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CORR Insights®: What Are the Results Using the Modified Trapdoor Procedure to Treat Chondroblastoma of the Femoral Head?

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Where Are We Now?

Chondroblastoma is a rare benign but aggressive bone lesion. It generally is treated with curettage of the lesion and reconstruction. Primary considerations in the management of these lesions include adjunctive local treatments and choosing the right surgical approach for lesions in difficult locations such as the femoral head; as we think about research on the problem, assessing functional outcomes also is important. The risk of local recurrence has been

reported between 10% to 40% [6]. Use of adjuvant treatment with cryotherapy [3] or phenol [9] has been associated with a less than 10% risk of local recurrence [3, 9], while others have reported a low-risk of local recurrence (13%) with extended curettage alone [7]. Radiofrequency ablation has been proposed as a less invasive treatment with reported local recurrence in one of 17 patients [5] and zero out of 12 patients [2]. Surgical approach options for femoral head lesions include drilling along the femoral neck, hip joint arthrotomy with a trapdoor of the

femoral neck or articular surface, and surgical hip dislocation as described by Ganz et al. [1]. Treatment via drilling along the femoral neck has been associated with an increased risk of local recurrence compared to a direct approach through the femoral neck or femoral head [4, 6, 9]. Xu et al. [9] reported no local recurrences among 14 patients treated with a modified trapdoor procedure of the articular surface. The functional outcome following treatment has been primarily reported on a descriptive basis without use of functional outcome measures. Xu et al. [9] also reported high functional results with the Musculoskeletal Tumor Society score, although this is not a patient-reported outcome measure.

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Where Do We Need To Go?

We need to focus our efforts on identifying the best approaches to local treatment, the most effective (and least morbid) surgical approaches, and the best steps to guiding and measuring patients' functional outcomes. The use of adjuvant treatment at the time of curettage remains

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controversial. Though studies [3, 6, 7, 9] report low prevalence of local recurrence with use of adjuvant treatments, such as cryotherapy or phenol, it is not proven that it is the adjuvant rather than the extent of curettage that impacted the risk of local recurrence. A similar controversy existed regarding the management of giant cell tumor of bone. A multicenter retrospective study [8] demonstrated that the use of adjuvant treatments did not impact the risk of local recurrence. We need to clarify the role of adjuvant treatments in the management of chondroblastoma, as the risks associated with use of such agents must be weighed against the benefits. Likewise, it will be important to compare less-invasive treatments involving radiofrequency ablation against surgical intervention. Surgical approach to femoral head lesions is often determined by the location of the lesion. However, researchers need to determine the preferred approach between an arthrotomy with trapdoor procedure [6, 9] and surgical dislocation [4]. We need to evaluate functional outcome and health-related quality of life using patient-reported outcome measures in order to evaluate outcomes and quality-of-life endpoints from the patient's perspective.

How Do We Get There?

Small sample sizes limit studies in musculoskeletal oncology populations,

as in many orthopaedic populations. Given the rarity of these tumors, large prospective observational studies or randomized controlled trials are not likely to be feasible. As with the multicenter study of local treatment of giant cell tumor of bone [8], collaboration among institutions will be essential in order to determine the role, if any, of adjuvant treatments as well as radiofrequency ablation. Similarly, the preferred surgical approach for lesions in the femoral head is unlikely to be determined in the setting of a single-center comparative study. Determination of functional outcome and quality of life is best ascertained through patient reported outcome measures, of which there are function specific measures, such as the Toronto Extremity Salvage Score, generic measures of health, such as the Short-Form 36, or health state utility measures. We will only be able to answer the big questions about chondroblastoma of the femoral head – like so many other areas of musculoskeletal oncology – through multicenter collaborations that employ validated, patient-centered outcomes tools.

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