

# ZANG CAPS: Fact Or Fiction

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Each year, The Podiatry Institute faculty submits suggestions and topics for consideration at the scientific seminars for the upcoming year. The ideas for topics originate from many varied sources. Listening to the question-and-answer session of The Podiatry Institute meetings has always proven to be a source of ideas and topics. Areas in need of clarification come to light, new insights and thoughts are discussed, and challenges are posed to the information presented. The topic of Zang Caps originated in just this manner for the authors.

It seemed that invariably if lectures were presented on the Hoffman pan-metatarsal head resection or rheumatoid foot reconstruction, a question was posed concerning the use of the Zang Caps. The Podiatry Institute panel could not relate any actual experiences or use. The authors decided to investigate these implants more fully to insure that an important technique or device was not being overlooked. The senior author personally had read or heard little about the implant.

The investigation, with the assistance of a resident from the Veterans Administration Medical Center in Augusta, Georgia, was set out as a two-component effort. First, a literature search to evaluate the device itself was undertaken to review the past history of use, as well as indications and complications. Second, a survey was sent out to the faculty of The Podiatry Institute in order to review complications and incidents of perceived complications from metatarsal head resections in general. The authors also wanted to review any use of the implant and determine a consensus of indications and complications from the experience of the faculty. The results of this study have been quite interesting, and are more a lesson in prudence for us as podiatric physicians than a lesson in metatarsal capping techniques.

### THE IMPLANT

Jenkin and Olaff printed the first mention in the literature of the "Lesser Toe Metatarsal Cap" in a 1986 article in *Clinics in Podiatric Medicine and Surgery*. The reference to Zang is a personal communication, not a published paper. The cap was developed by Dr. Zang with Sutter Biomedical, Inc., of San Diego, California. According to this personal communication, the cap was designed to prevent reactive hyperostosis following metatarsal head resection. Zang, in this personal communication, also noted with the use of the cap a reduction in edema, as the cap supposedly "mechanically seals" the distal metatarsal shaft. The cap was a silicone, cup-shaped device with a central stem. No securing sutures or fixation was utilized to maintain the device in place.

The authors undertook research of the device through Sutter and Medline. To our astonishment, no literature, not even a case report, has ever been published other than the personal communication noted above. The only reference to the Zang Cap is the personal communication of 1986. According to Sutter, the cap was produced for "several years" and is no longer available and is no longer manufactured by Sutter.

### THE SURVEY

Interestingly, the survey was actually mailed out prior to our knowledge about the scant literature on the Zang implant. The survey was mailed to all Podiatry Institute faculty members and a greater than 90% response was received. The survey represented an experience of many hundreds of metatarsal head resections. In summary, radiographic evidence of exostosis or hyperostosis at the distal end of the resected metatarsal is not an uncommon finding noted radiographically months or years postoperatively. Clinical symptoms, however, associated with this radiographic finding were

minimal or rare. Complaints associated with the hyperostosis were easily managed with accommodative foot orthotics or resection of the hyperostosis.

Minimal, if any, experience with the metatarsal cap was noted by the respondents. No real need was identified for any implanting device following metatarsal head resection by the faculty respondents.

### **CONCLUSION**

These are the facts regarding the Zang Lesser Toe Metatarsal Cap: No papers of any kind, not even a case report, has ever been published concerning the Zang Lesser Toe Metatarsal Cap; the only reference to the Zang Lesser Toe Metatarsal Cap in literature is a personal communication; no studies, either prospective or retrospective, have ever been performed on the Zang Lesser Toe Metatarsal Cap. No need was identified in the authors' survey, that a capping technique would be indicated or needed following resection of lesser metatarsal heads.

The authors were intrigued by the lack of investigational studies and research into this device. An implant was produced, distributed, and utilized under these rather unusual circumstances. The bottom line for ourselves as physicians then, is to look very critically at any new device before utilizing it on our patients. The authors suggest that the physician always check the research and past records before utilizing any implantable device, technique, or other instrumentation on your patients. Be wary, and ask for literature or research to substantiate any new device or technique. The authors hope that this paper is not so much a review of an implant that came and went on the foot surgical scene, but a study in the prudence that each physician should have before utilizing any new technique or material on patients.