Reply:

I welcome the publication of the investigation alluded to by the authors of the preceding letter. We clearly have a lot to learn with respect to the diagnosis of diabetic foot osteomyelitis (OM), and their proposed histopathologic classification system could prove to be an important step forward. I will especially consider whether their investigation examined the ability of pathologists to determine the difference between osteomyelitic and non-osteomyelitic bone, or whether it examined only the difference among different forms of OM after the primary diagnosis had been established.

I trust that the authors appreciate that we were attempting neither to establish nor to investigate a classification system in our study and that our categories were purposefully broad and simplified to highlight the clinical diagnoses that surgeons use to make patient care decisions. We agree with their concerns with respect to the "controversy … regarding the histologic patterns pathologists use as a reference," which can be seen in our introductory paragraph when we stated that "there is no standardized definition or classification for OM with this analysis, and only a few clinical studies have attempted to define characteristics of bone samples affected by OM." In addition, in our "Discussion" section, we suggested that the results "could be used in guiding future pathology department protocols for reaching a diagnosis from specific findings."

I reject that interobserver variability was a specific limitation of our study, but rather believe it is a general and primary limitation of the histopathologic diagnosis of OM in the first place. I hope that most readers would reach this previously unappreciated conclusion.

Although it is possible that their proposed classification system will become validated and universally accepted among all pathologists, I will personally continue to use the extensive diagnostic criteria of the International Working Group of the Diabetic Foot (1) as opposed to a single diagnostic test.

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Extraosseous Talotarsal Stabilization

Dear Editor:

We appreciated Dr Graham et al's 2 recent articles on arthroereisis [Graham ME, Jawrani NT, Chikka A. Extraosseous talotarsal stabilization using HyProCure® in adults: a 5-year retrospective follow-up. J Foot Ankle Surg 51(1):23–29, 2012; Graham ME, Jawrani NT. Extraosseous talotarsal stabilization devices: a new classification system. J Foot Ankle Surg 51(5):613–619, 2012]. Articles and research are needed to validate collective findings that this is an important procedure for flexible flatfoot and talotarsal dislocation. We applaud Dr Graham et al's articles and coding guidelines, which could potentially be applied to all subtalar implants.

We do, however, have a few questions and comments about these articles.

Article 1 (1)

1. In the article about HyProCure® used in extraosseous talotarsal stabilizion (1),Graham et al mentioned that the removal rate was 6%. However, if the 9 revision cases are added, it would indicate a total of 14% having additional surgery. Would that be correct?
2. Also in this article, Graham et al (1) stated that the pivot point shifts anterior and medially due to partial dislocation of the talus. Do the authors have any references or research to document this statement? It is our understanding that the pivot point would stay the same in mild to moderate cases with only the subtalar axis being altered (lowered with pronation).
3. Finally, regarding this article (1), if an object is positioned on both sides of a pivot point 180° to each other, mechanically we believe one would risk blocking all motion about that pivot joint.

Article 2 (2)

1. In the article by Graham and Jawrani regarding a new classification system for extraosseous talotarsal stabilization devices (2), we found it interesting that they referenced the French anatomist Farabeuf and his claims regarding foot biomechanics. We subsequently paid to have this work translated into English. Graham and Jawrani stated, "it is advocated that the 'cruciate pivot point' is the ideal location where the excessive anterior-medical-plantar displacement of the talus within the tarsal mechanism should be eliminated or minimized," and they referenced Farabeuf. The person who interpreted Farabeuf's treatise for us could not find that statement. Can Graham and Jawrani provide further information on who advocates this?
2. Also in this article (2), Graham and Jawrani stated that after they cut the interosseous ligament, they insert the implant and the ligament heals back. Do they have any evidence that this occurs? We have observed that when the anterior talofibular ligament is torn at the lateral ankle, it doesn't always heal, and it often requires surgical repair.
3. Graham and Jawrani (2) also stated that the medial cylindrical portion of the implant offers no resistance to talar motion. The calcaneus is the primary component moving as the talus is in the ankle mortise. If an object is placed too far into the Calais tarsi toward the tarsal canal, doesn't this risk limiting adduction of the calcaneal beak and resultant supination?
4. In regard to the "cruciate pivot point," Graham and Jawrani (2) referenced Henke and Henle, but we do not see references for them. Can they please provide these references?

We thank Graham et al for their articles (1,2) and look forward to them clarifying these issues and questions on this important topic. We appreciate their work and activities surrounding arthroereisis/talotarsal dislocation.

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1. Graham ME, Jawrani NT, Chikka A. Extraosseous talotarsal stabilization using HyProCure® in adults: a 5-year retrospective follow-up. J Foot Ankle Surg 51(1):23–29, 2012.
2. Graham ME, Jawrani NT. Extraosseous talotarsal stabilization devices: a new classification system. J Foot Ankle Surg 51(5):613–619, 2012.

Reply:

Following are my responses to the questions and comments from Drs. Hatch and Tower regarding the 2 articles (1,2).

Article 1 (1)

1. The primary point was that only 6% of the cases resulted in a permanent removal and 9 cases required a revision. If you want to add the numbers together to show how many patients required additional surgery that is fine; however, the ultimate failure rate would not be 14% as the additional cases were successful after the revision.
2. The pivot point is the same as the axis point of the subtalar joint. This was shown in my article published in 2011 (3).
3. I assume that you are inferring that HyProCure® is the object that is placed on both sides of the pivot point, 180° to each other. The medial threaded portion of the HyProCure® has no effect to the talotarsal joint motion. The true stabilizer is the central conical smooth section. The "head" of the HyProCure® device serves only as an additional area for tissue on-growth to prevent device displacement. HyProCure®, if sized correctly and positioned accurately, will not block all motion.

Article 2 (2)

1. The reference to Farabeuf was taken from EFS Chamber's article (4).
2. If you cut skin, it heals. If you cut tendon, it heals. If you cut bone, it heals. If you cut a ligament, it heals. I have no scientific peer reviewed published studies on the healing rate of the interosseous ligament. When I have had to go back into the sinus tarsi for implant removal or revision the ligament had reanastomosed. The cutting of the interosseous ligament, for many, is simply preposterous and one of the biggest "sins" of sinus tarsi implant surgery, yet to cut the medial band of the plantar fascia is quite acceptable and to completely remove the contents of the sinus tarsi for a patient with chronic sinus tarsitis is also very acceptable. The interosseous ligament is one of many talotarsal ligaments whose function is to prevent the displacement of the talus on the calcaneus. The interosseous ligament is not "doing its job" in patients with talotarsal displacement. The sinus tarsi implant replaces the function of the interosseous ligament.
3. The threaded portion of the HyProCure® device does not limit any motion of the talus on the calcaneus. The real stabilizer is the smooth conical portion. It is specifically this middle section of the HyProCure® that prevents the anterior displacement of the talus. The threaded portion only serves as an anchor to allow tissue on-growth to resist device displacement.
4. Wilhelm Henke and Friedrich Gustav Jakob Henle were anatomists in the 1800s who published many works on anatomy including talotarsal motion. They have been referenced by the forefathers of foot and ankle surgery.

Please see the Additional Sources at the end of this letter.

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