action was the most probable cause that took place in the treatment of this case (13).

Admixture of SM to hyperosmolar dextrose solution in concentrations of 1:10, 1:7, 1:5, and 1:2 has been used for many years by sclero/prolotherapists. There have never been any reports describing successful administration of 1% SM in 15% dextrose to cure a synovial cyst (13).

Potentially sclerotherapy may be applicable to treat many other symptomatic cysts within musculoskeletal system.

Zygapophyseal joints cysts are a common painful entity found on the MRI and anteriorly located cysts often communicate with the joint cavity. The Interventional Pain Management community is well trained for needle placements into these joints. Perhaps, the treatment modality discussed here, may be worthwhile studying in efforts to evaluate whether it has the potential to offer a curative response for such problems.

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Anatomy, Imaging, Treatment Options for Baker's Cyst

To the Editor:

We read with interest the case report by Centeno et al (1) describing "Sclerotherapy of Baker's Cyst with Imaging Confirmation of Resolution." We wish to comment on aspects relating to the anatomy, imaging, and treatment options.

Adams (2) originally described the popliteal cyst in 1840 and in 1877 Baker (3) detailed it further as being caused by trapping of fluid in a bursa related to the semimembranosus tendon.

A Baker's cyst is a synovial cyst that usually communicates with the knee joint by way of a slit-like opening, lined with synovium. Rausching and Lindgren (4) in their study suggested 2 mechanisms for cyst formation. The primary cyst has an unilateral valvular connection and the secondary cyst communicates freely with the knee joint and contains synovial fluid of normal viscosity. Intrinsic intraarticular disorders causing excessive joint effusion and cyst may serve as a protective mechanism by reducing destructive pressure in the joint space (5).

Centeno et al (1) describe a large Baker's cyst that freely communicates with the knee joint based on MRI imaging. However the benefit of using MRI is the ability to use the axial plane images to establish positive identification of high signal intensity, at the fluid filled neck of the cyst that connects to the joint

space (6). The article shows a series of MRI images, all of them being sagittal views, which fails to reveal cyst communication with the knee joint.

Centeno et al (1) reported the use of prolotherapy in a 56-year-old male with a large Baker's cyst which had been treated conservatively including multiple simple aspirations which were unsuccessful. However, the mechanism of cyst resolution remains unexplained.

Prolotherapy is a derivation of proliferative injection therapy and also vaguely known as sclerotherapy. We question whether the resolution of the cyst is due to the natural healing effect of prolotherapy agents on injured menisci, strengthening of ligaments or sclerosing effect on the synovium. In current literature, there is conflicting evidence regarding the efficacy of prolotherapy. Furthermore, even after surgical excision of the cyst, recurrence of Baker's cyst has been reported if the underlying cause was not addressed (7,8).

We agree with Centeno et al (1) that this is an isolated case report but could not conclude that prolotherapy is a reasonable treatment option.

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In Response

We appreciate the timely and thoughtful letter submitted by Pinnamaneni and Thomas. This group is concerned that we have not provided evidence that we have in fact treated a true Baker's cyst that communicates with the joint capsule. The initial MRI report from 4/06 does confirm that the reading musculoskeletal radiologist made this diagnosis. We have also provided the image slice below that we believe shows convincing evidence that this is a Baker's cyst.

Prolotherapy as discussed by Pinnamaneni and Thomas is the use of an injectable solution to cause tissue proliferation. However, a much simpler description is that prolotherapy is an osmolar micro injury technique. The ability of sodium morruhate to cause micro injury and thus tissue proliferation has been confirmed in tendons under electron microscopy (1). Pinnamaneni and Thomas suggest that the effects of the prolotherapy may have been to heal any internal derangement within the knee. We would agree that such a micro injury with subsequent healing may explain the results. Micro injury techniques are common in medicine. Examples include non-healing, cutane-

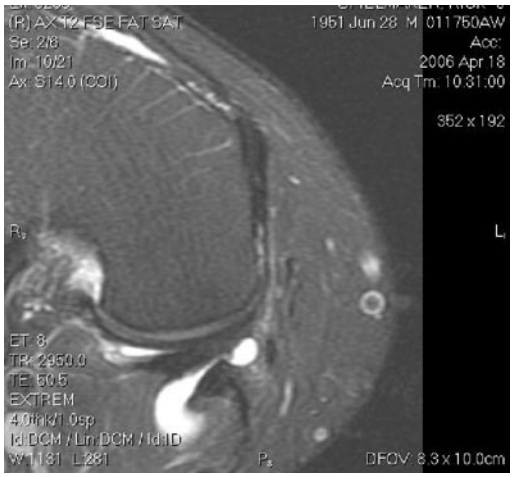

Fig. 1. Axial T2 FSE FAT SAT Image.

ous wound debridement, orthopedic micro fracture for OCD's, orthotripsy for chronic plantar fasciitis, and thermal capsulorrhaphy for shoulder instability. Many of these techniques work by initiating a healing response in the area. Alternatively, as we have discussed, the simple mechanism of capsular constriction via a sclerosant may also explain the result. It is well known that sodium morruhate works via this mechanism to eliminate varicose veins.

We disagree with the statement by Pinnamaneni and Thomas that prolotherapy is not a reasonable treatment option. While we acknowledge that larger placebo controlled, multicenter trials will have to confirm the efficacy of prolotherapy treatment for Baker's cyst, pain management physicians use techniques everyday which do not meet this standard. This list includes cervical epidural steroid injections, various types of RF techniques, intraarticular facet injections, and peripheral joint corticosteroid injections just to name a few. We would not advocate that pain management physicians drop these techniques from their clinical armamentarium just as we would not advocate that providers who use prolotherapy drop this technique. Perhaps Sackett (2) put it best when they said, "Good doctors use both individual clinical expertise and the best available external evidence, and neither alone is enough."

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