Nitinol Compression Staples for Bone Fixation in Foot Surgery

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Abstract

We reviewed the use of compression staples made of the memory metal alloy nitinol for fixation in foot surgery. A retrospective study was performed of 31 feet in 27 patients who underwent arthrodesis or an osteotomy fixated using compression staples. OSSStaples (BME, San Antonio, Texas) were used in 18 feet, and Memodyn staples were used in 13 feet. A total of 48 compression staples were implanted.

The following procedures were performed and fixated using compression staples: 15 Akin osteotomies, 2 first metatarsal base epiphysiodeses, 3 first metatarsal–cuneiform fusions, 2 naviculocuneiform fusions, 3 calcaneocuboid fusions, 4 talonavicular fusions, 3 subtalar joint fusions, and 2 Evans osteotomies.

In our clinical experience, compression staples provide an adequate source of internal fixation in foot surgery. Good bone apposition and stabilization and compression of the bone surfaces before staple fixation are important when using staple fixation to promote an optimal environment for bone healing.