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Surgical Treatment of Metastatic Diaphyseal Fracture of the Humerus

Won-Jong Bahk¹, Seung-Koo Rhee¹, Yong-Koo Kang¹, An-Hi Lee¹

¹) The Catholic University of Korea, Republic Of Korea

Introduction: Although there have been a few reports of pathologic fracture of diaphysis of the humerus treated with debulking and internal fixation augmented by polymethylmethacrylate (PMMA), there is only scanty documentation regarding the result of closed interlocking IM nailing. The purpose of our retrospective study is to report the clinical result of closed interlocking intramedullary (IM) nail as well as open reduction with internal fixation augmented by PMMA.

Materials & Methods: 16 cases of 13 patients with pathologic fractures of the humeral diaphysis, who treated with closed interlocking IM nail fixation (Group 1), and 10 patients, who treated with debulking with internal fixation augmented by PMMA (Group 2) between 1998 and 2002 were selected for this study. The clinical records and radiographs were retrospectively reviewed. Pain and function of the upper extremity were each graded as excellent, good, fair or poor using a modification of the rating system of Perez et al.

Results: Group 1; There were 6 male and 7 female with age ranged from 38 to 81 years (aV. 59 years). The follow-up period ranged from 10 weeks to 58 months (aV. 7 months). Main primary cancers include multiple myelomas, lung cancer and breast cancer. The average time of survival after pathologic fracture was 11.7 months. Final results were excellent or good result in 8 cases, fair in 5 cases, and poor in 3 cases. Poor results were related to local tumor progression in 2 lung cancer patients and tumor spread to 5 digits of the ipsilateral hand in a stomach cancer patient. Group 2; There were 6 male and 4 female with age ranged from 46 to 73 years (aV. 58.6 years) The follow-up period ranged from 6 weeks to 35 months (aV. 7 months). Main primary cancers include kidney cancer, lung cancers and adenocancer of unknown origin. The average time of survival after pathologic fracture was 12.6 months. Final results were excellent or good result in 7 patients, fair in 3 patients.

Conclusion; Tumor progression and distant spreading after IM nail insertion were encountered with poor result in patients with lung cancer and stomach cancer but there was no poor result in patient who treated with debulking with internal fixation augmented by PMMA. Therefore although closed interlocking IM is thought to be an excellent option for carefully selected patients particularly with multiple myeloma and breast cancer, patient's functional status before the fracture, life expectancy, type of tumor, local extent of tumor should be comprehensively considered in planning the treatment of metastatic diaphyseal fracture of the humerus.

E-mail (main author): wjbahk@cmc.acuk.ac.kr