Palliative Care Rounds

Cutaneous Nerve Transection for the Management of Intractable Upper Extremity Pain Caused By Invasive Squamous Cell Carcinoma

John H. Turnbull, MD[1], Sara L. Gebauer, MD[1], Bruce L. Miller, MD, Nicholas M. Barbaro, MD, Paul D. Blanc, MD, and Mark A. Schumacher, PhD, MD
Department of Anesthesia and Perioperative Care (J.H.T., S.L.G., M.A.S.); Division of Hospital Medicine (B.L.M.) and Division of Occupational and Environmental Medicine (P.D.B.), Department of Medicine; and Department of Neurological Surgery (N.M.B.), University of California, San Francisco, California, USA

Abstract
A recurrent clinical dilemma in the management of patients with painful metastatic lesions is achieving a balance between effective analgesic therapies versus intolerable side effects, in particular altered mental status. We present the case of an immunosuppressed patient post-lung transplant who was suffering from intractable pain caused by widely metastatic squamous cell carcinoma. The patient's progressive, excruciating neuropathic pain was localized to the area of the left wrist and forearm. Additionally, the patient complained of moderate pain at sites of tumor involvement on her right arm and scalp. Attempts to adequately manage her left upper extremity pain included a combination of pharmacologic treatments intended to treat neuropathic pain (gabapentin, SNRI, ketamine, opioids) and focused regional analgesia (infraclavicular infusion of local anesthetic). However, the patient developed intolerable side effects including altered mental status and delirium associated with the systemic agents and suboptimal control with the infraclavicular infusion. Given that the most severe pain was well localized, we undertook a diagnostic block of the cutaneous nerves of the left forearm. As this intervention significantly reduced her pain, we subsequently performed neurectomies to the left superficial radial nerve, lateral cutaneous nerve of the forearm and the posterior cutaneous nerve of the forearm. This resulted in immediate and continued relief of her left upper extremity pain without an altered mental status. Residual focal pain from lesions over her right arm and scalp was successfully managed with daily topical applications of lidocaine and capsaicin cream. Successful pain control continued until the patient's death five months later. J Pain Symptom Manage 2011;42:126–133.

Address correspondence to: Mark A. Schumacher, PhD, MD, Department of Anesthesia and Perioperative Care, University of California, San Francisco, CA 94143-0427, USA. E-mail: schumacm@anesthesia.ucsf.edu

[1]Drs. Turnbull and Gebauer contributed equally to this work.

Accepted for publication: October 17, 2010.

0885-3924/$ - see front matter
doi:10.1016/j.jpainsymman.2010.10.258

Key Words
Cancer pain, capsaicin, delirium, neurectomy, neuropathic pain, opioids, squamous cell carcinoma

Introduction

Achieving adequate pain control in the context of advanced metastatic cancer remains a major clinical challenge. Historically, practitioners have relied on escalating doses of opioid analgesics. When metastatic lesions impinge on nerves, however, effective pain management requires pharmacologic strategies that use a broader spectrum of agents efficacious in the treatment of neuropathic pain.[1] In that context, a combination of medications, including anticonvulsants (e.g., gabapentin and pregabalin) and antidepressants (e.g., tricyclic antidepressants [TCAs] and serotonin and norepinephrine reuptake inhibitors [SNRIs]), is recommended.[1,2] Fortunately, such a multimodal approach is often sufficient to allow adequate symptom control, despite advanced stages of metastatic cancer. Nonetheless, some patients continue to experience either inadequate pain control and/or intolerable side effects, despite aggressive pharmacotherapy. In such scenarios, quality of life can decline rapidly, not only as a result of advancing disease but also as a consequence of sedation and delirium associated with such pharmacologic regimens.

We present a case of a post-lung transplant immunosuppressed patient with widely metastatic and deeply invasive squamous cell carcinoma. The patient complained of intractable left upper extremity pain with a neuropathic component of such severity, despite previous attempts to manage her pain with a combination of antineuropathic and opioid analgesics to the point of sedation, that surgical amputation of the limb for pain palliation was under active consideration. As an alternative to such a draconian intervention, a more targeted pain control strategy using nerve transection was used, which ultimately achieved effective pain relief.

Case Description

A 55-year-old woman presented to our hospital with a chief complaint of intractable left upper extremity pain and altered mental status. Her admission occurred in the context of an outpatient preoperative evaluation for a planned left upper extremity radical amputation after an apparent failure of multimodal pain management. At the time of admission, the patient was still living independently but had experienced a rapid state of decline.

Six years previously, the patient had undergone bilateral lung transplantation for end-stage eosinophilic granulomatous lung disease with secondary pulmonary hypertension. Throughout the post-transplant period, she had been on immunosuppressive therapy with a standard regimen of combined tacrolimus and systemic corticosteroids. Early in the post-transplant period, multiple skin sites of squamous cell carcinoma became manifest, primarily involving the dorsum of the left wrist and frontal scalp. These, as well as other sites, were treated with local excisions over the ensuing years but without successful control of the advancing disease. Topical chemotherapy with imiquimod and 5-fluorouracil also was attempted without an adequate response. Although there was no record of care from a pain specialist during this interval, she was receiving an SNRI (duloxetine 20 mg daily), fentanyl patch at 50 mcg/hour, and hydrocodone/acetaminophen (10/325 mg) for breakthrough pain. It was recorded that she was either allergic or intolerant to nonsteroidal anti-inflammatory drugs, including COX-2 inhibitors, gabapentin, and amphoteracin. During the post-transplant period, she had experienced an episode of acute renal failure, partially resolving to residual chronic renal insufficiency.

Six months before admission, rapid enlargement of the left wrist lesion was noted, associated with sharp and stabbing pain. After biopsy confirmation of squamous cell carcinoma, the patient underwent local radiation therapy at this site (6000 cGy in 30 daily treatments). Although there was some improvement in pain, this respite proved to be temporary.