Skin and Subcutaneous Fat Atrophy After Corticosteroid Injection for Medial Epicondylitis

To the Editor:

Medial and lateral epicondylitis are the most common elbow problems in adults. Corticosteroid injection for the treatment of medial epicondylitis is a frequently used method of conservative management.

A 34-year-old right-handed woman was referred to our clinic with a 4-month history of pain along the medial side of her right elbow. She had been treated for medial epicondylitis with oral nonsteroidal anti-inflammatory drugs, activity modification, and local cold application for 1 month, and then had a 40 mg injection of methylprednisolone acetate to the right elbow for medial epicondylitis due to the resistance of pain. In 3 months’ time, her pain worsened. She could not wear short sleeves due to severe tenderness at the medial elbow, occurring even after contact with the torso. Examination revealed atrophy of the skin and subcutaneous fat over the medial epicondyle causing the epicondyle to become prominent like an osseous mass (Figure). Marked tenderness was observed over the prominent medial epicondyle by palpation.

Intraoperatively, the atrophied skin and subcutaneous fat tissue were excised from an ellipsoid incision. Two chalky, whitish deposits of corticosteroid were observed over the flexor aponeurosis. The deposits were excised. The common flexor-pronator origin was partially detached by sharp dissection and reflected without disturbing the medial collateral ligament. The underlying fibrous tissue was debrided. The medial epicondyle was drilled, creating multiple bleeding small holes, and then the flexor-pronator origin was reattached. The adjacent subcutaneous tissue and skin were released and brought over the epicondyle, forming good soft tissue coverage. Three years postoperatively, the patient had unlimited range of elbow motion with no epicondylar pain, and no pathologic bony prominence of the epicondyle was observed.

Although steroid injection for the conservative treatment of medial epicondylitis is an alternative method, previously reported complications of periarticular injections and the case presented here demonstrate related adverse effects or complications. Injection into the medial site of the elbow may not be as innocent as expected if appropriate injection technique is disregarded.

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Pain Control Infusion Pumps: A Prospective Randomized Evaluation in Bilateral Total Knee Arthroplasty

To the Editor:


In 1990, I became interested in pain control in total knee arthroplasty (TKA). I tried bupivacaine solution by direct infusion into the joint postoperatively. I performed 8 cases and found that marcaine is dose sensitive to the cardiovascular system. One patient went into shock and 2 others had a drop in blood pressure.

By trial and error, we developed a cocktail of compatible drugs by King’s Guide of lidocaine 1/8th percent, hydrocortisone 400 mg, heparin 1000 mg, and chloromycetin 1 g in 1000 cc of saline. We also measured the amount of cocktail solution to cause slight leakage of the wound for complete relief of pain. We cultured 50
consecutive catheter tips and skin edge of the knees when drains were removed at 72 hours.

Evaluating pain is a problem for all of us. I felt that I could measure the degree of motion obtained on day 3 by a continuous passive motion machine and measure the milligrams of intravenous rescue morphine. We performed 136 single primary TKAs with the K-cycle. I compared them with 12 TKAs with epidural analgesia and 18 TKAs with the standard use of intravenous morphine (Table). I was the surgeon in all cases. The blood saver made the first day useless. Therefore, my measurements were taken on days 2 and 3 with rescue morphine, and range of motion was measured on day 3 when the drains were removed. A professor of statistics reviewed the numbers and said the Q was acceptable.

There was an average increase in knee motion by 44% on day 3 and an average decrease in rescue morphine by 81.5%. There was 1 blood-borne infection, when, during the sixth week of recovery, the patient was cooking and burned his arm, which became infected, and his knee was infected by the same organism. The infection was treated by the K-cycle with antibiotics and cleared nicely. There were only 2 bilateral simultaneous TKAs in the study. Neither patient received rescue morphine on the second or third day postoperatively.

Douglas W. McKay, MD
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Reply:

We appreciate the interest in our research. We too are interested in optimizing postoperative pain protocols for our joint arthroplasty cases. Continuous local anesthetic infusion pumps are just 1 component of a more extensive pain protocol system that we currently use at our hospital. Anecdotally, we have found success using pericapsular injections of a cocktail including local anesthetic, morphine, and ketorolac. Dr McKay accurately reports on the subjectivity inherent with all investigations evaluating pain control. We hope both studies serve to stimulate investigation into optimal postoperative pain protocols.

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Periprosthetic Femoral Condyle Fracture After Total Knee Arthroplasty and Saline-coupled Bipolar Sealing Technology

To the Editor:

We read with interest the article “Periprosthetic femoral condyle fracture after total knee arthroplasty and saline-coupled bipolar sealing technology” (http://www.orthosupersite.com/view.aspx?id=78553) in the January 2011 issue of ORTHOPEDICS. These 4 periprosthetic femoral fractures are unfortunate and problematic, but we believe the evidence implicating the saline-cooled bipolar sealing device as the primary cause of these fractures appears tenuous at best. It is speculation that thermal damage caused by the device affected the mechanical property of the bone, because histological examination of the specimen did not demonstrate any evidence of osteonecrosis. This lack of osteonecrosis is consistent with a recent study by Menendez et al,1 which revealed a notable lack of osteonecrosis when clinically relevant levels of bipolar radiofrequency were applied to ovine cortical bone.

The incidence of early postoperative femoral periprosthetic fractures is low and is usually related to intraoperative technical errors, weakened bone, or an early traumatic event such as a fall. Known risks factors include female sex, osteoporosis, rheumatoid arthritis, steroid use, anterior femoral notching, and intercondylar notch preparation with a posterior stabilized prosthesis.2 In reviewing the 4 cases, it is interesting that 3 of the patients were women, all with osteoporotic bone. The 1 male patient had a history of alcohol use, along with cardiac and pulmonary disease. All of these comorbidities affect the quality of the juxta-articular bone and potentially predispose them to postoperative fracture.

Understanding that the authors have a great deal of experience with posterior-stabilized total knee arthroplasty (TKA), we assume that the intercondylar notch was prepared appropriately. However, a tight fit during trial insertion or final implantation of the femoral component may be a source of an early nondisplaced fracture that propagated and displaced once the patient began to bear weight, especially in the presence of osteoporotic bone. Knowing that anterior notching has been implicated with fracture, it would have been beneficial to see the immediate postoperative lateral radiographs.

Periprosthetic femoral condyle fractures are admittedly frustrating and are associated with a high degree of patient morbidity.

Table

<table>
<thead>
<tr>
<th>Length of Stay, d</th>
<th>Rescue Morphine, mg</th>
<th>ROM, deg</th>
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<tbody>
<tr>
<td>Epidural analgesia</td>
<td>9 20 27 48</td>
<td></td>
</tr>
<tr>
<td>Morphine analgesia</td>
<td>8.9 45.7 26.7 52.9</td>
<td></td>
</tr>
<tr>
<td>K-cycle</td>
<td>4.1 6.7 2.9 89.9</td>
<td></td>
</tr>
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Abbreviations: deg, degrees; ROM, range of motion.
ity. However, it is important to remember that correlation does not imply causation. There are several possible, previously reported factors that may have led to these fractures, and the evidence does not conclusively point to saline-coupled bipolar sealing technology as the primary culprit. We use this bipolar device on all our TKAs and find it to be a valuable adjunct for managing intraoperative blood loss. It is our impression that the true message of this article is the proper use of this device for a safe and efficacious outcome.

Giles R. Scuderi, MD
Alfred Tria, MD

REFERENCES


Reply:
We thank Drs Scuderi and Tria for their thoughtful comments. We agree that from this case series, there is no irrefutable evidence that implicates the use of saline-cooled bipolar sealing as the cause of these fractures. However, it cannot be ruled out, and, to the authors, the association was highly suspicious. After performing thousands of posterior-stabilized TKAs without periprosthetic femoral condyle fractures, we found this device to be the only change in the procedures in question. Osteonecrosis is only an end manifestation of various bony insults, and its absence could have been due to our intraoperative biopsy sampling error. Additionally, its absence alone should not fully exculpate lesser thermophysical alterations, intra- and extraosseous vascular sealing, or other unknown potentially deleterious effects. Like Drs Scuderi and Tria, we find that this technology is highly efficacious at reducing blood loss and continue to use it during TKA, albeit to a much lesser extent over the synovium and perios- teum covering the metaphyseal flare of the femoral condyles. Further, we agree that the take-home point of the article is not that it should be avoided but rather used with the same caution as standard electrocautery. As with any innovative device, surgeons should have a high level of suspicion with any unusual complications and should not wait for overwhelming evidence before adjusting their practices.

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