

Preventing Overdiagnosis of Acetabular Labral “Tears” in 40-Plus-year-old Patients: Shouldn’t these be called Labral “Fissures” Instead?

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Abbreviation

ALT
Acetabular labral tear

Acetabular labral tears represent a common finding on magnetic resonance imaging of the hip. Labral tears can arise from a multitude of underlying pathological processes or they may be an asymptomatic incidental finding. The prevalence of labral tears and their lack of specificity make this an area vulnerable to potential overdiagnosis. The overdiagnosis of labral tears leads to overtreatment by exposing patients to unnecessary surgeries as well as complications ranging from unsatisfying outcomes to deep venous thrombosis. This risk is compounded by the tabloid popularization of labral surgeries by celebrities such as Lady Gaga, which could potentiate patient perception of a two-tiered level of health care. Following a similar situation with spine nomenclature, one solution to this issue is to reclassify “labral tears” as “labral fissures” in some or all cases to mitigate the acute traumatic connotation of the term “tear.”

Key Words: Overdiagnosis; labral tear; MRI Hip.

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INTRODUCTION

“First do no harm” represents the cardinal rule indoctrinated into medical trainees on their first day of training. Classically, this means working toward the prevention and treatment of disease, as well as mitigating suffering from disease. However, the combination of available modern imaging and myriad treatment options leads to an epistemological problem of the old adage—preventing the unnecessary diagnosis and treatment of entities which would otherwise be harmless to the patient, namely, “overdiagnosis.”

Disease is defined as a pathologic condition of a body or organ part. Since the age of Hippocrates, physicians have been utilizing tools ranging from enemas to stethoscopes to ascertain who has disease and how to treat it. Although the dictionary definition of disease is straightforward, the practical definition is far more nebulous. Between normal and

abject abnormal lies a spectrum of gradation. Patients labeled as having a disease when the process would not result in a malady become Victims Of Modern Imaging Technology (VOMIT) and overdiagnosis. On the surface, this may seem like a trivial issue; however, the ripple effect can be far reaching. On an individual level, this can mean morbidity and mortality from unnecessary surgeries, whereas on a public health scale, this can balloon health care costs and propagate antibiotic resistance. In an attempt to diminish overdiagnosis and better characterize pathologic entities, scientists use a variety of statistical tests such as sensitivity and specificity, as well as positive and negative predictive value, to determine where on the normality curve a patient falls. When a patient meets the diagnostic threshold for disease, they have a “disease.” Once a patient is given a diagnosis, they often fall into some form of classification system. Examples within radiology include grading hip dysplasia or staging cancer. These classification systems are designed to meaningfully stratify patients to optimize an approach to management.

Acetabular labral tears (ALTs) were first recognized as a pathologic entity in 1957, when a bucket handle labral tear was discovered after an attempted reduction of a posterior hip dislocation (1,2). Twenty years later, the first degenerative ALT was reported (2,3). ALT can be associated with a variety of hip pathologies. In a young athlete, ALTs are associated with

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anterior hip and groin pain due to repeated flexion (4). Also affecting young individuals are a gamut of morphologic abnormalities affecting the articulation between the femur and the acetabulum, which comprise the spectrum of femoroacetabular impingement (5). Femoroacetabular impingement has been highly associated with ALTs (2,6,7). ALTs have also been associated with developmental dysplasia, osteonecrosis, and osteoarthritis (2,4).

With the ever-increasing availability of magnetic resonance imaging (MRI), the diagnosis of labral tears has markedly increased. Among patients with hip pain, the prevalence of an ALT ranges from 22% to 55% (2). However, given the multifactorial etiology, this may or may not be the cause of the patient's pain, a supposition supported by a study by Lee et al. demonstrating that in asymptomatic volunteers with a mean age of 26.7, 38.6% had labral tears. An additional study by Register et al. showed that asymptomatic volunteers with a mean age of 37.8 had a 69% prevalence of labral tears (8,9). Although the advantages of surgical treatment include pain relief and the prevention of premature arthritis, complication rates range from 1.4% to 25% and include significant and life-threatening risks such as deep venous thrombosis (2). More tellingly, literature reports of surgical success rates and patient satisfaction vary considerably with values ranging from approximately 46% to 90% (2). The high prevalence of tears, as well as their multifactorial etiology, may at least contribute to the wide range of surgical outcomes.

THE DILEMMA OF ACETABULAR LABRAL TEARS

Given the wide array of pathologies associated with ALTs, the lack of specificity creates a diagnostic and clinical dilemma. If a clinician suspects an ALT, orders an MRI confirming an ALT, the question then becomes what is the significance of this finding? In a young athlete, the tear could be a cause of pain. Similarly, in a young adult with features of femoroacetabular acetabular impingement in addition to the tear, the finding could be both a source of pain and a harbinger of accelerated joint degeneration warranting fixation. However, what is the significance of an ALT in a patient with an extra-articular cause of hip pain? What about the significance of an ALT in an individual with mild osteoarthritis? According to guidelines established by the American Academy of Orthopedic Surgery, both femoroacetabular impingement and isolated labral tears are indications for arthroscopy (10). Although this grants the orthopedic surgeon greater latitude to operate, this leaves open the likelihood that patients in these populations could suffer harm from overdiagnosis of ALT.

Quantifying the effects of overdiagnosis is a challenging endeavor. MRI is considered the gold standard for identifying ALT. A meta-analysis performed in 2011 by Smith et al. demonstrated a sensitivity and specificity on MRI of 66% and 79%, whereas that of magnetic resonance arthrography is 87% and 64%, respectively (11). The surprisingly low values are felt to reflect inclusion of earlier studies where magnetic reso-

nance resolution was significantly poorer. More recent analysis of studies utilizing a more modern approach to MRI imaging of the hip do have sensitivities ranging from 77% to 100% for ALT (12). However, we are not focusing on the accuracy of imaging to identify a tear so much as we are trying to assess what to do with the tear once identified. The variability of surgical success, as well as the high prevalence of asymptomatic ALT, implies that overdiagnosis is present. Although the current literature cannot be quantified beyond these presumptions, an active clinical trial comparing sham and surgical fixation is underway, which may better stratify surgical candidates in the future.

As radiologists, our goal is to analyze images by describing the appearance of anatomy or pathology and then synthesize a conclusion based on imaging appearances. We practice this judgment and discretion in every imaging study we interpret. For example, a normal anatomic variant may not be mentioned; a finding such as a renal cyst can typically be limited to the body of a report; a hiatal hernia, although relevant, does not deserve the leading position in an impression for a patient with acute appendicitis. When assessing ALTs, we must exercise a similar amount of discretion.

THE SIGNIFICANCE OF WORD CHOICE

The literature has shown that although words may have similar meanings, their connotations can be very different (13). For example, the words "tear" and "fissure" are very similar. However, "tear" has an acute and traumatic implication, such as "I tore my Achilles tendon or I tore my rotator cuff." Alternatively, "fissure" is far more passive, serving merely as a descriptor. This difference is far more than either academic or grammatical semantics.

In today's health care environment, patients are taking an increasing role in their medical decision-making. Furthermore, with the growing prevalence of electronic patient portals, patients now have greater access to their radiology reports. When a patient feels pain and sees the word "tear," they can connect the dots by assuming the tear is a cause of their pain. This creates a quandary for our referrers, based on the lack of specificity associated with ALTs and pain. Could the tear be a cause of pain? Is the tear a red herring? Or is the tear a manifestation of a larger degenerative process? Ideally explaining this should be well within the scope of practice of the referring physician. However, with the myriad available Internet resources, as well as tabloid coverage of stars such as Lady Gaga undergoing surgical treatment for an ALT, the conversation can become muddled (14). The patient might wonder if they are getting treated differently than a celebrity. Would the recommendations be different if they had a "Cadillac" insurance plan? Although these questions might at first appear cynical when imagining an ideal doctor-patient relationship, they are unfortunately reflective of the evolving health care landscape (15).

From the referrer's perspective, the emphasis on patient satisfaction metrics can serve to muddle the waters. Ethical scruples

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