Clinical Integration of Osteopathic Manipulative Medicine

Family Medicine – Rhinosinusitis

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Intro: Rhinosinusitis is a symptomatic inflammation of the nasal cavity and the paranasal sinuses. Rhinosinusitis is further classified based upon the duration of symptoms, ranging from acute (< 4 weeks), subacute (4-12 weeks), chronic (> 12 weeks) to recurrent (4 or more episodes of acute rhinosinusitis per year). It can be further classified into viral rhinosinusitis and bacterial rhinosinusitis. The term "rhinosinusitis" is preferred to "sinusitis" since rhinitis and sinusitis usually exist together. Among the risk factors for rhinosinusitis are upper respiratory tract infections, allergic rhinitis, asthma, as well as smoking, with the most common cause reported to be a viral infection associated with the common cold. More than 30 million individuals are affected by rhinosinusitis every year in the United States and the burden associated with rhinosinusitis is estimated to be near $3 billion dollars each year.

Patient presentations:

Fever

Nasal congestion and obstruction

Purulent nasal discharge

Maxillary tooth discomfort

Facial pain or pressure that is worse when bending forward

Cough

Ear pressure or fullness

Headache

Halitosis
Indications requiring urgent referral:

Persistent high fever
Severe headaches
Abnormal vision
Altered mental status
Periorbital edema

Differential diagnosis:

The differential diagnosis of rhinosinusitis involves other conditions that cause symptoms present in rhinosinusitis:

The common cold — Patients have symptoms of rhinitis and nasal congestion typically. Other common symptoms include a sore throat or cough.  

Noninfectious rhinitis — Allergic rhinitis is a common causes of rhinorrhea and nasal congestion mimicking rhinosinusitis.

Facial pain — Many conditions can lead to facial pain, including neuralgias, temporomandibular joint disorder, pain associated with neoplasma, or carotodynia.

Headache — Frontal sinus pain may result from many different types of headaches such as migraine headaches, tension headaches, and cluster headaches.

Dental pain — Patients with dental pain sometimes have referred pain to the sinuses.

Miscellaneous — Other entities that need to be in the differential for rhinosinusitis include HIV infection, Kartagener syndrome, as well as Wegener Granulomatosis.

Clinical pearls and diagnostic tools:

Diagnostic tests are not routinely recommended. Additionally, a patient’s history and physical exam help to establish a diagnosis but are not helpful in distinguishing between bacterial and viral causes.

Most cases of rhinosinusitis have a viral cause in terms of etiology. Acute bacterial infection occurs in only 0.5 to 2.0 percent of episodes. Also, accurate diagnosis of bacterial rhinosinusitis is very difficult given the overlap of signs and symptoms seen with viral and bacterial causes.
When a bacterial cause is present, patients recover slightly quicker with the use of antibiotics, but the vast majority (>75%) of patients recover with symptomatic treatment of the rhinosinusitis alone.  

Relief of symptoms has been accomplished with nasal saline spray, nose drops, or saline irrigation.

**OMM Integration:** The goals of treatment of sinusitis are to reduce tissue edema, facilitate drainage, and control infection. Osteopathic physicians can use osteopathic manipulative treatment (OMT) and antibiotics (if bacterial etiology suspected) to reach these goals. As a treatment modality, OMT can be used to improve patients pain and congestion symptoms. A recent preliminary pilot study of 16 patients with chronic sinusitis using an OMM treatment protocol of 1 osteopathic manipulative session consisting of 5 maneuvers, each lasting 3 minutes, found improvement of the patients' symptoms. The primary outcome measured in this study was self-reported sinus symptoms on a scale of 0 (no symptoms) to 5 (very severe symptoms), and the study found that the average pre-treatment score of 3.07 (moderate) was reduced to 2.33 (minimal) after the OMM session (p=.0012). All patients reported feeling more relaxed and less pain after OMT.

**Osteopathic Structural Examination:**

The following are areas to include in your osteopathic structural examination:

- **Thoracic Inlet**
- **First Rib (typically elevation)**
- **Presence of a subclavicular Chapman’s point**
- **Presence of a posterior upper cervical Chapman’s point**
- **Cranial bones**
- **Occipitoatlantal (OA)**
- **Tenderness of mastoid process and nasion**
- **Maxilla (internal rotation)**
- **Pterygopalatine fossa**

**Treatments options include:**

- **BLT Thoracic inlet release**
- **Suboccipital release**
Sinus Drainage techniques

Frontal lift

Nasion Spread

Maxillary lift

Frontal sinus direct pressure and effleurage

Nasal passage drainage

Maxillary sinus direct pressure and effleurage

Cervical lymph drainage

MET for cervical spine dysfunction

Venous Sinus Drainage

Sphenopalatine ganglion release

**Appendix:**

The following anatomic and physiologic considerations should guide administration of OMT to the pediatric patient with sinusitis (taken from “Sinusitis in Children: The Importance of Diagnosis and Treatment”), though many are applicable to the adult patient also:

Drainage of sinus cavities is not only accomplished by gravity, but it also requires normal bone motion, functional ciliary motion, and free flow of mucus. Ethmoid and maxillary sinuses are present at birth; frontal and sphenoid sinuses do not appear until age 8 to 10 years. Compression of the anterior cranium during delivery or from postnatal trauma can encroach on the size of the sinus cavities and interfere with normal drainage.

Compression of the temporal and sphenoid bones can also affect the sphenopalatine ganglion, which carries both the parasympathetic and sympathetic autonomic nerves to the nose and the sinuses.

Compression of the cranial base and occipitoatlantal region can affect the tone of the parasympathetic autonomic nervous system via the vagus nerve as it exits through the jugular foramen and can obstruct venous outflow, thus contributing to swelling of the tissues of the nasopharynx and face.

Innervation of the sympathetic autonomic nervous system to the head arises from the upper thoracic vertebrae and then travels through the inferior, middle, and superior cervical ganglia which lie in the deep fascia of the neck.
Somatic dysfunction in the neck and upper thorax can affect the thoracic outlet by somatovisceral reflexes as well as by direct compression of the venous and lymphatic drainage of the head.

**Citations for paper:**


