

An Osteopathic Approach to Chronic Sinusitis

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Abstract

Background: Patients with sinus pain and discomfort often seek additional adjunct therapies.

Objective: To determine the efficacy of osteopathic manipulation techniques (OMT) to relieve sinus pain in our outpatient allergy clinic setting.

Methods: Sixteen patients who presented to our clinic in pain and requesting alternative therapies for relief of their chronic sinus pain were offered to receive OMT treatment as an adjunct to their office visit. One patient declined participation after receiving printed information about the OMT techniques. The remaining fifteen patients were given a symptom score card to assess the severity of their sinus pain before offering OMT. The OMT offered consisted of four different direct pressures and "milking" techniques combined with one sinus drainage technique. These five techniques were selected to relieve sinus pain, pressure, and congestion by unblocking nasal passages and improving lymphatic flow. Each technique was given for 3 minutes and the entire process took approximately 18 minutes to complete.

Results: Each patient was given a symptom score card to rate their symptoms before and after manipulation. Data was plotted and statistical analysis computed with GraphPad Software using paired t-test. OMT was not associated with any adverse effects or complaints. Nine of the 15 patients reported symptom relief immediately following OMT. The average reported sinus pain/congestion before OMT was 3.07 (Moderate.) Following OMT, sinus pain/congestion decreased to 2.33 (Minimal.) Average decrease in symptom score after OMT was 0.74 with a p-value of 0.0012 via paired t-test. Subjective data reported by the patients showed symptom improvement immediately following each OMT session. Four of the fifteen patients reported minimal pain during the procedure. No other adverse effects were reported.

Conclusion: This study demonstrated that after OMT, utilizing direct pressure and sinus drainage technique, the overall sinus pain/congestion for all patients improved (p=0.0012). All fifteen patients reported feeling more relaxed after OMT.

Keywords: Sinus; Sinus pain; Sinus pressure; Osteopathic treatments; Sinusitis

Introduction

Sinusitis affects 30 – 40 million people per year and is one of the most chronic illnesses [1]. Treatment of sinus problems may cost over \$5.8 billion per year [2]. Not only is it costly but it requires frequent antibiotic use for patients with sinusitis [2]. It has been reported that a total of 16 million office visits per year are due to sinusitis [3]. The pain and discomfort endured by patients due to sinus pain often make them seek additional adjunct therapies.

Treatment for sinus pain includes frequent antibiotic use and the control of predisposing factors. This includes identifying allergen triggers and avoidance of their exposure. It may also include treatment of allergic rhinitis with antihistamines, topical nasal steroids, decongestants, saline nasal sprays and immunotherapy. Evaluation for gastro esophageal reflux and in some cases paranasal sinus surgery is also done. Despite this, many patients continue to suffer from frequent or chronic sinus pain and seek additional relief with alternative therapies to complement traditional modalities.

Current homeopathic therapies embody osteopathic medicine which is gaining acceptance among the healthcare communities in United States [4]. There are multiple conditions that are treated using OMT including respiratory disorders [4]. Osteopathic manipulative

treatment (OMT) uses manual therapies to improve physiological function and aid in the maintenance of homeostasis in the body [5].

In treating sinus pain, a physician has to consider the upper respiratory system/sinus anatomy and its components. The upper respiratory system includes the nose, the nasal cavity, ethmoidal air cells, frontal sinuses, maxillary sinus, larynx and trachea [6]. In addition; the sinus pathophysiology involves adequate sinus drainage of the maxillary, frontal, anterior ethmoid sinuses into the middle meatus, the posterior ethmoid into the superior meatus and the sphenoid into the sphenothmoid recess [7-9]. Ostia can become obstructed from anatomical processes or mucosal edema (from infection and allergies) and since mucus cannot drain it stagnates.

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There are very few studies evaluating osteopathic treatment for sinus pain. Osteopathic sinus manipulative treatment functions to relieve sinus obstruction and pain; improve venous and lymphatic flow; affect reflex changes; and improve mucociliary clearance [10].

We performed this study to determine the efficacy of osteopathic manipulation as an adjunct to conventional therapy for relief of sinus discomfort symptoms.

Methods

This study was conducted on patients requesting alternative therapies such as acupuncture and other holistic modalities at our outpatient allergy clinic setting. These patients were offered OMT because they have repeatedly presented at our clinic complaining of inadequate response to current medical/surgical therapy. These patients were given handouts to educate them on OMT. Subsequently, OMT was offered. One patient changed her mind after reading the handout. A total of fifteen patients agreed to receive OMT and signed informed consent. The OMT techniques used were derived from DiGiovanna E L., et al. 3rd ed. An Osteopathic Approach to Diagnosis and Treatment. Baltimore, MD: Williams & Wilkins; 2005.

The OMT took a total of 18 minutes. Each of the four different direct pressure and “milking” techniques together with one sinus drainage technique were administered for 6 cycles, 3 minutes per each cycle. “Milking technique” is a procedure used in osteopathic medicine where pressure and manipulations are applied to anatomical organs or structures to facilitate drainage and circulation. There are no published clinical trials that objectively demonstrate that use of this technique in sinusitis results in resolution of air-fluid levels. However, the proposed mechanism of action of the milking techniques when applied to the lymphatic system has been successful in increasing lymphatic circulation. This technique is presented by Earl Miller, DO in which he squeezes and pinches the lymph glands in order to improve circulation and “directly relieve the lymphatic and venous stasis” [11,12]. In addition, Dr. Miller performed this technique to establish lymphatic absorption by implementing circulation of the lymphatic glands via milking manipulation [12,13]. Another osteopathic doctor renowned for his work in lymphatic treatment is Gordon J. Zink, DO and he is accredited with promoting direct milking techniques as well [14]. This technique is both taught and commonly used in osteopathic medicine.

Each patient was given a symptom score card to rate their symptoms prior to and after manipulation. This subjective rating scale was part of the pain scale utilized at our institution. Data was plotted and statistical analysis computed with GraphPad Software using paired t-test.

Treatment techniques [10]

The position of patients and operator, described below, are identical for all techniques:

1. Patient position: supine on the table, with eyes closed, and relaxed.
2. Physician Position: seated comfortably at the head of the table [10].

Direct pressure and “Milking”

A) Pressure was applied directly with the thumbs over the frontal sinuses. The pressure is gradually increased and released in a gentle, rhythmic motion, never hard enough to cause severe pain. The cycle is released several times. The thumbs are then placed side by side in the center of the forehead and, with gentle pressure downward, are moved laterally toward the temples. This cycle is repeated six to eight times.

B) For the supraorbital notch, gentle pressure may be applied over

the supraorbital notch; then the thumbs are swept along the eyebrow ridge bilaterally [10].

C) For the maxillary sinuses, the same technique was applied to the maxillary sinuses. Pressure was applied over the sinuses with the thumbs. The nasal passages were “milked” by beginning with the thumb on each side of the nose and pressing down while sweeping the thumbs laterally along the maxilla [10].

D) In the temporal areas, direct pressure was applied over the temporal areas by gently placing the thenar eminences in the temporal fossae bilaterally and compressing these areas between the hands. Pressure was applied and released in gentle, rhythmic motion [10].

Technique for drainage of the nasal passages

The nasal passages are milked by the examiner, who places the thumbs of the right hand on the left side of the patient’s nose and the left thumb on the right side of the nose, the thumbs crossing above the bridge of the nose. Pressure was applied alternately by each thumb, moving down the length several times, then the thumbs are reversed and a sweeping motion is made bilaterally down the sides of the nose and out over the maxillae [10].

Results

Nine of the 15 patients reported symptom relief immediately following OMT. The average self reported sinus pain/congestion before OMT was 3.07 (Moderate). Following OMT, pain/congestion decreased to 2.33 (Minimal). The average decrease in symptom score after OMT was 0.74. Subjective data reported by patients showed symptom improvement immediately following OMT with a p-value of 0.0012 via paired t-test (Table 1). All patients reported feeling more relaxed after the OMT procedure. Minimal pain was reported during the procedure by 4 of the 15 patients. No other adverse effects were reported.

Discussion

Osteopathic treatment focuses on the musculoskeletal system by optimizing its motions; it will result in overall better function [15]. Osteopathic manipulative techniques designed for treatment of the paranasal sinuses act to relieve sinus pain, pressure, congestion and inflammation by theoretically unblocking the nasal passages and by improving lymphatic flow [10]. This should prevent mucus build up

Average Self Reported Sinus Pain/Congestion (N=15)		
	Mean (SD)	Mean Difference (95% CI)
Before	3.07 (0.88)	0.73 (0.34 to 1.12)
After	2.33 (0.72)	

Paired t-test p = 0.0012

Table 1:

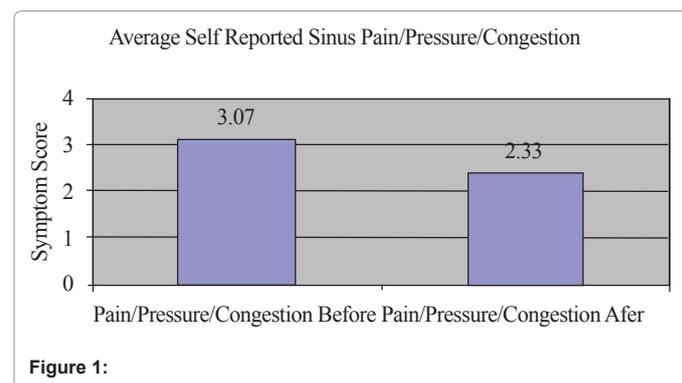
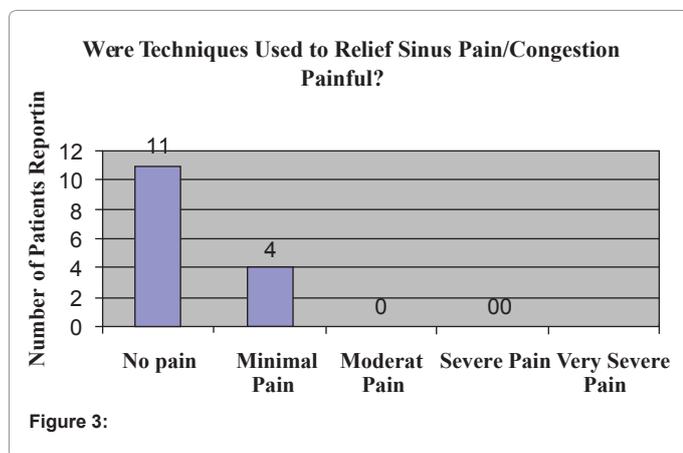
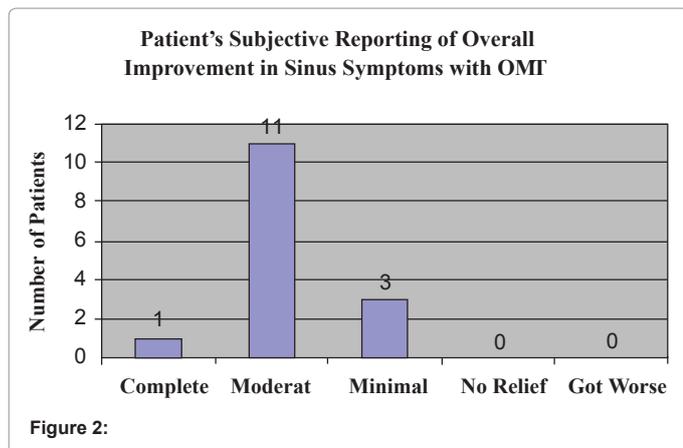


Figure 1:



and thickening of the sinus cavity therefore resulting in a decrease reoccurrence of sinus infections. However, more extensive studies need to be done to investigate the effect of OMT on sinus pain when traditional interventions fail.

This study demonstrated that after osteopathic manipulative treatment, utilizing direct pressure and sinus drainage techniques, the overall pain/congestion for all patients improved ($p = 0.0012$). Although post-treatment improvements may be due to temporary neuromuscular effects from manipulation of muscles and the supraorbital nerve, all patients reported not only feeling more relaxed after OMT but also report being in less pain than before the OMT. Many chronic sinus pain sufferers despite being on various medication regimens still experience inadequate pain control.

Complementary osteopathic treatments are directed at symptomatic relief. Albeit, osteopathic manipulations are not a cure of underlying viral, bacterial nor fungal infections, it can be used in concert with traditional therapies to possibly minimize the use of additional pain medications. Degree and duration of relief may vary, but patients generally appreciate any relief of pain. Long term use of antibiotics and steroids in chronic sinusitis may be more harmful than beneficial. Over reliance on pain medication may cause additional problems. However, due to the lack of current research on osteopathic manipulative treatment and its effects on sinus pain, no guidelines have been established.

The major limitation of our study is the lack of a control group in which no OMT or sham treatment was given. However, these OMT techniques are taught in osteopathic schools and are published in osteopathic textbooks [10]. Moreover, the OMT was well tolerated. All

fifteen patients left reporting less pain and more patient satisfaction from their medical office visit than with previous medical clinic visits. Nonetheless, additional studies with sham techniques as a control should be performed in the future to confirm our results. Further blinded studies need to be performed to investigate the role of OMT and alternative modalities as an adjunct in mitigating sinus pain.

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