OSTEOPATHIC APPROACH TO THE ALLERGY PATIENT

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“My object is to make the Osteopath a philosopher, and place him on the rock of reason.”

A.T. Still, M.D., D.O.
Lecture goals

- Know the functional anatomy of the ENT system
- Understand Eustachian tube dysfunction
- Know the function of the nasal passages
- Understand the pathophysiology of allergies
- Know the complications of allergies
- Understand the OMM treatment process in relation to the allergy patient and the research evidence
3. Dagenais, DC, Simon, and Scott Haldeman, DC, MD, PhD. "Chiropractic a review Article." Primary Care: Clinics in Office Practice June 2002.
4. Ziment, MD, Irwin, and Donald P. Tashkin, MD. "Current review of allergy and clinical immunology (supported by a grant from Astra pharmaceuticals, westborough, mass) Alternative medicine for allergy and asthma." Journal of Allergy and Clinical Immunology 106.4 (2000).
Dysfunction of the ENT system is a very common reason for office visits.

Osteopathic approach utilizes the knowledge of structure/function of the head, neck, and upper T spine.

OMM helps to balance the body’s homeostatic mechanisms as an adjunct to medical therapy.
FUNCTIONAL ANATOMY
Anatomy

- Nares
  - Blood supply
    - Internal Carotid –
      - Ophthalmic artery
    - External carotid
      - Internal Maxillary
Sympathetic Innervation

- ENT derives innervation from T1-4
- Synapses in upper thoracic and cervical ganglia
- Follow the arterial vessels
  - Carotid plexus - deep petrosal nerve - nerve of pterygoid canal - sphenopalatine ganglia
- Visceral afferents follow the same sympathetic pathways
Increased sympathetic activity

- Augmentation of normal physiological responses
  - Vasoconstriction most commonly
- Decrease in nutrient supply plus lymph and venous drainage
- Impairment of immune response and decreased medication concentration locally
- Increase in thickening of secretions
Symptoms Associated With Increased Sympathetic Tone

- Photophobia
- Vertigo
- Tinnitus
- Hyperesthesia of pharyngeal mucosa
- Mydriasis (dilation)
  - Increases risk if narrow angle glaucoma
  - Increased intraocular pressure
**Anatomy**

- **Nares Nerve Supply**

  **Sensory**
  - Trigeminal (Maxillary and Ophthalmic)

  **Sympathetics**
  - Vasoconstriction
  - Results in pooling of blood in sinusoids deep to mucosal glands
  - The congestion causes most of mucosal edema
Parasympathetic Innervation

- Fibers travel via facial nerve (CN VII)
- Synapse in the sphenopalatine ganglion
- Stimulation causes clear, thin secretions of the nasopharynx and sinuses
  - Increase in post-nasal drainage and rhinorrhea
  - May exacerbate asthma symptoms
    - Reflex bronchoconstriction due to increases parasympathetic tone
Parasympathetic Effects

- Pupillary contraction
  - Via CN III
  - Dysfunction may affect accommodation
- Tears
  - Itchy/watery eyes
- No effect upon thyroid gland
Parasympathetic Effects

- CN III, IV, VI pass under petrosphenoidal ligament (anterior extension of tentorium cerebelli)

- Dysfunction of sphenobasilar or temporal bones may stress ligament and put pressure on nerves
Venous and Lymphatics

- 85% of venous drainage from the head through jugular veins
- Dysfunction of jugular foramen
  - Effect Vagus
  - Back pressure of cavernous sinus
  - Cause dysfunction of CN III, IV, VI, V₁
    - travel in lateral wall of cavernous sinus on way to superior orbital fissure
Venous and Lymphatics

- Lymphatic congestion leads to boggy, edematous tissues
  - Local effect on homeostasis
  - Decrease in nutrients and removal of waste products
  - Increase risk of infection

- First sign of lymphatic congestion of ENT
  - Fullness in supraclavicular tissues
Neural: Sensory Supply

- Trigeminal nerve (CN V) sensory to
  - Mastoid air cells, nasal mucosa, TMJ, cornea, tentorium cerebelli, and anterior/middle cranial fossa
  - Dysfunction leads to headache in anterior fossa, eyebrows, and sinuses
  - Lateral pterygoid can entrap buccal branch of trigeminal
    - Causes tingling in cheek
    - Trigeminal neuralgia
Eustachian Tube Dysfunction

- Has been associated with several disorders, signs and symptoms
- The tube is ventilated 3-4 times/min
  - Swallow, sneeze, yawn
- Mucosal swelling blocks tube
  - Relative negative pressure in medial ear
  - Tympanic membrane retraction
Eustachian Tube Dysfunction

- Possible cause of otitis media
- M. Mills, MD
  - Published study for OMT as adjuvant to treatment in AOM
  - Found less episodes of AOM and less surgical interventions
  - OMM treatment was applied to the entire MS system with emphasis on the head and neck
Eustachian Tube Dysfunction

- May produce a conductive hearing loss
  - Can last for months
  - Fluid can turn to jelly-like substance
- Blockage allows fluid build-up in middle ear with air bubbles
  - Cone of light is dull
  - Tympanic membrane turns amber to gray in color
Eustachian Tube

- Somatic cause of dysfunction
  - Internal rotation of temporal bone
  - Sphenobasilar torsion
  - Sphenobasilar sidebending/rotation
  - Medial pterygoid trigger point
UPPER RESPIRATORY ALLERGIES
Pathophysiology
General comments

- Affects the normal function of
  - Nasal passages
  - Sinuses
  - Ears
  - Pharynx
  - Bronchial tubes
Nasal Passages

- First entrance to ENT system
- Turbinates function
  - Warm air to 98.6 degrees
  - Humidifies to 75%
  - Filters clear of particulate matter
- 80% of the populous have “nasal cycles”
  - One nares rests while the other functions in a dominant manner
Nasal passages continued

- Mucous layer
  - Barrier
  - Ciliated columnar epithelium move it posterior
  - Majority is swallowed
  - Entire blanket is replaced 3-4 times per day
  - Enzymes within this help kill pathogens
    - Gastric acidity will kill pathogens that are not affected by enzymes
Pathophysiology

- Sensitivity of host enhanced
- Allergen exposure
  - Particles 2-4 nm. will reach lower respiratory tract
- Increase in histamine release (main mediator)
  - Esterase, leukotrienes, prostaglandin D2, kinins, kininogen, tryptase
Initially get an increase in parasympathetics
- Increased glandular secretions mucous is profuse and watery - “flush out”

If unsuccessful, sympathetic afferents (T1-4) increase firing
- Increase in goblet cell/ciliated columnar ratio
- Thicker mucous that doesn’t drain well
- Increased vasculature permeability in sinusoids
  - Edema and increased secretions
- Vasoconstriction
Decreased ability to protect from viral attack on epithelium

- Mucosal ulceration with sloughing
- Local congestion
- Exudate formation
  - Good medium for bacterial overgrowth

Increased afferent sympathetic from T1-4

- Viscero-visceral reflexes
Complications of Allergic Rhinitis
Complications

- **Serous Otitis Media**
  - Retracted, amber colored TM with decreased motion
  - Obstruction of eustachian tube
  - Toynbee phenomenon
    - Eustachian opening stays open during swallowing
    - Allows fluid to move retrograde fashion up the tube
Complications

- **Chronic Sinusitis**
  - Pain, headache, fever, purulent discharge

- **Nasal Polyps**
  - Increased frequency with allergies
  - Not due to the allergic response directly
  - Fluid collects in mucosa and begins to “sag”
Complications

- **Asthma Exacerbation**
  - Reflex bronchoconstriction with parasympathetic outflow
    - From stimulation of nasopharynx and nose
  - Increase in airway inflammation
Treatment of Allergies
Patient Participation In Treatment

- Avoid offending allergens
  - Air conditioning in cars
  - Bleach solution to damp areas (molds)
  - Avoid grasses, hay, weeds etc.
  - Filters in home heat/AC
Many people are looking for complementary and alternative treatments

- Danish study found that 50% of their study population sought out osteopathic treatment as a supplement to medical treatment
- 42% of adults in US consult alternative medical practitioners and spend 27 billion/year on therapies
- 41% of rhinosinusitis sufferers utilize complementary and alternative treatment in the US
  - 59% in UK, 26.5% in Germany, 27.2% in Singapore
Evidence Based Medicine

- Haldeman noted that 0.7% of all visits to chiropractors were for allergies.
- His review of literature and allergies questioned the sham treatments in that they are doing too much which may lead to false conclusions.
- Better methodology is needed with larger numbers in the studies for adequate statistical significance.
Evidence Based Medicine

» Alternative methods may be valuable adjuncts to treatment

» Reflexology, yoga, massage, respiratory exercises, qi gong

» No conclusive evidence has been shown to date
  » Yoga breathing exercises/postures and qi gong practices have evidence to support usage in asthmatics patients

» Acupuncture not convincingly supported in the literature for benefit at this time
Evidence Based Medicine

- Many studies reviewed have question about the sham therapies and their placebo effect.
- Size of studies are also of concern.
  - Need larger numbers to improve the power of the studies.
- Unreliable research methodology is another problem in CAM studies.
Many review articles have concluded that there is insufficient evidence to support or refute the use of manual therapies for asthmatics.

The literature of manual medicine and allergy patients is very scarce.
Evidence Based Medicine

- One osteopathic study showed favorable effects to asthma patients looking at peak expiratory flows.
  - Small study
  - Needs followup with evaluation of full pulmonary function studies
Traditional Osteopathic Philosophy tells us:

- Improve the body’s function by removing restrictions in the MS system
  - Lymphatics, sympathetics, parasympathetics, vascular
  - Attention to respiratory mechanics and viscerosomatic reflexes traditionally taught.

Profession needs more individuals interested in doing sound research to add to the OMM literature data base
Pharmacotherapy

- Medications
  - Leukotriene inhibition
  - Nasal steroids
  - Oral steroids
  - Topical nasal antihistamines
  - Oral antihistamines
  - Immunotherapy
Pharmacotherapy

- Decongestants
  - Decrease air resistance
  - Sympathomimetic

- Antihistamines (allergic rhinitis)
  - 1st Generation (Benadryl)
    - CNS side effects
  - 2nd generation (Allegra)
    - Nonsedating
Pharmacotherapy

- **Intranasal steroids**
  - Acute sinusitis, allergic rhinitis
  - Benefits
    - Vasoconstriction
    - Inhibits early and late phase sensitivity to allergens
    - Decreases sensitivity to nasal irritants
    - Decreases number of basophils in epithelium
Pharmacotherapy

- **Antibiotics**
  - Acute sinusitis - treat 2-3 weeks
  - Chronic sinusitis - treat 3-4 weeks
  - Amoxicillin/ampicillin

- **Alternatives**
  - Trimethoprim/sulfamethoxazol (Bactrim)
  - Clarithromycin (Biaxin)/ Azithromycin (Zithromax)
  - Cefuroxime (Ceftin), Cefproxyl (Cefzil)
Osteopathic Treatment Goals

- Increase blood supply
- Increase venous and lymphatic drainage
- Decrease muscle spasm
  - viscero-somatic
  - Helps release restriction in respiratory effort
- Decrease reflex disturbances impairing
  - Vasomotor regulation
  - Function of viscera secondarily involved
Lymphatics
- Rib raising, Doming diaphragm, cervical nodes, thoracic inlet release, pectoral traction

Cervical spine
- Close proximity of sympathetic ganglia and parasympathetic ganglia

Cranial
- Ethmoids refer back to C-3
- Sphenobasilar symphysis, facial bones, temporal bones
Manipulative Medicine

- Sinus drainage techniques
- Counterstrain points
- Upper thoracics T1-6
- Ribs 1-10
  - 1-6 – associated with viscerosomatics
  - 7-10 – diaphragm attachment
- Sacrum
Manipulative Medicine

- OMT
  - Sympathetic
    - T 1-6 (includes lower respiratory tract)
  - Parasympathetic
    - OA/AA
    - CV4
    - OM Suture
Manipulative Medicine

- OMT
  - Lymphatics
    - Rib raising
    - Thoracic pump
    - Doming diaphragm
    - Pectoral traction
    - Cervical drainage
    - Tracheal nodes
Manipulative Medicine

å OMT

å Eustachian tube
  å Temporal bone
  å Sphenobasilar synchondrosis strain patterns
    å Torsions
    å Side bending/rotation
  å Medial pterygoid trigger points
Specifics for ENT Organs
Sinuses

- Chronic sinusitis
  - Epithelium changes
    - Ciliated columnar to stratified squamous
    - Lose homeostatic clearance mechanisms

- Where to evaluate and treat
  - Frontal and ethmoids
  - Facial bones
  - Vomer pumping
  - CV4
Pharynx

- Where to evaluate and treat
  - Anterior cervical fascia
  - Hyoid bone
  - Eustachian tube treatments
  - Sphenopalatine ganglia treatment
A bad physician treats the symptoms

A good physician treats the disease

A rare physician treats the patient
ILLNESS

HOST + DISEASE
ILLNESS

HOST + DISEASE

OSTEOPATHIC

ALLOPATHIC
Environmental factors:
- Structural
- Medical
- Surgical
- Psychosocial
- ETOH/Smoking/Drugs
- Allergens
DECOMPENSATION

ILLNESS

HOST + DISEASE
DECOMPENSATION

ILLNESS

OMT

HOST + DISEASE

HOMEOSTASIS

Medical Treatment
Cervical Spine Counterstrain Treatment
Review of Principles

- Find most significant tender point: treat the most tender first. If more than 1 of similar tenderness, treat the most central and/or proximal, (generally vertebra before rib).
- Slowly place patient in position of ease.
- Check for 70% resolution of tenderness.
- Keep finger on tender point during entire treatment, but with minimal pressure.
- Hold for 90 seconds.
- Slowly & passively bring patient back to neutral.
- Recheck tender spot for 70% resolution.
Finding the posterior cervicals
P1C Inion

- About 1-2 cm inferior to the external occipital protuberance, slightly lateral, on the insertion of the semispinalis capitus

- F with fine tuning
PIC Inion
Alternate treatment

- Achieves Flexion at the OA joint
- Doesn’t stress the forehead
- Allows you to monitor the tenderpoint easily
- If you do this, allow the thumbs to have slight lateral pressure rather than compressing together
P1C and P2C

P1C: about 3 cm below the inion, and 1 cm medial to the occipitomastoid suture; press anteromedially against the occiput
   - possibly obliquus capitis superior

P2C: in the main muscle mass about 2-3 cm lateral to the midline and just below the occiput
   - possibly rectus capitis posterior
   - E with fine tuning
   - Or, RA with fine tuning
P1C and P2C, Alternate Treatment

- RA

- (as always, with fine tuning)
- Inferolateral aspects of C2 spinous process
- Pull medially, anteriorly and superiorly
- FSARA
  - Flexion to 45º
  - Sidebend and rotate away
- Found in cases of vertigo
P3C maverick and P4-8C

On the inferolateral aspects of the spinous processes (SP), named for the spinal nerves which exit below the vertebrae (e.g., P3C points are actually on C2 SP)

ESARA
Anterior TPs
Lateral first cervical, or 1 CTP

- On tips of transverse processes of C1
- **S**
- **Sidebend** plus fine tuning
- The sidebending may be away or toward. In many cases, if you find the transverse process more prominent on one side, then bend the neck to make it even more prominent (increase convexity of OA sidebending curve). 

![Lateral first cervical, or 1 CTP](image)
• Alternate treatment, not shown in text: Rotate Away, then fine tune with sidebending, generally away (often easier).
A2-6C, A8C

- Anterolateral aspect of transverse processes of the respective vertebra
- FSARA
- Flex to vertebral level
- A8C requires about the same flexion as A3C (hint, hint)
Note that A7C and A8C tenderpoints seem to be related to the SCM muscle insertions.
Posterosuperior surface of clavicle where SCM inserts

FSTRA