 40° abduction and adduction 20°, without any pain. Radiographically, there was no subsidence of the implant in this period of time. The cervico-diaphyseal angle was 43° and the acetabular index was 37° and it maintained the same. The patient responded the questionnaires with a UCLA score of 9, HHS 37 and OHS 97. There are no signs of aseptic loosening.

## Discussion

Although this can be considered a borderline indication for a HR implantation, the clinical and radiographical outcomes show us excellent results at 8 years follow-up. We consider that even in these cases with potential failure, choice must be done according to the surgeon's own experience, as the rate of complication are higher in badly positioned implants. Close clinical follow-up and patient surveillance is necessary to quickly identify and address implant failures. For this reasons, hip resurfacing showed its place at our Institution arsenal. The results show us that this must be considered as an option.

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DOI: [10.19080/OAJS.2017.04.555648](https://doi.org/10.19080/OAJS.2017.04.555648)

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