Assessment of intraoperative pain during Mohs micrographic surgery (MMS): An opportunity for improved patient care

Karen L. Connolly, MD, Kishwer S. Nehal, MD, Stephen W. Dusza, DrPH,
Anthony M. Rossi, MD, and Erica H. Lee, MD
New York, New York

Background: Intraoperative pain during Mohs micrographic surgery (MMS) has not been characterized. However, many patients report postoperative pain on the day of MMS.

Objective: We sought to determine if patients experience pain during their MMS visit.

Methods: In phase I of this study, patients were asked to report intraoperative pain level using the verbal numerical rating scale (0-10) at discharge. In phase II, pain levels were assessed before each Mohs layer and at discharge, to determine whether pain was experienced throughout the day.

Results: Pain was reported at some point during the MMS day for 32.8% of patients (n = 98). The mean pain number reported was 3.7 (range 1-8) out of 10. Pain was more commonly reported by patients who spent a longer time in the office, had 3 or more Mohs layers, and had a flap or graft repair. Patients most frequently reported pain with surgical sites of the periorbital area and nose.

Limitations: Time between Mohs layers was not measured. There was nonstandardized use of intraoperative local anesthesia volume and oral pain medications.

Conclusion: Some patients experience pain during MMS. However, the majority of patients report a low level of pain. Additional preventative measures could be considered in patients at higher risk. (J Am Acad Dermatol http://dx.doi.org/10.1016/j.jaad.2016.02.1230.)

Key words: intraoperative pain; Mohs micrographic surgery; verbal numerical rating scale-11.

Pain has been referred to as the fifth vital sign,[1] and the assessment of pain is commonplace during inpatient hospitalization. However, standardized pain assessment is not universal in health care, including in the outpatient surgery setting.

Pain related to Mohs micrographic surgery (MMS) has been previously studied. However, existing studies focus on postoperative pain. These studies show that pain after MMS is prevalent, reported in over 50% of patients, and most frequently occurs on the day of surgery.[2-4]

Although data on postoperative pain after MMS exist, little is known about evaluation or management of intraoperative pain during the procedure. Because of the inherent wait times of MMS, pain may be relevant to some patients, influencing their experience and perception of the procedure. The objective of this study was to assess intraoperative pain during MMS. Our secondary objective was to identify variables associated with an increased likelihood of patient-reported pain during MMS.

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Reprint requests: Erica H. Lee, MD, Dermatology Service, Memorial Sloan-Kettering Cancer Center, 16 E 60 St, Suite 302, New York, NY 10022. E-mail: leee@mskcc.org.
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METHODS

This quality improvement pilot project had 2 phases and was implemented in the practices of 3 Mohs surgeons (K. S. N., A. M. R., and E. H. L.) at a single cancer center. Data review was conducted under an institutional review board waiver. In the first phase, lasting 2 consecutive months, patients undergoing MMS were asked to verbally report their maximum pain number from any point during their MMS day on the verbal numerical rating scale (VNRS)-11[5] during standard discharge instructions. Questioning about pain was performed by the nurse or physician, who asked the standard question "did you have any pain during the day today?" If a patient responded that they had experienced pain during their MMS day, they were then asked to provide their pain number on the VNRS-11. A score of 0 indicates no pain and 10 indicates worst pain imaginable. On this scale, mild pain is considered to be in the range of 1 to 3; moderate, from 4 to 7; and severe, from 8 to 10.

CAPSULE SUMMARY

- The incidence of postoperative pain after Mohs micrographic surgery is estimated at 50%. However, to our knowledge, pain during Mohs micrographic surgery has not been characterized.
- Almost 30% of patients experience intraoperative pain during Mohs micrographic surgery, identified by standard patient questioning.
- Three or more Mohs layers, flap or graft repair, and surgical sites in the periorbital and nose areas were associated with intraoperative pain.

Standard anesthesia used in our practice is buffered 1% lidocaine with epinephrine (1:200,000). Ice packs are frequently used after local anesthesia and in between Mohs layers. Oral analgesics are provided by patient request (most commonly acetaminophen 650 mg or acetaminophen and oxycodone) and are offered to patients reporting pain.

In the second phase, we implemented a quality improvement measure of routine pain assessment in the MMS unit. For 2 consecutive months, assessment of pain before each Mohs layer was initiated. During the second phase, oral analgesics were offered to patients who reported pain. Pain numbers were recorded on the MMS operative reports using the same methodology as for the participants in the earlier phase of the study. Patient charts were then retrospectively reviewed for age, sex, tumor type, preoperative and postoperative tumor size, location, number of Mohs stages, total time spent in the office, closure, analgesic medication given, and pain number as described above.

Descriptive statistics including relative frequencies, means, and SD were used to describe the study participants and aspects of the surgical procedure. Because many of the surgical characteristics have the potential of being highly correlated, pairwise correlations for the study variables were performed. Participant-reported pain was assessed as a dichotomous variable (no reported pain vs any reported pain). Cross-classifications of reported pain with participant and surgical characteristics along with χ^2 statistics were calculated. The t tests were used to assess the differences in the distributions of age, preoperative size of the lesion, defect size, and the total elapsed time of the surgical procedure by participant-reported pain. Logistic regression was used to assess the association between participant-reported pain and the study surgical procedural variables. Robust SE were calculated to adjust variance estimates for multiple observations from a subset of participants. For these analyses, participant age, sex, and study phase were included in each of the models. All analyses were performed with software (Stata, v14.0, Stata Corp, College Station, TX).

RESULTS

A total of 299 skin cancers were included from 270 participants. Of these, 242 (89.6%) contributed 1 surgical site, 27 (10%) contributed 2, and 1 (0.4%) contributed 3. The average age of participants was 68.1 (SD 13.5) years and those who reported any pain during their surgery were younger than those who did not report pain (65.3 vs 69.4 years, respectively, P = .017). Participants reported pain during 98 (32.8%) of the procedures, with an average reported pain score of 3.7 of 10. A majority of the participants were female (n = 153, 56.7%), however, no difference in patient-reported pain was observed by sex (P = .91).

Fig 1 presents the distribution of reported pain. Of those who reported pain during their procedure, 56% reported mild pain (scores 1-3), 39% reported moderate pain (scores >3-6), and only 5% reported severe pain (scores >6-10). Of patients who reported pain, 63 (64.3%) received an intervention for pain (eg, in-office oral pain medication, injection of bupivacaine 0.5% to the surgical site, or prescription for pain medication), with 57 receiving an intraoperative intervention. Characteristics of the surgical procedures and the distribution of reported