

Osteoarthritis after the Bankart Procedure

Kiyohisa Ogawa, MD, Atsushi Yoshida, MD, and Shuzou Kobayashi, MD

From Shoulder Service, Department of Orthopaedic Surgery,

School of Medicine, Keio University, Tokyo, Japan.

There are many papers on postoperative osteoarthritis of the shoulder with recurrent anterior instability, and the numerous factors concerning the generation of osteoarthritis has been advocated. However, universally accepted factor has not still been determined. The purpose of this study is to clarify the incidence of osteoarthritis after the Bankart operation and to detect the factors concerning generation or proceeding of osteoarthritis.

【Materials and Methods】

Materials for research were 124 joints of 122 patients, who were followed for more than 5 years and whose age at follow-up was less than 40 years. There were 103 men and 19 women, whose average age at follow-up was 29 years. The affected side was right in 59 patients, left in 61 patients, and bilateral in 2. The average follow-up time was 8 years. The average ages at surgery and at first dislocation were 21 and 18 years, respectively.

The preoperative and postoperative standardized radiograms and pneumoarthrographic computed tomograms preoperatively taken in both sides were examined. Radiographic evidence of osteoarthritis was graded according to the criteria described by Samilson and Prieto, centered on the marginal osteophyte of the humeral head. Concerning the CTs, when more than two succeeding slices revealed the marginal spur of the humeral head, the joint was recognized as osteoarthritic.

By separating into several groups according to the radiographic and the CT findings, the items supposed to be related to generation or proceeding of

osteoarthritis were statistically examined using Mann-Whitney U test ($p < 0.05$). The examined preoperative items were the ages at initial dislocation and at surgery, duration between initial dislocation and examination, total number of dislocation and/or subluxation, general joint laxity, as well as decrease of range of motion compared with those of the unaffected side. The postoperative items were age at follow-up, duration between initial dislocation and follow-up, duration between surgery and follow-up, as well as decrease of range of motion compared with those of the unaffected side.

【Results】

Preoperative CTs revealed that 32 dislocated shoulders were arthritic; it was 25.8% of whole joint. On the other hand, none of non-dislocated shoulders had osteoarthritis. When location of the spur was identified on the CTs, it was evident that the spur occurred in the antero-inferior part of the head and mainly extended downwards. On the preoperative roentgenograms, however, osteoarthritis was found at 9 joints, it was 7.3% of whole joint. According to the Samilson's criteria, all of them were mild and were included in 32 joints recognized the spur in the CTs. The roentgenograms taken at time of follow-up showed osteoarthritic changes in the 23 joints, of which 22 were mild and 1 moderate.

The results of postoperative roentgenographic survey were examined in comparison with those of preoperative radiographic and tomographic investigation. All of 9 joints recognized the spur on the preoperative radiograms were included in the 23 joints with postoperative osteoarthritis.

In 8 joints out of other 14 joints with postoperative arthritis, osteoarthritis had been preoperatively observed on CTs, but it had not on the preoperative roentgenograms. Therefore, their arthritic change was recognized as proceeded. In 6 joint without preoperative arthritic changes, osteoarthritis was considered as newly and postoperatively developed.

Based on the results of pre- and postoperative radiographic and tomographic survey, the dislocated shoulders were able to classified into five groups: 1) postoperatively developed group (6 joints), 2) proceeded group (8 joints), 3) preoperatively developed group in which osteoarthritis had been preoperatively found on the radiograms (9 joints), 4) non-proceeded group in which osteoarthritis had been preoperatively observed only on the tomograms (15 joints), 5) non-developed group (86 joints). In the comparative test of 23 shoulders with the postoperative osteoarthritis (group 1~3) and 101 shoulders without it (group 4 and 5), the significance was not accepted at all examined quantitative items. In comparison of 14 shoulders (group 1 and 2) and 101 shoulders (group 4 and 5), there was no statistical significance at all items. However, in the comparative study of the postoperatively developed group (group 1) and non-developed group (group 5), total number of dislocation and/or subluxation in the former group was statistically larger than that in the later. Also, in comparison of the proceeded group (group 2) and non-proceeded group (group 4), total score of general joint laxity in the former was significantly smaller than that in the later.

【Conclusion】

Postoperatively, osteoarthritis was radiographically observed in 23 joints; it was 18.5% of the operated shoulders. In almost 3/4 of them, arthritis has occurred preoperatively. Postoperative osteoarthritis is not related to various analyzed ages, period and reduction of range of motion. However, arthritis newly developed in postoperative period correlate total number of preoperative dislocation and/or subluxation. It is concluded that the incidence rate of osteoarthritis after the Bankart procedure is low. Occurrence of postoperative arthritis seems to be related to the preceding factors of the procedure rather than the procedure itself.