

Total Shoulder Arthroplasty With Metal-Backed Inset Glenoid Component in Glenohumeral Osteoarthritis With Glenoid Deformity

Dario Petriccioli¹, Celeste Bertone, Giacomo Marchi²

¹Dr. Dario Petriccioli, MD, ²Marchi Giacomo

Total shoulder arthroplasty is a successful surgical procedure, affording pain relief and functional improvement in patients with glenohumeral arthritis and an intact rotator cuff. However, concern exists for early glenoid wear and loosening in younger and active patients who have a longer life expectancy and higher demands and in patients with glenoid bone deficiencies or deformities. The eccentric loading sustained by the glenoid implant may lead to the rocking-horse phenomenon and early glenoid implant loosening. The rocking-horse mechanism of loosening occurs if the humerus translates on the glenoid in any plane, producing edge loading, which can result in opposite edge liftoff. Various strategies have been used to achieve a postoperatively balanced glenohumeral articulation, including high-side eccentric reaming; posterior glenoid bone grafting; augmented glenoid implants; and, in patients with extreme retroversion, reverse shoulder arthroplasty. Recently, some companies have proposed an inset glenoid design in which the glenoid component is implanted flush with the adjacent glenoid bone surface, preserving the glenoid rim, capsule, and labrum. This inset glenoid design offers the theoretic advantage of less glenoid bone removal and less potential for implant edge loading and liftoff as a result of the inset design because the polyethylene edges are flush with or slightly recessed relative to the adjacent glenoid surface. These implants are peripherally contained, meaning they are surrounded by a rim of native bone circumferentially. The concept is analogous to a sewer hole cover, which is set into the road to maintain stability despite cars and trucks constantly rolling over its edges. Currently, some studies have reported substantial clinical improvements in short- and long-term outcomes and low rates of glenoid loosening with the use of peripherally contained (inset or inlay) all-polyethylene glenoid components during total shoulder arthroplasty. Therefore, this video presents the surgical technique and preliminary clinical and radiographic results of the only commercially available metal-backed inset glenoid component.