

Core Decompression in Avascular Necrosis

By Jason Le Cocq, M.D.

Introduction

Avascular necrosis (AVN) of the femoral head is a disease commonly associated with corticosteroid use, alcohol abuse, trauma and sickle cell disease. In the United States, between 10,000 and 20,000 people are affected by this pathology annually, aged mostly in their late 30s to early 40s (Figure 1).¹ Likewise, although no definitive figures have been collected globally, extrapolation calculations estimate incidence within the European region of nearly 20,000 patients, 40,000 patients in India and nearly 5,000 patients in Japan.² The young to middle-aged patient population necessitates a joint saving procedure that prevents or postpones an undesirable total joint arthroplasty.³⁻⁵ This is especially critical for patients with sickle cell disease, as 90% of those with AVN experience femoral head collapse within two years of diagnosis and also tend to have higher failure rates and more complications with arthroplasty.⁶



Figure 1 (Image reprinted with permission, Dove Medical Press LTD.)

Treatment

Increased awareness has led to a two-fold increase in the number of AVN-related surgical procedures from 1992 thru 2008 as well as a better understanding of post-treatment prognoses.⁷ For example, several studies, including a recently released large, retrospective analysis, displayed a direct correlation between later diagnosis and treatment relating to the eventual progression to collapse of the joint.⁷⁻¹² These results underscore the importance in early diagnosis and treatment of AVN. Likewise, an increased size of the femoral head lesion (>30%) radiographically, increases the risk of disease progression and complicates joint-preserving treatments.^{11,13-15}



Figure 2

Accordingly, treatment options for AVN have evolved over time. Core decompression (CD) has for several decades been a standard of care in attempting to reduce the pain and pressure caused by an osteonecrotic lesion.¹⁶ CD is a surgical procedure whereby an instrument is inserted, often under radiographic guidance, through the trabecular bone and into a given necrotic space (Figure 2). According to the American Association of Hip and Knee Surgeons (AAHKS), CD is the most common treatment chosen for an osteonecrotic femoral head in a pre-collapse stage.¹⁷ In numerous clinical trials, when used for smaller lesions, CD results have shown promise.^{9,18-24}

Conclusion

CD is a widely practiced, standard joint preserving treatment option in patients with early stage osteonecrosis.^{16,25} While numerous studies^{12,14,16,20,22,23} recommend several weeks of post-operative non-weight bearing, Martin, *et al*, demonstrated an immediate return to weight bearing as tolerated with crutches, post-operatively.²⁶ Use of a small-diameter instrument allows for reduced weakening and injury to the existing structure.⁹ Numerous etiologies have a predisposition for AVN including steroids, alcoholism and sickle cell disease. Lastly, CD greatly increases the potential for cost-effectiveness if it delays THA for 5 or more years.²⁵

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