

# Editorial Commentary: Nonoperative Treatments Seem Unreliable in Posterior Shoulder Instability, But Let's Take a Closer Look



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**Abstract:** Nonoperative treatment has been the initial treatment of choice in posterior shoulder instability. However, not much clinical data are available in the literature, and so many issues about nonoperative treatment, such as rehabilitation protocols, specific indications, expected outcomes, and predictable factors affecting outcomes, still remain unclear. With a paucity of clinical and no long-term data, shoulder surgeons need to wait a bit more to establish the optimal treatment strategy for posterior shoulder instability.

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Nonoperative treatment has been recommended as the initial treatment of choice in posterior shoulder instability. However, not much clinical data are available in the literature, and thus many issues about nonoperative treatment, such as rehabilitation protocols, specific indication, expected outcomes, and predictable factors affecting outcomes, still remain unclear. In this issue, a unique study titled “Nonoperative Management of Posterior Shoulder Instability: An Assessment of Survival and Predictors for Conversion to Surgery at 1 to 10 Years After Diagnosis,” by Woodmass, Lee, Johnson, Wu, Camp, Dahn, and Krych,<sup>1</sup> touches on one aspect of these issues. They performed a population-based, cohort study with longitudinal follow-up of 143 patients with posterior shoulder instability. Of them, 64 patients were initially treated by surgery, and the remaining 79 were managed nonoperatively for at least 1 year after diagnosis. The authors found that 46% (36/79) of nonoperatively treated patients eventually underwent surgery during a mean follow-up of 10.3 years (range, 1.3-20.7 years), suggesting nonoperative treatments for at least 1 year failed in nearly half of patients. Survival free of surgery

in this study was 78.3% at 1 year, 63.1% at 5 years, and 51.5% at 10 years. Considering the rarity of this disease, the current study findings with moderate numbers of patients and long-term follow-up analysis are meaningful. Unfortunately, the result is quite disappointing and certainly raises a concern over the effectiveness of nonoperative treatment in posterior shoulder instability. Do we have to change our traditional treatment strategy for posterior shoulder instability to surgical treatment as the initial choice?

Carefully, I would like to say, “Not yet.” I believe we need to interpret the results of this study with extreme caution for several reasons. First, the methodology of this study might affect its results. It was conducted based on medical chart review of the specific registry as part of the Rochester Epidemiology Project. As a result, all processes from diagnosis and decision-making of treatment strategy to nonoperative treatment protocols must involve many physicians in different hospitals or clinics. The authors did not mention how many physicians were involved in this process and how clearly standardized nonoperative treatments were performed in all patients. So it is still unknown whether their nonoperative treatments include “benign skillful neglect,” “supervised standard nonoperative care,” or even “no treatment.” This issue needs to be taken into consideration to interpret their results. Second, this increase in late conversion to surgery, the most important outcome of the current study, might simply reflect a recent trend toward increase of surgical repair

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in posterior shoulder instability. In another recent study, Woodmass et al.<sup>2</sup> reported that the rate of surgical intervention increased significantly from 53.1% of patients between 1996 and 2002 to 87.5% of patients between 2009 and 2015. Notably, this study was also conducted by the same authors at the same institution as the current study with the use of the same materials and methods (population-based cohort study using the Rochester Epidemiology Project database in the same region). If the study populations are similar in both studies (in my understanding, they seem to be), I think that the high rate of late surgical repair in the current study might be attributed to those significant changes of trend favoring surgical repair by the treating surgeons during the time period. Although the authors mentioned this postulation in text, they did not report how much the rates of late conversion to surgery are different according to study time period. Clearly, this kind of epidemiology-based descriptive study does not show any cause-and-effect relationship. Third, this study did not provide any clinical data such as pain level, functions, or recurrence at the time of surgery and final follow-up. So we are unable to understand the reason why the patients or the surgeons decided to perform late surgical intervention and how much the patients benefited from surgery. Therefore, I recommend that readers be highly cautious and take a closer look at whether the current study changes their mind about the effectiveness of nonoperative treatment of posterior shoulder instability.

Another important finding of this study is the high rate of progressive arthritis after treatments in posterior shoulder instability. At 5 years of follow-up, 14% (16 of 115 patients) demonstrated radiographic progression of arthritis. Three of 37 (8%) patients in the nonoperatively treated group had such progression, while 13 of 78 (17%) in the operatively treated group did. The difference reached a statistically significant

level by this analysis ( $P = .02$ ; hazard ratio = 4.0; 95% confidence interval, 1.2-13.2), suggesting a significantly increased risk for progression of arthritis in the operatively treated group. Although it is unknown whether an increased rate of arthritis progression was related to late surgical intervention or not, this finding is very interesting and must be further evaluated with future studies comparing between early and late surgical intervention.

Despite the above-mentioned limitations, the authors should be commended for their hard work. They reviewed a massive amount of data with appropriate scientific analysis and finally derived a couple of key findings that are worthwhile to discuss. More importantly, the authors must be encouraged because they addressed one of the important issues in the shoulder: outcomes after nonoperative treatment of posterior shoulder instability. The current study design involving well-organized big data is an appropriate means by which we can address a specific issue in rare diseases, such as posterior shoulder instability. I hope to see many elegant studies in the future to advocate or challenge the current study's findings, which will definitively help surgeons establish the optimal treatment strategy for posterior shoulder instability. The current study would then become the touchstone for such a process.

## References

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2. Woodmass JM, Lee J, Wu IT, et al. Incidence of posterior shoulder instability and trends in surgical reconstruction: A 22-year population-based study. *J Shoulder Elbow Surg* 2019;28:611-616.