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Chronic sinusitis

By Paul Bergner

Abstract

Chronic sinusitis is a common complaint in herbal practice. Recent discoveries of the complex causes and conditions surrounding chronic sinusitis may help the herbalist select the most effective remedies and the method of their application. The underlying infective agent in most cases appears to be a fungal pathogen, accompanied by an allergic response to the fungus. Multiple fungi may be present, as well as multiple simultaneous infecting bacteria. Broad-spectrum topical anti-microbial herbal agents, which can be administered as a nasal spray, are reviewed, with two case histories.

Chronic sinusitis is a common complaint in herbal practice. In its chronic form, it may be accompanied by nasal polyps, organic changes in the mucosa visible on CT-Scan, and sometimes requires surgery. The condition usually does not respond well to antibiotic treatment. One reason appears to be that chronic sinusitis is usually caused by fungal infection, with a corresponding allergic reaction to the fungus, in addition to the bacteria that are sometimes present.

Fungal sinusitis

Allergic fungal sinusitis, a subset of chronic sinusitis, was recognized in 1984. Its incidence was assumed to be low, from 6-8% of patients requiring surgery. Diagnosis depended primarily on assessment of Type I hypersensitivity, Immunoglobulin E-mediated hypersensitivity (Bent and Kuhn). It is now considered to be responsible for most chronic cases (Clarke et al; Feger et al). Researchers at the Mayo Clinic recently demonstrated that some form of fungal infection is involved in nearly all chronic infections and that eosinophilia, rather than IgE-mediated hypersensitivity, is the typical immune response (Ponikau et al 1999). The researchers examined the nasal secretions of 210 patients with chronic sinusitis, and found evidence of fungal infection in 96% of them. Allergic fungal sinusitis was diagnosed in 93% of the patients

Continued on page three

West Nile: From the Front Lines

by Paul Bergner

Abstract

Mosquito-borne West Nile Fever is now present in most of U.S. and Canada east of the Rocky Mountains. As of August 22, 2003, 772 cases have been officially confirmed in 30 states, including 17 deaths. More than a third of the cases and 40% of the deaths have occurred in Colorado, with cases clustered in the Front Range cities. Mild forms of the disease are much more common in Colorado, and as much as 5% of the population of the Colorado Front Range may have or have had mild symptoms this year. Treatment of uncomplicated West Nile fever may rapidly become a part of any standard herbal or alternative medical practice throughout the country. Twenty-five cases of mild disease not requiring hospitalization are reviewed, along with one case with hospital admission.

West Nile Virus has now become endemic in most of the U.S. and Canada east of the Rocky Mountains. The incidence this year is unusually high in the Front Range area of Colorado, between Pueblo and Fort Collins. Excessive spring rainfall and an unusually large resulting mosquito population may explain the concentration of the disease there. The primary reservoir of the virus is the bird population, and it is spread to large mammals and to humans via bites from mosquitoes who have bitten a bird with a viremia.

The highly publicized cases and deaths in the media are misleading, in that they greatly under-report the actual prevalence of the illness, whose symptoms are generally so mild that sufferers do not seek the care of a physician, and do not miss work or school. On August 28, a representative of the Colorado Department of Health estimated that 5% of the population of the Front Range area had mild cases of West Nile Virus without encephalitis; a number approaching 200,000 cases. It is so common that local doctors are refusing to confirm the infection with lab work unless evidence of severe disease is present. The typical medical prescription is Advil for the accompanying headache. In a

Continued on page nine

Sinusitis from page one

requiring surgery. Notably, the majority of the AFS patients did not have evidence of IgE-mediated hypersensitivity. Instead, the common denominator in all patients was the presence of eosinophils in the allergic mucin. The same Mayo Clinic researchers then conducted a follow-up clinical trial of intranasal antifungal treatment in 51 randomly selected patients with chronic sinusitis. The antifungal agent was amphotericin B (Ponikau et al 2002). Symptoms improved in 75% of patients, and in 35%, the patients became disease-free. No effect was seen in 25% of patients.

Multiple infections common

The lack of a higher response rate may be due to the mixture of pathogenic bacteria with fungi in chronic sinusitis. Dosa et al examined mucus samples from ninety-six patients with chronic sinusitis and compared them to samples from fifty healthy controls. Of the ninety-six patients, thirty-four were infected with typical aerobic pathogenic bacteria, the majority of these with two to three simultaneous infectious agents. The most common infecting bacteria were *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Streptococcus pneumoniae*, and *Haemophilus influenzae*. Seventy-nine of the ninety-six patients had yeasts and molds in their mucus, with most patients having three to five simultaneous colonizations. *Candida albicans*, other *Candida spp.*, *Aspergillus spp.*, *Cladosporium spp.*, and *Penicillium spp.* were most commonly found. IgE-mediated hypersensitivity to fungal allergens was not present in the majority of patients. In the control group, no pathogenic aerobic pathogens were isolated, and fungi were detected in only 44% of the samples (Dosa et al).

Traditional herbalism

Traditional herbalism may offer superior therapeutic agents to the drug used in the above trial. Sinus infection accompanied by multiple infectious agents, including pathogenic bacteria as well as fungi, may respond to any of several botanical medicines noted for topical broad-spectrum antimicrobial activity. Many herbs possess both antibacterial and antifungal properties. In addition, the same or other herbs may have top-

ical anti-inflammatory or anti-allergic effects. Simple herbal formulas of these topical herbs may be applied intranasally through a spray or a neti pot. Some of the best candidates are listed below. Note that chronic sinusitis appears in traditional herbal literature as a subset of the condition chronic nasal catarrh.

Some herbs applied intranasally for chronic sinusitis in North American history

<i>Abies canadensis</i>	Hemlock spruce
<i>Anemopsis californica</i>	Yerba mansa
<i>Calendula officinalis</i>	Pot marigold
<i>Hydrastis canadensis</i>	Goldenseal
<i>Sanguinaria canadensis</i>	Bloodroot

Some herbs applied by other routes

<i>Echinacea angustifolia</i>	internal
<i>Thuja occidentalis</i>	inhalation
Plants containing camphor	inhalation

Yerba mansa

Anemopsis californica (yerba mansa) is a plant of the Native Americans of the American Southwest. It was used there by at least ten tribes across its range, taken internally as well as externally to disinfect various wounds, ulcers, and to treat skin inflammations (Moerman). It is still used for these purposes by the people in that region, and specifically used externally for fungal infections such as athlete's foot (Moore).

Yerba mansa was introduced into Eclectic medical practice by Dr W.H. George of California during the 1870s and remained in the major Eclectic texts until the demise of that profession in the 1830s (Felter and Lloyd; Felter; Ellingwood). A specific formula used to treat sinusitis by a Dr. Munk of California is reported. Ten to thirty of drops are added to a dram of glycerine in a two ounce spray bottle, and then water added to fill the jar. The spray is applied every few hours. Note that the glycerine reduces the irritating effect of the alcohol in the tincture, but adding larger amounts of glycerine may be irritating in itself. This has been observed clinically.

Anemopsis roots contain about 5% of volatile oil. The total oil and several of its chief constituent components have been shown to possess broad spectrum antimicrobial properties, including specific

Eclectic Remedy: Ten to thirty of drops of Yeba Mansa are added to a dram of glycerine in a two ounce spray bottle, and then water added to fill the jar. The spray is applied every few hours.

antifungal properties in laboratory tests. (Acharya and Chaubal; Meepgala et al; Shin and Kang; Patnaik et al; Edris and Farrag). One constituent, linalool, was effective against 10 of 12 fungal organisms it was tested against (Patnaik et al).

Berberine-containing plants

Berberine-containing plants such as *Hydrastis canadensis* (goldenseal), *Coptis spp.* (goldthread), *Mahonia spp.* (Oregon grape root), and others have been used as topical disinfectants in ethnobotany, folk medicine, medical herbalism, and medical practice in the past. Hydrastis has specifically been used as a snuff or spray for chronic sinusitis.

Hydrastis extracts have strong antimicrobial properties (Mahady et al; Scazzocchio et al), and its constituent berberine has broad-spectrum antimicrobial properties, including action against a wide variety of fungi (See Table 1).

Usnic acid and other lichen metabolites

Usnic acid is widely present in lichen species, not just the *Usnea* genus that it was named for. For instance, the usnea look-alike of the Pacific Northwest forests, *Alectoria sarmentosa*, contains more usnic acid than the usnea species. Other lichen genera containing usnic acid include *Cladonia*, *Lecanora*,

Ramalina, *Evernia*, *Parmelia*, and others. Usnic acid is one of many lichen metabolites with antimicrobial properties, which are also distributed widely in usnea and other lichen species. Alectosarmentin and physodic acid from *Alectoria*, atranorin and lobaric acid from *Stereocaulon spp.*, salazinic acid from *Parmelia saxatilis*, and protolichesterinic acid from *Cetraria islandica*, have all been shown to possess antimicrobial properties.

Note that usnic acid and plants containing it may cause contact dermatitis in some individuals, fewer than 1% of individuals tested in one study (Dahlquist and Fregertl; Thune et al).

Solubility of usnic acid is poor in both water and alcohol, though empirically teas and tinctures of *Usnea* species appear to be active against topical fungal infections. The narrow rather than broad-spectrum antimicrobial activity may present a problem using these agents alone. In one case of otitis externa, an usnea product at first appeared to clear most of the infection, which then rebounded and the usnea had no effect. It appeared that the usnea-resistant organisms had fully colonized the ear.

Table 1

In vitro sensitivity of some microorganisms to berberine sulphate

Bacteria

Bacillus cereus
B. subtilis
Corynebacterium diphtheria
Enterobacter aerogenes
Escherichia coli
Klebsiella spp.
K. pneumoniae
Proteus spp.
Pseudomonas mangiferae
P. pyocyanea
Salmonella paratyphi
S. typhimurium
Shigella boydii
Staphylococcus aureus
Streptococcus pyrogenes
Vibrio cholerae

Fungi

Alternaria spp.
Aspergillus flavus
Asp. fumigatus
Candida albicans
C. glabrata
C. tropicalis
C. utilis
Cryptococcus neoformans
Curvularia spp.
Drechslera spp.
Fusarium spp.
Microsporium gypseum
Mucor
Penicillium
Rhizopus oryzae
Saccharomyces cerevisiae
Scopulariopsis
Sporothrix schenkii
Trichophyton mentagrophytes

Amin et al; Johnson et al; Mahajan et al; Nakamoto et al.

Table 2**Some microorganisms inhibited by usnic acid****Gram positive bacteria**

Enterococcus faecalis
Enterococcus faecium
Staphylococcus aureus
Streptococcus mutans
Streptococcus pyrogenes

Gram negative bacteria

Not inhibited

Anaerobic bacteria

Bacteriodes fragilis
Bacteriodes ruminicola spp. *brevis*

Bacteriodes thetaiotaomicron
Bacteriodes vulgatus
Clostridium perfringens
Propionibacterium acnes

Mycobacteria

M. aurum
M. avium
M. smegmatis
M. tuberculosis var *bovis*
M. tuberculosis var *hominis*

Yeast/fungi

Fusarium moniliforme
Penicillium frequentans
Verticillium albo-atrum
 (Does not inhibit *Candida* spp.)

Ingolfsson; Cocchietto et al.

Case 1: Clinical correspondence

Within a year of moving to an altitude at 9,200 feet, I developed a chronic sinus condition where a "scab" (which appeared to be dried mucus) formed deep in my sinuses daily, and was eliminated through my mouth each morning.

An M.D. suspected an allergic reaction to my pet that was sleeping in my bedroom each night (the diagnosis was based on the appearance of my nasal passages; the M.D. did not suspect an infection). A bedroom air filter and humidifiers throughout the house were recommended along with not allowing my pet in the bedroom. A daily neti pot with a saline solution was also recommended (I added three-five drops of *Hydrastis canadensis* tincture to the saline solution approximately three-four days out of every seven days). Although I complied with the recommendations, the problem progressed and my right nostril developed painful sores. I sought a second opinion. This M.D. performed a nasal culture that revealed a *Staphylococcus aureus* infection and an antibiotic was prescribed.

Due to a past history of antibiotic use and consequent gastrointestinal problems, I didn't take the antibiotic. Instead, I placed 15 drops of *Hydrastis canadensis* and 15 drops of *Anemopsis californica* in a two-ounce tincture bottle with glycerin and water. I administered a dropperful of the formula into each nostril every two hours when possible. I also administered the formula in a neti pot daily. The infection appeared to resolve within three-four days. The time I started the

formula coincided with a vacation to a very humid area at sea level, which I believe contributed to the healing. There were two pets at the place I stayed. Although the infection appeared to resolve, I continued using the formula sporadically throughout the vacation, which lasted seven days.

Upon return to the dry climate, high altitude, and my pet, the "scab" started developing again within a few days. The painful nose sores never returned. I started using the formula again, but stopped after a few days since my sinuses were too irritated and dry — the change from the humid climate to the dry climate was considerably irritating to my sinuses. When I stopped using the formula, the scab started forming again. To date, when I use the formula, the scab does not have a chance to fully form since mucous flow is stimulated. Without the formula, the scab develops; I believe the dry climate and high altitude are interfering with my body's ability to overcome the infection. My pet is probably a contributing factor as well.

Editor's Note: The client continued the treatment occasionally for 3 months, when she developed a cold and rested for a week. In a classic healing crisis, a massive sinus drainage occurred. The condition resolved at that time completely and did not return.

Clinical Case 2: Clinical Correspondence

November 5, 2003

Email: I'd like to ask your advice on some medical stuff I'm dealing with. While in Thailand I picked

up acute sinusitis on top of chronic sinusitis all aggravated by allergic rhinitis. The background was really poor nutrition for a year, extremely bad air pollution for a year, and the sinusitis got set off when I forgot to wear my earplugs while swimming. I felt the water 'squirt' inside my ear and the next day I had blood in my ear and great gobs of green and yellow post nasal drip.

I took amoxicillin per an EENT M.D. for two weeks, but the sinusitis came back after a few days of stopping antibiotics. I then went to another Ear Nose and Throat guy in Thailand who gave me two weeks of Cipro, a mucolytic (Mucosalvyn), a decongestant (Maxiphed, which has I think ephedrine), and a steroid nasal spray. I'm in Staten Island now, off Manhattan, and just finished the two weeks of Cipro and am eating really well, breathing much better air, etc. but the sinusitis is back after stopping the 2 weeks of Cipro. So I just started taking the remaining two weeks of Cipro that he gave me (in case the first two weeks didn't work).

This is now my 5th week taking antibiotics, with another week after that to go! I've never taken drugs this long in my life, never been sick really. I'm wondering if maybe I might have some sort of fungal sinusitis that is antibiotic resistant. Maybe aspergillus. But, really, if you read the sinusitis literature you will see that some people need to take the antibiotics for 6 weeks or longer. So I'm not out of the ordinary. One M.D. on the net said sinus problems single handedly keep the pharmaceutical industry afloat. I believe it.

I know antibiotics interfere with many processes so I'm trying to compensate as best I can. I'm taking acidophilus. I just started taking Astragalus and Reishi to boost my immune system. I'm also taking B, C E, also CoQ10, Silymarin, Glutathione, Glutamine, Carnitine, DHEA, NADH, and a HCL/pesin/papain digestive aid. And staying really hydrated with pure water. Taking epsom salt baths. Nasal saline flushes.

Do you have any suggestions on helping me get these creepy germs out of my sinuses?

November 6, 2003

Reply, Email: It has emerged in research that chronic sinus infection are almost always fungal in nature, which explains why antibiotics usually don't work. Actually most are mixed infections with both fungus and, about a third of the time, a bacterium or two also present. Of course it is normal to find all kind of bacteria and other bugs in there, so there is always the ques-

tion of host resistance, like why did *these* bugs get out of hand. You seem to have corrected the underlying weakness with your change of locale and the supplement regime you are using.

Sinusitis is very easy to treat with herbs, because the chief herbs used kill almost any microorganism on contact. The best two are goldenseal and yerba mansa. Myrrh might be used if Yerba mansa is not available where you are. The recipe is as follows (don't dink with it, it works well and if you alter it you might be running for the neti pot to deal with the burns in your nose).

Get a two-ounce bottle, put 1 dram (1/8 ounce) of vegetable glycerine in the bottom. Into that put 15 drops each of tinctures of goldenseal and yerba mansa. Then fill the bottle with water and shake. Use a spray bottle to spray the stuff up into your nose. A mister might work but a true nasal spray bottle works much better. I have resorted sometimes to buying a nasal spray bottle at the store, and emptying it out of its commercial stuff to use it for this purpose. Don't omit the glycerine, it keeps the alcohol from burning, but don't use too much either, because it also can irritate the mucous membranes if too concentrated. Typical results are clearing of the infection in a day or two.

November 10, 2003

Reply, Email: Sinusitis better thanks to you, a gentleman and a scholar (with myrrh, not yerba mansa, couldn't find any yerba mansa).

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