

## Introduction of the SPAIRE Technique for Hip Replacement

### Introduction

We have developed a technique appropriate for all routine primary hip replacement cases which Saves Piriformis And (Obturator) Internus with Repair of (Obturator) Externus (SPAIRE technique).

An approach is developed in the interval between the inferior gemellus and Quadratus Femoris such that Obturator Externus is the only tendon divided and this is ultimately repaired along with the posterior capsule. In practical terms, leaving most of the Quadriceps Coxa (QC) intact confers benefit in judging leg length and offset. A bone hook is invariably necessary to dislocate the joint after trial reduction as the intact Obturator Internus passes behind the head at, or below, the center of rotation of the hip and acts as a strap holding the joint reduced.

Although a THR could be carried out through the described interval with conventional instruments, the operation is more straightforward if dedicated instruments are used to facilitate key steps in the technique (5). In collaboration with Platts and Nisbett of Sheffield, SPAIRE instruments have now been designed to allow good socket exposure and femoral preparation without damage to the QC.

### Background

Dr. Yoshiaki Ito et al. (1) studied the trochanteric attachment of the short external rotators in detail and demonstrated that Obturator Internus is usually inserted in a more caudal, anterior and medial position than Piriformis. Dr. Vaarbakken (2) et al. noted that the “short external rotators” act together as a “quadriceps coxa” which functions as a primary **abductor and extensor** of the hip from flexed positions and is therefore of importance in rising from the seated position and propulsive motions. It became apparent that hip arthroplasty could be performed leaving all tendons except Obturator Externus intact.

Several surgeons in South Korea have been carrying out surgery through the same interval. In 2008 Dr Kim published a paper entitled “Modified Posterior Approach to Total Hip Arthroplasty to Enhance Joint Stability (3)”. He described a study comparing the dislocation rates in 3 series: routine posterior, posterior plus repair and external rotator preservation. The diagnosis was AVN in 83% of the preservation group and most patients had a low BMI. He considered that the procedure “may have limited application in patients with primary osteoarthritis, osteonecrosis of the femoral head, or rheumatoid arthritis”. Dr Han (4) has published the results of hemiarthroplasty in a series of patients with neurological disorder. In unpublished work, Dr Song reviewed his dislocation rate in a large number of patients having their hips replaced preserving the external rotators (personal communication with Mr G.A. Gie, June 2016). The technique we describe can be used for all routine hip replacements and for hemiarthroplasty procedures.

## Conclusion

Most centres restrict some activities of the patient for the first six weeks and most patients routinely undergo assessment by the occupational therapy department for toilet raises, seat raises and other aids. Whilst it will take time to scientifically prove benefits of the SPAIRE tendon-sparing technique it might obviate the need for most aids, any post-operative restrictions, confer a reduced dislocation rate and patients could benefit from improved function. Randomised prospective studies are on-going to prove these advantages.

Any profit from the sale of these instruments is donated to an Orthopaedic Research Charity.

## References:

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