



Korean hand therapy for tonsillectomy pain in children



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ABSTRACT

Objectives: Severe throat pain can result from tonsillectomy and last up to 10 days in children. Codeine has recently been banned by the FDA in light of a recently recognized risk of death in these patients. Acupuncture has previously been associated with decreased pain in children after tonsillectomy. However, about 1 in 5 patients will refuse traditional acupuncture because of fear of needles. We explored Korean Hand Therapy (KHT), an acupuncture technique which does not involve needles, to see if this would also be associated with pain relief and be more widely accepted by children.

Methods: This was a retrospective review of children who underwent tonsillectomy over a 4-month window. No narcotics were prescribed after surgery. Patients who wanted help with pain relief were offered KHT. Perceived pain level was assessed before and after the KHT treatment. Following the 10-day recovery for tonsillectomy, patients or their parents were queried as to how long the pain relief from the KHT intervention was perceived to last.

Results: Fifty-six children underwent tonsillectomy; 29 of these patients (1–14 years) presented for pain relief after tonsillectomy and received KHT. 100% of patients (29 of 29) who were offered KHT accepted the intervention. The mean reported pain level before KHT was 5.03 (SD = 2.69) out of 10. This fell to 3.06 (SD = 3.15) after KHT. Statistical analyses supported the general conclusion that pain reports decline after KHT in the sampled population. 15 patients who received KHT – or their parents – provided a post-recovery report for how long they believed the KHT intervention lasted. The mean duration of perceived KHT benefit was 78.20 h, though the standard deviation was large (64.38 h). With the exception of one child reporting a slight increase in pain, no adverse effects were associated with KHT.

Conclusions: The data tentatively suggest KHT is associated with decreases in perceived pain after tonsillectomy and is widely accepted by children. These data – combined with the cost effectiveness, safety and ease of administering KHT – suggest that further studies exploring the effectiveness of KHT for pain relief after tonsillectomy are merited.

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1. Background

Tonsillectomy is one of the most frequently performed surgeries done worldwide; at least half a million tonsillectomies are done every year in the United States alone [2]. This surgery often results in severe throat pain, which can last up to 10 days [3]. Codeine elixir has long been prescribed for pain relief. However, the Food and Drug Administration recently banned this because of a recently recognized risk of death [4]. Young children may become dehydrated if they suffer significant throat pain and require intravenous fluids in an emergency department.

Acupuncture in general has been shown to reduce pain [5], has a low risk of complications [6], can be done quickly, and has minimal cost (about 11 cents per needle, with many treatments requiring five or less needles). In our previous study, acupuncture was associated with decreased perceived pain in children after tonsillectomy [1]. However, a significant portion of these patients (9 of 42 or about 21%) who presented for pain relief after tonsillectomy refused acupuncture because of their fear of needles.

Acupuncture is thousands of years old, but Korean Hand Therapy (KHT) was developed in the 1970s [7]. KHT is an acupuncture technique based upon the principles of traditional Chinese acupuncture and can be performed without needles using small aluminum discs applied with tape on the hands (Fig. 1). KHT is also inexpensive (about 10 cents per disc, with the current treatment using six stickers per patient) and comes with the added benefit that patients do not need to disrobe—a possible requirement of

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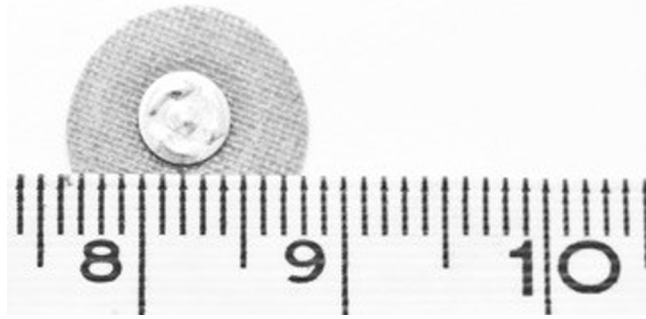


Fig. 1. Korean Hand Therapy can be done with small (4 mm diameter) aluminum discs on an adhesive backing.

traditional acupuncture and a distinct source of discomfort for most children in a medical setting.

There is already some preliminary evidence that KHT is effective at treating common sources of post-operative discomfort. For instance, KHT compared favorably with traditional acupuncture at reducing post-operative nausea and vomiting in a randomized, controlled trial of patients undergoing abdominal hysterectomy [8]. This is especially striking given that the most recent Cochrane review on traditional acupuncture suggested that it could be as effective as medication in preventing postoperative nausea and vomiting in similar circumstances [9].

We wanted to see if KHT could be applied in a novel post-operative context – following tonsillectomy – to give young patients meaningful relief from another common source of post-operative discomfort: pain. At the same time, we wanted to see if KHT would be more widely accepted by young patients than traditional acupuncture was in our previous study [1].

2. Methods

2.1. Participants

The author performed all surgeries and KHT techniques. All surgeries were performed at Rady Children's Hospital San Diego. KHT was offered and performed – free of charge – at outpatient facilities in El Centro or Encinitas, CA during a standard post-operative visit.

The study is a retrospective review of pediatric tonsillectomy patients. The patient pool was drawn from the author's practice and included all patients less than 18 years of age who underwent tonsillectomy during a 4-month period beginning June 10, 2014 and ending September 30, 2014. The Institutional Review Boards of UC San Diego granted approval for this retrospective chart review.

Fifty-six children underwent tonsillectomy during the study period. In addition, all 56 patients also had adenoidectomy and 7 also had bilateral myringotomy and tube insertion.

There were no intra-operative complications and no patient had postoperative oropharyngeal bleeding.

Not all 56 patients were considered in the current review. Only patients who presented for pain relief within the traditional 10-day tonsillectomy recovery window are included in the final data analysis. It was not possible to collect pain data for patients who did not participate in the follow-up visit at all and “after” reports could not be collected for patients who participated in the visit but did not receive KHT.

Of the 56 patients who received surgery, 35 presented for pain relief during the first 10 days after surgery. Five rated their pain score as 0 and were not offered KHT. The rest, 30 patients, were all offered KHT. One of these patients turned 18 during the study and so exceeded the study age limit.

The final study sample consisted of 29 patients (12 females, 17 males) who agreed to have KHT. The mean age of this sample was 6.07 years (SD = 2.88 years, range = 1–14 years). Pain reports were collected from these patients or their parents immediately before and after the intervention.

Nineteen of these patients or their parents provided an additional report after the 10-day recovery window, estimating how long the benefits of the acupuncture intervention lasted. Interestingly, four of these patients reported no change in pain score at the time of the intervention but still provided the author with an estimate of benefit duration. When the author inquired further with these four patients, they stated that they experienced pain relief after returning home and believed it was due to the intervention. Although the possibility of delayed benefit is interesting, the reports of these patients were excluded on the chance that other interventions (e.g., parent administration of alternative pain relief) influenced the reports. The final subsample estimating benefit duration was 15 patients (6 females, 9 males) who reported a change in pain score at the time of the KHT intervention. The mean age of this subsample was 5.87 years (SD = 2.95 years, range = 1 to 11 years).

2.2. Tonsillectomy

Patients received a total of 2–3 cc of 1% lidocaine with 1:100,000 epinephrine injected into both tonsil beds before the start of surgery. An anesthetic technique using nitrous oxide and sevoflurane was used for all patients. Tonsillectomy was done using monopolar electrocautery set at 24 W and all patients were given intravenous dexamethasone 0.5 mg/kg up to a maximum of 12 mg. A monopolar suction cautery hand piece set at the same wattage was used for adenoid removals.

After the surgery, parents were advised that their children could eat or drink whatever they wanted, noting that fluid take should be encouraged to reduce the risk of dehydration. Additionally, children could be as active as they wished (e.g., bike rides, running, playing sports) and could swim, shower, or bathe immediately on going home.

None of the patients were prescribed narcotics for use at home. Parents were advised to respond to child requests for pain relief by administering the appropriate dose of acetaminophen or ibuprofen elixir, respecting child body weight and the time intervals given by the manufacturer.

2.3. Korean hand therapy intervention and pain reports

Patients were invited to return during the 10-day recovery if the family wanted help with pain relief. Upon arrival, the patient or parent (pending patient age and apparent maturity) was asked to use the Faces Pain Score – Revised Scale (Fig. 2) to assess current level of discomfort.

If the pain score was greater than zero, Korean Hand Therapy was offered free of charge for the patient. All patients had KHT done on the right middle finger. This measurement was repeated again after the treatment resulting in a “before” pain report and an “after” pain report.

The hand points for KHT can be identified using a hand-held battery-operated point location device (Pointer Plus, Lhasa OMS, Inc., Weymouth, MA). This instrument measures electrical conductivity along the skin surface. The point finder helps the practitioner identify active KHT points on the hands. The KHT

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