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CORR Insights®: Complete Circumferential Osseous Extension in the Acetabular Rim Occurs Regardless of Acetabular Coverage

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Where Are We Now?

Acetabular labral ossification, a condition resulting from labral damage, is not generally well-known among orthopaedic surgeons. From what I found, Nino-miya and colleagues [4] first described

a patient with enchondral ossification of the labrum in 2000. More than a decade later, Corten and colleagues [2] postulated in a case series that this rim ossification was bone apposition in the presence of preexisting pincer impingement in which ossification began in the subperiosteal region, subsequently either displacing or encasing the labrum. Recently, my colleagues and I reported on the demographics and outcomes of patients with femoroacetabular impingement (FAI) associated with labral ossification compared to FAI cases in which no ossification was present [1].

Patients with labral ossification generally are older and tend to be female with slightly inferior outcome scores compared to patients with FAI in absence of ossification. We postulated that this was due to enchondral ossification as documented by a sam-

ple of histologic evaluations. Additionally, we believed that the subset of pincer FAI with labral ossification probably still represented a heterogeneous population with subgroups of differing causes [1]. In a separate study, Ferguson and colleagues (which included myself) [3], identified an association between labral ossification and sacroiliac (SI) disease. Since SI disease is sometimes associated with autoimmune disorders, perhaps there is a link between labral ossification and an autoimmune etiology. Overall, there is a distinct deficit in the understanding of the etiology of labral ossification.

Although the research is limited, understanding labral ossification is important because, as the authors of the current study show, the frequency of the condition is probably much greater than is commonly thought. In addition, the etiology is poorly understood, and the disorder may have negative implications on current treatment strategies.

In the current study, Watari and colleagues examine the prevalence of circumferential osseous extension of

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the acetabular rim and indirectly provide some etiological evidence. Osseous extension occurred in only 6% of hips, and the frequency was not different among patients with dysplasia, normal hips, or acetabular overcoverage. However, osseous extension was present bilaterally among 89% of the patients who had it. Equal prevalence, regardless of coverage, suggests that variations of acetabular coverage are not an etiological factor; but the high presence of bilaterality suggests that some other physiological or metabolic process may be at work.

Where Do We Need To Go?

There is just now a growing awareness of the presence of labral ossification as a unique entity within the broad category of FAI. Watarai and colleagues show a 6% prevalence of osseous extension, but their study only examines complete circumferential ossification. Less-complete ossification may be equally problematic and probably is more common. Based on their observations, the problem certainly cannot be blamed solely on overcoverage or even dysplasia, as the prevalence was equally distributed among those two groups, as well as those with normal coverage. Therefore, much-greater investigation is

needed to learn more about this condition's etiology. As noted in our work [1], patients with labral ossification probably represent a heterogeneous population with various subgroups. For example, the cause in a 22-year-old male may be completely different than that observed in a 50-year-old female.

Understanding the etiology will be important in determining ideal treatment strategies. For patients who are symptomatic with complete ossification, is excision of the ossified portion sufficient, or should it be replaced with a graft? Often among patients with symptoms, the ossification is partial with some remaining labral tissue. How should these be managed? Does débridement suffice, or should a combination of bony excision and repair be utilized; or perhaps complete excision and replacement with a labral graft? In my practice, I generally avoid grafting as a primary procedure. If a native labrum ossifies, it would seem likely that grafted tissue would suffer the same fate.

How Do We Get There?

With an increasing awareness and sensitivity to the existence of labral ossification, it is likely that the problem is bigger than has previously been perceived. However, we still need to better understand the magnitude of the

disorder. While we lack robust studies, at least the studies we do have generate a sense of awareness among surgeons and clinician scientists. And as researchers start to investigate the origin of labral ossification more thoroughly, a greater understanding of the etiology, or more likely, various etiologies, can be gained. Understanding these etiologies will be essential in customizing the treatment strategy for various subgroups. Given the paucity of literature on this subject, even Level IV case series and simple Level III comparative studies can contribute substantially to this information base. Of course, a randomized, controlled study examining simple excision versus labral reconstruction would be ideal.

Among many patients with substantial labral ossification, repair may not be an option. Either the labrum is completely ossified, or the remaining tissue is sufficiently marginal substance to question efforts at restoration. Therefore, the only practical alternative to excision may be labral grafting. With the uncertain etiology of ossification within the native tissue, this does create greater concern for whether the grafted tissue may ossify as well. Nonetheless, alternatively just accepting that débridement is the procedure of choice is not ideal, and so a Level I study to look at both seems important. Thus, clinical equipoise, necessary to perform this type of randomized study, does

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seem to exist with two treatment strategies, each perhaps leaving something to be desired.

In general, it is well accepted that the concept of FAI is too simple, and our understanding of the disorder is incomplete. Labral ossification is a particularly enigmatic presentation of an incompletely understood group of conditions, and it calls for further investigation.

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