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Femoroacetabular Impingement Surgery Is on the Rise— But What Is the Next Step?

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Surgery for femoroacetabular impingement (FAI) has been advocated for correction of cam and pincer hip joint morphology, both of which are purported to result in an abnormal abutment between the femur and acetabulum. This can result in pain, limited function, and restricted daily and sporting activities. Surgery for FAI was first pioneered by Myers et al,¹⁹ who surgically treated FAI by open dislocation. Arthroscopy was then introduced in 2005

by Sampson.²⁴ Arthroscopy has continued to develop since then, with the intent of providing pain relief and improving function in patients with FAI. This Viewpoint discusses the escalating popularity of FAI surgery, the widespread acceptance of this relatively new surgical procedure, and next steps for determination of who benefits from this treatment.

Massive Escalation in Surgical Rates

Surgical rates for correction of FAI have escalated, despite limited evidence to support a cause-and-effect relationship between FAI and hip pain.^{6,7,22} An 18-fold increase in FAI surgery occurred between 1999 and 2009,⁵ and this rate has most recently been accelerated toward a

tipping point by high-volume surgeons in North America and Europe.¹³ The technical developments have undergone rapid progression since the surgery was first pioneered in 1999. This has led to more widespread use of hip arthroscopy and a heightened confidence that the technique is preferable to past surgical and current nonsurgical interventions, and a sense that the procedure can be utilized for more and more patients. This, unfortunately, appears to have lowered the threshold for surgery in the treatment of FAI, despite a lack of evidence supporting this preference and the experience of positive results from conservatively treating patients with radiographic hip joint–related morphological varieties, such as FAI.¹⁰

Surgical Outcomes

Surgical treatment for FAI has produced some early promising results.⁴ However, the evidence from these studies is mostly level 4 (low level), the reported results are short term, and at least 1 study suggests a noticeably lower level of sport activity at 3 years postsurgery.⁴ Currently, there are no high-quality randomized studies examining the effectiveness of surgery for FAI.²⁷

Perhaps confounding these outcomes is the fact that surgical indications are inconsistently described² and lack evidence-based support.²⁶ A good illustration of this is the surgery being performed on increasingly older adults, even those with a high rate of early conversion to hip replacement surgery within 2 years.²⁵ This heterogeneity in surgical indications and their description, along with the significant variation in reported clinical and radiographic outcomes after FAI surgery,⁹ makes one wonder if these interventions address one and the same condition.

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Accountability for Surgical Rate Escalation

Accountability in the case of escalating surgical rates for FAI is multifaceted. Surgical confidence and beliefs, media sensationalism,^{15,21} and even the patients²⁰ themselves have contributed to this surgical rise.

Surgical Confidence Lowering the surgical threshold due to surgeon confidence could risk steering us toward a surgery-first philosophy that panders to patient expectations; a philosophy that is exceedingly difficult to reverse. This philosophy has already taught us painful lessons about how improved technology leads to endorsement of surgical procedures without corresponding improved surgical outcomes,¹⁸ and to the risk of subsequent insurance policy changes limiting the use of these same procedures.¹⁷

Recent surveys suggest alarming findings in regard to surgical confidence and surgeon beliefs. Seventy-five percent of surgeons believe that FAI surgery prevents future osteoarthritis, although 62% of these surgeons were either unsure of or did not believe there was an optimal debridement of FAI lesions to prevent future osteoarthritis.²⁰ In another survey, many surgeons were unsure whether there was evidence to support the treatment effect of FAI surgery, or unsure of the best surgical approach.¹ Perhaps the most unsettling discovery is the fact that only 25% of surgeons were willing to consider a trial randomizing patients with FAI for operative versus nonoperative treatment.²³ These trends are troubling, especially when 71% of patients state that the most influential factor for treatment choice was the physician's recommendation.³

Patients The fact that more than 50% of patients whose chief complaint was "back pain" stated they would undergo spine surgery based solely on abnormalities detected on magnetic resonance imaging (more than 40% based solely on plain radiographs), even without symptoms,⁸ as well as the fact that 34% of both pediatric and adult patients diagnosed with

FAI stated they knew they wanted FAI surgery (21% not willing to try conservative therapy for 6 months)³ suggest that the orthopaedic/sports patient has a propensity for overconfidence in surgery as the gold standard treatment, an overreliance on imperfect imaging findings, and flawed information sources.^{14,16} Imaging findings are readily interpreted as sources of pathology even when, in many instances, they are normal adaptive changes to activity and/or aging. While websites and YouTube videos can be a ready source of easily accessible information for the patient, there is potential for these sources to be inaccurate.^{14,16} More evidence-based, comprehensive educational resources addressing FAI diagnosis and treatment would help to relieve patients' fear of potential future consequences in cases of normal adaptive or aging changes.

Media Sensationalism Suggestions from public health campaigns and a congressional coalition devoted to informing the public that two thirds of Americans have FAI "whether they know it or not"¹⁵ have unnecessarily elicited fear regarding a condition that is poorly understood. Such reports suggest that FAI "touches more Americans than diabetes, cancer or asthma."¹⁵ Particularly intriguing is the fact that the source cited⁷ in that blog is a study investigating asymptomatic individuals. These individuals had morphology, not pathology. The actual prevalence estimates of cam morphology in the general population or selected subgroups are not able to be determined due to insufficient high-quality data and heterogeneity in morphology definitions. Reported prevalence ranged from 5% to 75% of individuals affected.⁶ Clearly, this is still an unknown.

What Can Be Done?

A multitude of questions have arisen in the field of research and treatment of FAI. Perhaps we should try to better understand this condition before going "all in" on treating it. We think we could all benefit from learning from our past, when, despite similar increased endorsement of

surgical intervention (746% increase in shoulder arthroscopy for "impingement" over a 10-year span),¹² surgical patients fared no better than those treated conservatively.²² As has previously been suggested, the accumulation of more experience and better evidence usually leads to the conclusion that treatments do not work as well as we earlier had thought.¹¹

The results from ongoing studies will begin to become available within the next 5 years comparing hip arthroscopy to conservative treatment, as well as comparing hip arthroscopy to a sham arthroscopic hip procedure. All of the ongoing studies are important leaps ahead from the current situation regarding FAI treatment and research for the benefit and safety of the patient with FAI.²⁷

It is our view that we first need to properly understand and define the condition that we are treating. Surgical decision making for arthroscopic management of FAI has relied largely on clinical and radiological indications that are, as previously mentioned, inconsistent and largely invalidated.² It is past time that surgical decision making be based on clear and comprehensive indications. It is time to define the proper surgical candidate for FAI correction.

We have a vision of how the surgical candidate and the subsequent determination of treatment success can be elucidated.

1. Abandon the "self-evident" philosophy.
 - (a) Stop accepting surgery as the automatic gold standard treatment for FAI. The surgical excitement for FAI must be tempered. The surgery threshold must be raised. This challenge to current treatment should include a more stringent examination of both surgical and conservative interventions (eg, comparisons between them and comparisons of each against sham interventions).
 - (b) Stop accepting morphology as pathology. Our patients deserve to know the actual prevalence and consequences of FAI, and that the

true benefit of surgery is currently unknown.

2. Reform the current indiscriminate surgical decision-making process, choosing a process instead based on:
 - (a) A conservative treatment-first philosophy. Patients should undergo a trial of conservative treatment prior to surgery unless contraindicated;
 - (b) Diagnostic accuracy of currently utilized clinical and radiographic surgical indicators; and
 - (c) An evidence-informed framework. A concerted effort involving clinical, academic, and research experts is suggested to balance current best evidence with sound clinical reasoning, providing conscientious, sound suggestions for the examination and subsequent treatment of future patients with FAI.
3. Bolster basic science studies examining FAI. Concentrated efforts should be undertaken focusing on FAI mechanisms, other potential pain contributors, and potential future consequences of FAI.
4. Improve and standardize reporting of outcomes. Minimum reporting standards should be developed and implemented for future trials with respect to the examination and treatment of FAI.

As researchers and clinicians treating patients with FAI, we wholeheartedly support dedicated research funding and prevention guidelines for patients with pathological FAI. We believe, though, that it is important not to convince two thirds of the population that they have a pathologic condition, when clearly they do not. ●

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