Legg-Calvé-Perthes Disease: Where Do We Stand After 100 Years?

Editorial Comment

**Harish S. Hosalkar MD,
Kishore Mulpuri MBBS, MS(Ortho), MHSc(Epi)**

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Despite having known of the condition for over 100 years, Legg-Calvé-Perthes (LCP) disease remains a challenging hip condition to treat. Its etiology remains unclear and treatment continues to be controversial.

To minimize the risk of premature hip arthritis, the immediate goals of treatment include maintaining hip motion and articulating surface sphericity by containing the femoral head within the acetabulum during its biologically plastic phase and thereby providing the best chance for joint remodeling. However, the best ways to achieve these goals remain elusive. While there appears to be increasing interest in timing of the surgical treatment and outcomes, there is a need for a deformity index that can be measured on a linear scale as opposed to categorical outcomes (such as those of Mose [5] and Stulberg et al. [6]) and a need for functional outcome measures that will reflect long-term durability. These will help in well-powered comparative studies to compare outcomes from different treatments/interventions. Several biologic treatments are being explored.

Long-term studies have provided the current view that most patients with LCP disease will do well until the fifth or sixth decade of life before experiencing a decline in their hip function, with many eventually requiring THA [2, 4, 6].

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H. S. Hosalkar (✉)
Department of Orthopedic Surgery, Rady Children's Hospital,
University of California–San Diego, 3030 Children's Way,
Suite 410, San Diego, CA 92123, USA
e-mail: HHOSALKAR@rchsd.org

K. Mulpuri
Department of Orthopaedic Surgery, British Columbia
Children's Hospital, Vancouver, BC, Canada

Fig. 1 Harish S. Hosalkar, MD, is shown.

Larson et al. [3] in a recent prospective multicenter study of LCP disease looked at functional and radiographic outcomes of nonoperative treatment at a mean followup of 20.4 years (range, 16.3–24.5 years) after enrollment. Thirty of the 58 hips studied had no osteoarthritis or mild (Tönnis Grade 1) osteoarthritis whereas 24 had moderate to severe osteoarthritis (Tönnis Grade 2 or 3). Of the remaining four, three patients had required hip arthroplasty and one patient had required a pelvic osteotomy. This study suggests only about 50% of patients had good to excellent clinical outcomes (based on Nonarthritic Hip Scores and the Iowa Hip Scores) and radiographic outcomes ($\leq$ Tönnis Grade 1) at 22 to 35 years of age, a period in life when one expects high-level musculoskeletal function [3].

In the current era of improved understanding of the concept of femoroacetabular impingement, we have more

Fig. 2 Kishore Mulpuri, MBBS, MS(Ortho), MHSc(Epi), is shown.

rigorous standards of examining the hip motion, function, and radiographic involvement [1]. Also, the expectations of patients in a modern urban, athletically driven culture are far greater for high-level musculoskeletal function compared with the expectations of patients from a prior, more rural era [7]. Modern expectations for high-level hip function into midadulthood, even in patients who have had substantial childhood hip disease, will continue as individuals place greater work and recreational demands on their hips. This has likely led to an increase in surgical procedures to correct the hip morphology, rectify the impingement, and hopefully provide an environment to delay the progression of arthritis while providing a better function and quality of life in the interim.

The current symposium has an excellent potpourri of scientific articles covering various topics, including risk factors, natural evolution, classification systems, bisphosphonate treatment, and surgical interventions, such as femoral osteotomies, innominate osteotomies, and shelf and triple pelvic osteotomies. Several papers included in the symposium outline how reduced ROM of the hip in LCP disease relates to extra- and intraarticular impingement and the role of surgical dislocation of the hip and joint-preserving procedures in the current era.

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