

Subcutaneous Trigger Point Causing Radiating Postsurgical Pain

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Background: The immediate onset of severe postoperative pain, especially pain radiating distant from the incision site, is uncommon after dermatologic surgery.

Observation: A 37-year-old woman undergoing excision of a nevus from the left side of her midback had an exquisitely tender spot along the incision lines. This tender spot was hard to anesthetize and was clinically visible, after excision of the nevus, as a fibrous bundle in the subcutaneous plane. She presented in the immedi-

ate postoperative period with referred (distant) pain extending down the ipsilateral arm that was caused by a thoracic subcutaneous trigger point.

Conclusion: Surgeons and pain management specialists should be aware of this potential cause of immediate postoperative pain to prevent unnecessary medical or surgical interventions in the postoperative period.

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WHEN A PATIENT HAS severe incisional pain after a dermatologic surgical procedure, several possibilities should be considered. Immediate postoperative pain (0-24 hours) may be a sign of an acute hematoma, which is a surgical emergency. Alternatively, incisional pain in the immediate postoperative period may be a normal sequela of the procedure. Postoperative edema may cause painful distention of the local tissues. Delayed postoperative pain (5-7 days) is often a sign of infection, which is associated with marked redness, drainage, warmth, fever, or a combination of these clinical signs. We describe a patient with unusually severe intraoperative and postoperative pain attributable to a subcutaneous thoracic trigger point that was noted during excision of a nevus. The pain was associated with marked incisional erythema, hyperesthesia, and referred (distant) pain extending down the ipsilateral arm to the hand.

REPORT OF A CASE

A thin 37-year-old woman was referred for excision of an atypical nevus on her left midback. On physical examination, the nevus was 1.0 × 0.8 cm and was located on the left midback below the scapula. An obliquely oriented elliptical excision with 3-mm mar-

gins was planned. Local anesthesia consisted of lidocaine, 1% (Xylocaine), with 1:100 000 epinephrine buffered with sodium bicarbonate. The buffered anesthetic agent was prepared by adding 3 mL of sodium bicarbonate to 27 mL of lidocaine. While receiving the injections of local anesthetic, the patient complained of a particularly tender focal site superior to the nevus. A total of 6 mL of buffered lidocaine with epinephrine was used preoperatively. Intraoperatively, the patient complained of sharp pain at the same site superior to the nevus, which necessitated injection of an additional 2 mL of anesthetic agent into this area before the nevus could be excised. The surrounding skin was undermined to remove tension from the wound margins. Electrocautery (electrodesiccation) was used to obtain hemostasis. Application of the electrosurgical needle to the same tender site superior to the nevus caused severe pain despite the anesthetic injections. On close inspection of this area, a white fibrous bundle of tissue measuring approximately 0.5 to 1.0 cm was visualized in the deep subcutaneous fat. An additional 1 mL of local anesthetic was injected into this area. The patient again complained of severe pain with the injection. The defect was then closed in a layered manner using buried 3-0 polyglycolic acid (Vicryl) sutures and superficial 5-0 fast-absorbing gut sutures. The deep fascia and underlying musculature were not violated at any time during the surgical procedure.

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Figure 1. Myofascial referred pain pattern of the latissimus dorsi muscle. Reprinted with permission from the Mayo Foundation for Medical Education and Research.

The patient returned the next day and reported severe pain at the left thoracic surgical site that radiated from the low thoracic and upper lumbar regions near the surgical site to her left upper back and scapular region and intermittently down her left arm to her hand (radiating pain pattern is shown in **Figure 1**). She had not been able to sleep the night after surgery because of her severe pain. The postoperative surgical bandage was removed. There was marked erythema superior to the closure; yet inferior to the incision, there was at most mild erythema (**Figure 2**). The area superior to the surgical incision was exquisitely tender to light touch (hyperalgesic), while the inferior aspect of the closure was substantially less tender. There was no incisional drainage, fluctuance, swelling, or bruising, and the area was not warm to the touch. That is, there was no clinical evidence of postoperative infection or hematoma at the surgical site. The patient was afebrile. To help assess this unusual postsurgical complication, the patient was evaluated by one of us (T.D.R.) in the Department of Physical Medicine and Rehabilitation at Mayo Clinic in Jacksonville, Florida.

The patient was examined because of her complaints of increased pain at the site of the left thoracic excision



Figure 2. Photograph taken on the first postoperative day shows the wound medial to the left scapula. Note severe peri-incisional erythema.

with pain radiation above and below the incision site on the left side and into her left upper limb. On examination, she was in moderate distress due to the pain and demonstrated diffuse co-contraction of her muscles (elevation and protraction of both shoulders, clenching of her toes, and slow deliberate movements accompanied by reports of pain). Findings from the neurologic examination were normal, as was passive range of motion, once the patient began to relax.

Myofascial pain syndrome was diagnosed, and acetaminophen with codeine and cyclobenzaprine hydrochloride were prescribed. The analgesic was provided for the severe postoperative pain, and cyclobenzaprine was added as a sedating muscle relaxant, given the muscle co-contraction and psychological distress noted on examination. A transcutaneous electrical nerve stimulation (TENS) unit for pain relief was recommended because the patient was familiar with this modality and had a unit available for her use.

She was seen 1 week later and referred for physical therapy consisting of biofeedback, desensitizing massage, active/assisted range of motion for the shoulder and thoracic spine to decrease the pain, and aerobic exercise. She was also referred for a trial of acupuncture. She was seen for 5 sessions in physical therapy for 2 weeks and experienced marked (>80%) improvement in her pain symptoms as well as improved tolerance to massage and exercise. She was seen by a psychiatrist trained in acupuncture (P.T.D.) approximately 6 weeks after surgery. The psychiatrist documented more than 80% improvement in her pain as well as continued normal neurologic examination findings and only minimal tenderness at the site of the surgical incision. Given her ongoing marked clinical improvement and mild pain reported, acupuncture was not thought to be indicated by the clinician or patient.

The excisional biopsy accomplished complete removal of a compound nevus and extended to the panniculus. The nevus showed focal areas of confluence and mild cytologic atypia. The underlying dermis was otherwise unremarkable. Immunostaining for S-100 protein demonstrated the nevus cells but also was otherwise unremarkable. No abnormality of nerves or other structures was noted. Congo red and sulfated alcian blue stains for amyloid were negative.

To our knowledge, this is the first reported case of a trigger point located in the subcutaneous tissue overlying the latissimus dorsi muscle that produced a referred pain pattern across the ipsilateral upper back and arm in a distribution similar to that described for the latissimus dorsi muscle.^{1,2} This trigger point was in a focal area superior to the surgical incision that was physically visible during dermatologic surgery, was unusually sensitive (hard to anesthetize), and produced marked local autonomic cutaneous changes in color and swelling (Figure 2).

Myofascial pain syndrome refers to pain originating from muscle or its associated fascia, which is characterized by trigger points.¹ Trigger points are hyperirritable foci located in taut bands of muscle or its associated fascia that are tender to palpation and may generate referred (distant) pain and local autonomic changes, including vasoconstriction, pilomotor changes, erythema, swelling, and abnormal sweating.¹ Trigger points, however, may also occur in periosteum, tendons, ligaments, skin, or other soft-tissue structures.¹ The diagnosis of trigger points is based on clinical examination because there are no specific diagnostic tests.

Treatments described to have efficacy for treating myofascial pain syndrome include range-of-motion exercises (eg, stretches, massage) and local dry needling or anesthetic injection of the trigger points.³ Medications demonstrated to have efficacy in myofascial pain syndrome include tricyclic antidepressant drugs, although nonsteroidal anti-inflammatory drugs, muscle relaxants, and mild opioids are often used in clinical practice.³ TENS treatment for myofascial pain syndrome has had conflicting results in clinical trials but demonstrated efficacy in a study of patients with chronic back pain.³ TENS delivers a low-level electrical current, which is thought to attenuate pain perception via stimulation of large cutaneous sensory afferent nerve fibers that inhibit input from A δ and C pain fibers in the dorsal horn neurons of the spinal cord.⁴

The unusual sensitivity of this patient's subcutaneous trigger point during surgery and its associated local hyperesthesia and autonomic changes noted in the immediate postoperative period suggest that this trigger point may have been a cutaneous nerve branch of the dorsal ramus of a segmental spinal nerve seen intraoperatively during nevus excision. In accordance with the natural history of myofascial pain, the symptoms related to this subcutaneous trigger point improved with medication (including cyclobenzaprine, a tricyclic compound generally used as a muscle relaxant) and conservative physical therapy treatments, including stretches and TENS.³

We describe a patient who developed a radiating pattern of pain after an outpatient surgical procedure. Her physical findings, pattern of discomfort, and response to treatment are consistent with a myofascial trigger point, although neither the muscle nor fascia was violated in

the procedure. The presence of this referred pain pattern in a soft-tissue structure overlying the latissimus dorsi muscle, rather than in the muscle itself, is not explained by current theories of pathogenesis of myofascial trigger points.^{5,6} However, this presentation would be consistent with a neurophysiologic basis for myofascial pain syndrome,³ which suggests that trigger points are neurally mediated. The report by Shah et al⁷ provides further evidence that trigger points are neurally mediated. In that study,⁷ the authors found elevated biochemical mediators of pain and inflammation not only proximate to active trigger points in the trapezius muscle but also in the distant gastrocnemius muscle in their subjects demonstrating active trigger points in the trapezius muscle. These elevated levels of biochemical mediators of pain and inflammation were not present in the trapezius or gastrocnemius muscles of subjects who did not have active trigger points in their trapezius muscles. These findings are consistent with central sensitization in subjects with active trapezius trigger points (ie, a neurologic basis of chronic myofascial pain). It is important for clinicians who perform cutaneous surgery to be aware of this potential cause of immediate postoperative pain so that an accurate diagnosis can be made and treatment can be implemented should it occur.

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