

Understanding Mast Cell Activation Disorder/Syndrome (MCAD/MCAS) by Dr. Rosenthal

We all hear that “the world has become a toxic place” and that lots of health problems are due to “inflammation.” What do we mean by “toxic and inflamed”? Increasingly, patients are reporting sensitivities to foods, full-blown allergies to foods, reactions to medications or the dyes in foods and medications, hyper-reactivity to insect bites or stings, etc. How can we understand these modern-day phenomena? Mast cells are immune cells present in EVERY tissue of the body and play a central role in understanding inflammation.

MCAD/S is an increasingly recognized multi-organ system condition. It is a variant of a well-established but very rare disorder called systemic mastocytosis (SM). Whereas SM is a problem of *too many* mast cells in the body, MCAD/S can be thought of as inappropriately behaving mast cells in any organ. Put another way, SM is a problem of *quantity*, while MCAD/S is a problem of *quality*. The former is relatively easy to diagnose (an elevated blood tryptase level) whereas patients with MCAD/S symptoms often have normal test results (though I frequently see elevated prostaglandin D2 serum levels). Therefore, the diagnosis of MCAD/S is arrived at by detective work and sleuthing. We must look for clues!

What are the clues?

I like to think of MCAD/S as a spectrum disorder. We’re all on it! Whenever I meet a patient who has symptoms affecting multiple organs, I start thinking about MCAD/S. Here is a list of symptoms, but it is by no means exhaustive:

- **Vascular:** flushing, especially of the face and upper chest, with strong emotions, intense physical exercise (especially running) and consumption of high-histamine foods and/or beverages because mast cells release histamine. High-histamine products include wine (especially red), beer, tomatoes, avocados, spinach, aged cheeses, cured meats, less-than-fresh fish, and any food that is **overly ripe** or approaching spoilage/rancidity (e.g. leftovers). Low blood pressure is also associated with MCAD/S because histamine causes vessels to dilate. This can lead lightheadedness. Some patients experience fainting or a feeling like they might pass out.
- **Cardiac:** palpitations of no known cause - often a comprehensive cardiac work-up finds “PVCs” (premature ventricular contractions). Dysautonomia, POTS. Chest pain of no obvious cause.
- **Neurological:** headaches, especially migraines. Neuropathic pain (pins-and-needles, burning, electrical pain) in hands and feet without an explanation.
- **Pulmonary (lung):** unexplained shortness of breath, even at rest or with only minimal exertion; asthma/wheezing, Exercise-Induced Asthma (EIA).
- **Gastrointestinal:** irritable bowel syndrome which is abdominal pain with either loose stools (diarrhea), hard stools (constipation), or always changing but never regular stools. Recurrent acid reflux/heartburn, chronic indigestion/early satiety, and chronic nausea of unclear cause. Patients often recall developing at least one episode of ab-

dominal pain or a “food poisoning”-like attack where, after eating the same meal as others, they are the only one who became ill.

- **Cutaneous (skin):** hives that come and go without a clear provocation, exaggerated reactions to insect bites, eczema, itching for no apparent reason (often of the scalp but can be anywhere), and other strange rashes. Cutaneous symptoms also include “dermatographism,” which is skin that is highly reactive (e.g., words can be written on skin with a fingernail).
- **Ophthalmologic (eyes):** chronically dry, itchy, watery, and stinging eyes.
- **Ear/Nose/Throat (ENT):** chronic or recurrent sinusitis, vertigo, and tinnitus. Always congested.
- **Musculoskeletal:** diffuse pain all over (often labeled as fibromyalgia), deep pain in the bones, one or more joint pains. Frequently patients have something called Hypermobility Spectrum Disorder (HSD) or Ehlers Danlos Syndrome (EDS) which are connective tissue disorders.
- **Urinary:** frequency and/or pain like a UTI but without an actual infection which may be something called interstitial cystitis (IC).
- **Gynecologic:** a history of irregular periods, heavy periods and/or painful menstrual cramps. chronic pelvic pain. unexplained infertility. endometriosis.
- **Psychiatric:** ADD/ADHD, panic attacks, generalized anxiety. Often there is PTSD as from childhood trauma. Sleep disorders like sleep apnea, trouble falling/staying asleep. Mood instability in general.

Are there tests that support this diagnosis?

There is a panel of blood and urine tests that I order to (1) rule out Systemic Mastocytosis (extremely rare) as well as Carcinoid Syndrome, two conditions that share many symptoms with MCAD, and (2) find elevated markers of inflammatory mediators. Serum prostaglandin D2 is the most common elevated inflammatory mediator that I find on lab testing. I strongly urge patients to eat or drink something they know will cause their symptoms to “flare” just before getting tested (e.g. eating a tomato, jogging in place, or something else that they know causes them to flush).

When mast cells are triggered by an external force (certain foods and beverages, pollens, mold, pollutants, stress, etc.), they “degranulate,” and release inflammatory mediators into the nearby tissue. Histamine is one of the principal molecules that is released but it has a very short half-life so will only be elevated on blood work if a patient is actively having an attack or flare, e.g. hives.

TREATMENT- depends on severity of patient’s symptoms

1. Prostaglandin blockers: Aspirin is a drug that blocks this inflammatory mediator. A “baby” aspirin, or 81mg, is a good place to start for those who are not sensitive to dyes (usually has orange coating). Otherwise 325mg a day is the recommended dose (comes in white tablets).
2. Histamine receptor blockers can be taken ONCE OR TWICE DAILY (**twice a day recommended for severe symptoms, even though these meds say they are once daily**):

- Choose one from this group of Histamine 1 receptor blockers: Claritin, Allegra and Zyrtec
 - **IN ADDITION**, choose one from this group of Histamine 2 receptor blockers: Pepcid, Zantac and Tagamet
 - Use Benadryl (diphenhydramine) with any acute symptoms such as itching, hives, abdominal pain, severe headache, migraines, etc. I have saved many patients trips to the ER simply by advising immediate use of this cheap, over-the-counter medication.
3. Mast Cell Inhibitors
 - Nasalcrom nasal spray for chronic congestion and nasal polyps. This is OTC but hard to find so buy on amazon.com
 - Opticrom eye drops for chronically/recurrently dry, itchy, watery eyes (this requires a treatment)
 4. Other “natural” approaches (less effective in my experience)
 - Umbrellux DAO - an enzyme supplement that helps break down histamine; taken with meals
 - Vitamin C - daily, year round
 - Quercetin- daily, year round
 5. For patients with severe disease for whom the above are not adequate to control symptoms, we add on prescription meds include (1) montelukast for breathing issues, (2) oral cromolyn for gut/abdominal/digestive symptoms (though I have seen this help with “brain fog” and mood as well) and (3) doxepin for insomnia and anxiety, to name a few.

How can I learn more?

1. Visit **My Family Doctor’s Facebook page** to see posts on this and other health topics.
2. Read these books.
 - Never Bet Against Occam* by Dr. Lawrence Afrin
 - Histamine Intolerance* by Dr. Reinhart Jarisch
 - My Crazy Life: A Humorous Guide to Understanding Mast Cell Disorders* by Pamela Hodge
3. Download the **Food Intolerances** app. It categorizes foods and drinks by their histamine levels.
4. Visit the Mastocytosis Society’s website: tmsforacure.org.