

## ■ Research Highlights

### Shoulder and Elbow Surgery

Dr. Keiichiro Nishida, Associate Professor of Department of Human Morphology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, has developed a new linked elbow prosthesis (PROSNAP<sup>®</sup>) in cooperation with Kyocera Medical (Osaka, Japan) which possesses a unique assembly system, initially to be used for the relatively small bony structure of Japanese patients.

PROSNAP<sup>®</sup> has been in clinical use in Japan since November 2007, and the clinical results of total elbow arthroplasty (TEA) for the reconstruction of problematic rheumatoid arthritis (RA) elbow joints using the PROSNAP<sup>®</sup> elbow prosthesis were recently published in the *Journal of Shoulder and Elbow Surgery*.

TEA has become a reliable procedure for the reconstruction of damaged RA elbows. However, previous reports have described a number of issues related to linked elbow prosthesis, including intraoperative fracture, prosthesis disassembly, or polyethylene wear and late failure of the locking mechanism. In the PROSNAP<sup>®</sup> system, bone grafting between the anterior flange and the humerus is deemed unnecessary by selecting the proper size of the modular flange. The shaft at the joint portion of the humeral component is fitted, with a snap-in system, into the UHMWPE sleeve of the ulnar component, allowing the assembly of each component after cement fixation.

In the current report, the short-term clinical results of 17 elbows in 14 RA patients replaced with a PROSNAP<sup>®</sup> elbow were evaluated with the mean follow-up period 47.7 months (range, 32-69 months). The preoperative



Fig. 1 Appearance of PROSNAP<sup>®</sup> elbow prosthesis



Fig. 2 Articulation of PROSNAP<sup>®</sup> elbow prosthesis, showing hand drum-shaped humeral shaft, UHMWPE articulation and sleeve for snap-in fitting of ulnar component.

conditions of the elbows were arthritis mutilans (n=10), an ankylosed or stiff elbow with a preoperative range of motion of 45 degrees or less (n=4), and loosening of a primary total elbow arthroplasty (n=3). The mean Mayo Elbow Performance Index improved from 57.6 points preoperatively to 97.1 points postoperatively. Complications were noted in 1 elbow (6%) with postoperative fracture. The authors concluded that the PROSNAP<sup>®</sup> elbow prosthesis can be safely implanted through a relatively easy procedure and provides satisfactory short-term clinical outcomes for the reconstruction of severely damaged RA elbows.

#### Reference:

- Authors: Nishida K, Hashizume K, Nakahara R, Ozawa M, Harada R, Machida T, Nasu Y, Ozaki T, Inoue H.
- Title of original paper: Short-term results of the PROSNAP<sup>®</sup> linked elbow prosthesis with a snap-in structure and modular flange for the reconstruction of severely damaged rheumatoid elbows
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