

# pēds

A PHYSICIAN PUBLICATION FROM CHILDREN'S HEALTHCARE OF ATLANTA | WINTER 2011

## Mending a broken Heart

**New Procedure Spares  
Patient From Another  
Open Heart Surgery**



### **BRIDGING THE GAP**

*Pediatric to Adult Care*

---

### **MYTHS VS. FACTS**

*Medical Misnomers Revealed*



By Tim Schrader, M.D.



# Helping Bones to Regrow

**Novel procedure may help regrow femoral head in Perthes patients**

Legg-Calvé-Perthes disease—often known as LCPD or Perthes—is an avascular necrosis in the femoral head of a child. In the natural history of the disease, ischemia of the capital femoral epiphysis causes the head to soften and sometimes collapse. This is followed by resorption of the dead bone and reossification of the femoral head. This head may be deformed, leading to stiffness, pain, osteoarthritis and hip replacement at an early age.

There has been much debate over the optimal treatment for Perthes. Our department has been employing a course of treatment that combines core decompression, commonly used in treating adults with similar conditions, with bone marrow aspirate concentrate (BMAC). This novel technique has shown an impressive ability to speed the healing process among patients in the disease's early stages.

Treatment is rarely required for children younger than age 6 or in cases in which less than half of the femoral head is involved. In those cases, the damage is minimal or is repaired during natural bone growth. For older children, or in more severe cases, treatment generally involves containing the femoral head within the acetabulum (which is unaffected by the ischemia) so it is molded to the correct shape on regrowth. Options include abduction bracing, adductor tenotomy and femoral or pelvic osteotomy.

Avascular necrosis also occurs in adults for a variety of reasons, including alcoholism and steroid use. Core decompression has been a longstanding treatment for avascular necrosis in adults, and it is gaining in popularity as a treatment for Perthes as well. In this method, pioneered by Nuno Lopes, M.D., of Portugal, a hole is drilled across the growth plate and into the necrotic bone to vent pressure and form a path to enable growth of new blood vessels.

At Children's, we have had success using core decompression in conjunction with BMAC. In this procedure, bone marrow is aspirated from the iliac crest and placed into a centrifuge, which separates out the buffy coat. The concentrated marrow is then injected into the femoral head using a process developed by Harvest Technologies in Massachusetts, which concentrates the key cells in just 15 minutes. It is hoped that the white cells will differentiate and assist in reossification and revascularization.

The procedure is minimally invasive and can be done on an outpatient basis, and the preliminary results are encouraging. One of our patients, 9-year-old Harrison Gracey, had the procedure done in early June. After six weeks in a double-leg cast, he is undergoing physical therapy and wearing the abduction brace, developed at Children's. By mid-August, an X-ray suggested that the fracture of his femoral head had all but disappeared. Harrison should only require the brace for four months, compared to the one- to two-year time frame typically required for patients who do not have the procedure.

To our knowledge, only a handful of practitioners in the U.S. perform the combination of core decompression and bone marrow injection in Perthes patients. We are currently developing protocols for a multicenter study of this promising procedure. 📍

**Tim Schrader, M.D.**, is Medical Director of the Hip Program at Children's Healthcare of Atlanta.