ISSUE 03

ShARC BITE

ANATOMIC TSA: STEM vs STEMLESS

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Mission Statement

The Shoulder Arthroplasty Research Committee (ShARC) is a forward-looking global collaboration among research-focused surgeons of which the primary goal is to advance patient care. The ShARC Patient Registry is utilized to conduct patient monitoring, inform evidence-based implant design, and allow for the integration of novel technologies into clinical practice. Supported by Arthrex, the ShARC will continue to have tremendous influence on the advancement of shoulder arthroplasty through innovative research and a commitment to improve patient outcomes.

ShARC Bites are developed through registry data analysis and processing of the committee's preferences, cross-referenced with available ShARC and non-ShARC publications, to provide recommendations on current techniques and implants.

Summary Recommendation

ShARC recommends a stemless prosthesis for most anatomic TSAs. There does not appear to be an age cutoff, and bone quality is typically sufficient in most patients otherwise being considered appropriate for anatomic TSA. There are numerous advantages to using a stemless prosthesis instead of a stemmed prosthesis, as well as excellent long-term functional outcome data mirrored by early data from the US-based ShARC registry.

Construct Comparison

Stemless | Short Stem | Mid-Length Stem | Long Stem

Background

Although excellent clinical results have been published with both standard length and short stems, stemless anatomic total shoulder arthroplasty (TSA) offers some potential advantages. Specifically, the Eclipse™ TSA system has a unique compression-based approach providing cortical support for stemless humeral fixation compared to other impaction-based stemless prostheses.

General Advantages of Stemless TSA Compared to Stemmed TSA

The literature supports several general advantages of stemless TSA over stemmed TSA. These include faster operative time, lower intraoperative blood loss, and easier revision.[1] Additionally, recent ShARC studies have demonstrated **improved center of rotation (COR) restoration** with stemless TSA compared to stemmed TSA, as well as **less early postoperative pain**.[2-4]

Advantages of Eclipse™ Stemless TSA Compared to Other Stemless TSA Systems

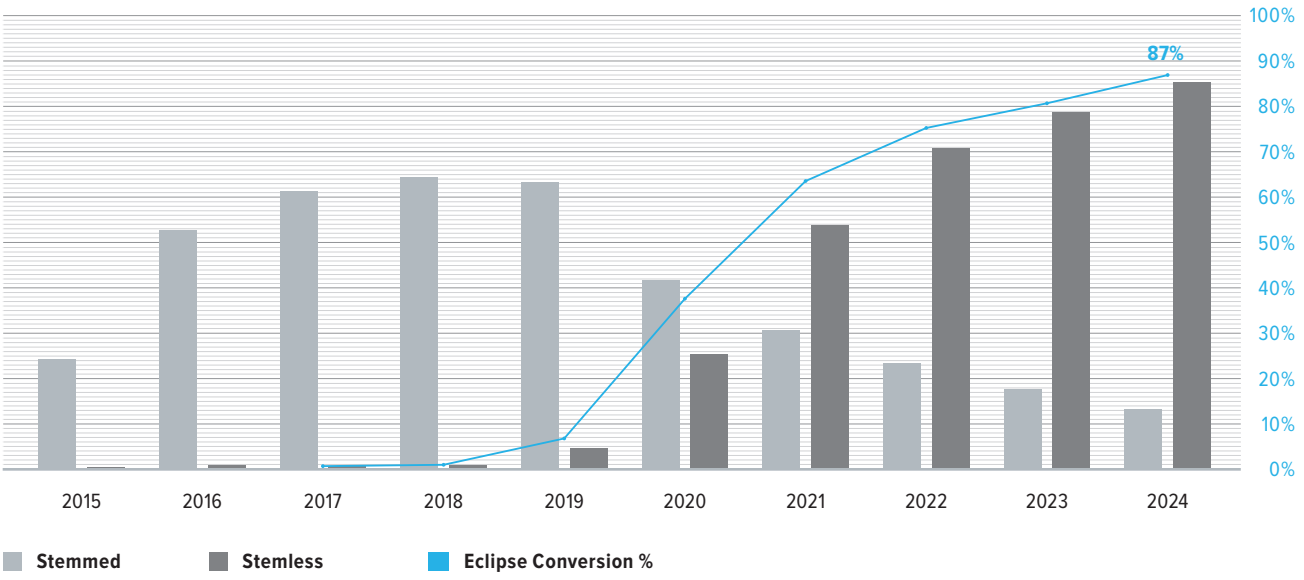
The Eclipse system offers several advantages over other stemless TSA systems. The most important of these are the longest published clinical follow-up (11 years), best radiographic follow-up, and only stemless TSA with a published, validated subscapularis repair technique.[2,5-7]

Usage Breakdown

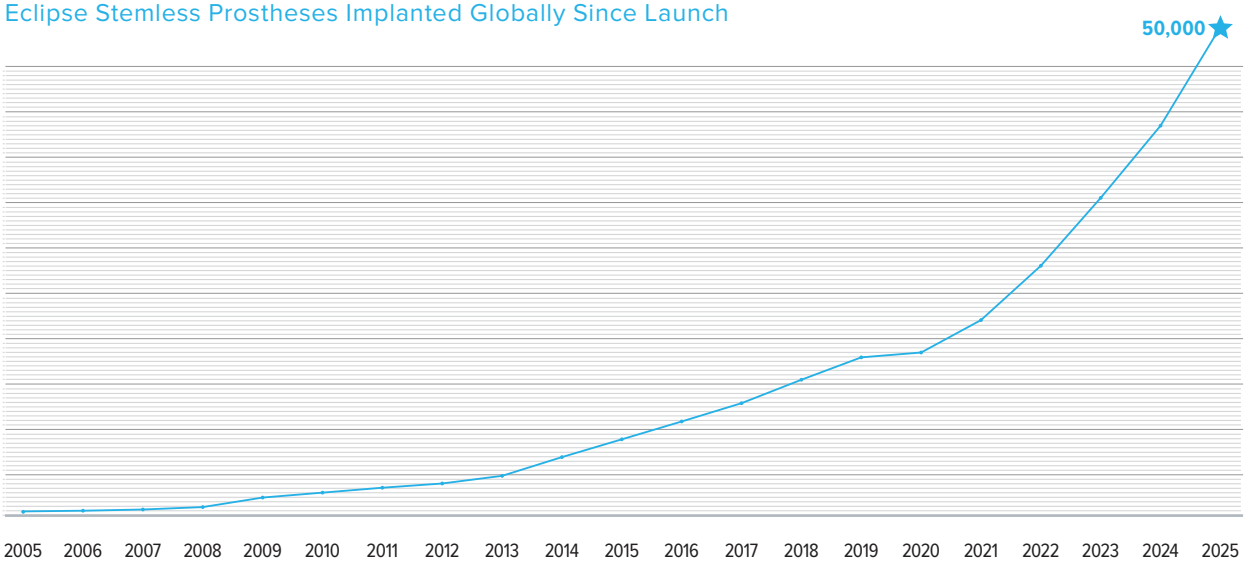
Overall Utilization

Across the US, there has been a very rapid adoption of stemless implants. Introduced to the US market in early 2020, utilization of the Eclipse system is now over 80%—and perhaps closer to 90%, as shown below.

Stemless Conversion Since Launch



Eclipse Stemless Prostheses Implanted Globally Since Launch



Age

Utilization of Eclipse stemless TSA in the registry continues to grow, with 307 Eclipse patients with minimum 1-year clinical outcomes and 160 patients with 2-year clinical outcomes. The mean age of Eclipse patients is 65 years (range, 31-84), and 65 years (range, 39-90) for Univers™ Apex short stem patients. A new ShARC registry study accepted for publication in JSES shows excellent outcomes of Eclipse for patients over 70 years of age with an Eclipse TSA, indicating that in the registry, age alone does not preclude surgeons from performing stemless TSA.[8]

Sex

In the registry, 59% of Eclipse patients and 64% of Apex patients are male, and 41% of Eclipse patients and 36% of Apex patients are female.

Functional Data

Published data from Europe indicate excellent functional results after stemless TSA. Habermeyer's 2021 JSES paper reported a mean constant score of 68, mean FE of 138°, and mean ER of 42° at 11 years post-op.[8] The 2-year registry follow-up data on the Eclipse system are also very strong, with a mean Constant score of 80, FE of 154°, and mean ER of 63°.

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