Understanding Infection

Not a Battle, But a Housecleaning

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I once saw a young African man in my practice who impressed me with his calm dignity and his radiant good health. I asked him what his parents had done when, as a child, he had come down with a fever. He replied that they had wrapped him in blankets to get him sweating. "Did they ever take your temperature?" I asked. He laughed and shook his head. "No, it was different from what is done here."

We often hear that American medicine is the most advanced in the world. This is true in some areas of healthcare, but in other areas we could use a little of the deeply rooted wisdom that still informs some of the folk medicine in the developing world. I think this particularly applies to our modern concept and treatment of the illnesses we commonly call "infections."

When we come down with a cold or a flu, most of us imagine that some stress or other has weakened our "defenses" or our "resistance" and allowed "a bug" (a virus or bacterium) to enter our body, where it multiplies and attacks us from within. We think that we are "infected," that the new bug within us is making us sick, and that we will feel better as soon as our immune system has killed it off. When we don't feel better soon enough, we might seek remedies or antibiotics to kill the bug more effectively.

Yet this commonly held picture does not correspond to the facts. It is a deceptive misunderstanding that in itself is a characteristic sign of the simplistic, weakened, and fear-based thinking that hinders progress in many areas of life today. If we define infection as the presence within us of foreign microorganisms, that is, bacteria and viruses, then all of us are continually infected from the day we are born until we die. We all harbor trillions of microbes all the time, including various disease germs, yet we only occasionally get sick.

Opportunistic Microbes

It may be a shock to learn that for over one hundred years the evidence has shown that our immune system does *not* prevent us from becoming infected by germs. In the early years of Pasteur's germ theory in the nineteenth century, it was first assumed that healthy people were uninfected by bacteria and only sick people were infected. This assumption was soon disproven, as science found that the great majority of those infected with disease germs were healthy, and only a small fraction of them ever got sick. The majority of people infected with the bacterium of TB, for example, never got sick from tuberculosis, but only from the same coughs and colds that we all get (Dubos 1958).

Infection alone is not enough to make us come down with a manifest illness. Something else is needed. Most of the time we are able to live in harmony with certain numbers of disease germs in our body without becoming ill. For this blessing we can thank our immune system, which is continually vigilant and active below the surface of our awareness in keeping the extremely varied and extensive germ population of our body under control. So it is not necessarily the entrance of new germs into our body that makes us ill; it is the sudden and excessive multiplication of certain germs that have already been in us for a longer or briefer time. In some cases the entrance of a new germ into the body is quickly followed by its rapid proliferation and in other cases the germ can remain dormant or latent in us for many years or even a lifetime while we remain healthy.

This important fact receives far too little attention and is often totally forgotten in medicine today. Most of the trillions of germs that "infect" or inhabit our body from infancy onward are peacefully co-existing in us or even helping to maintain our inner ecological balance, like the acidophilus bacteria that live in our intestines. They are our normal microbial flora. Science has also identified a small minority of germs, called pathogens, that participate in human disease, like strep, staph, TB, diphtheria, and so on. But these, too, have surprisingly more often been found peacefully coexisting in us rather than being involved in illnesses.

This is called latent or dormant infection, or simply the carrier state. Typhoid Mary was a famous example in the early 1900s of a cook who, though healthy herself, was a carrier of the salmonella bacterium and passed it on to others, some of whom became seriously ill and many others of whom remained healthy despite being infected. As the prominent microbiologist Rene Dubos stated in a 1950s textbook,

> …the carrier state is not a rare immunologic freak. In reality, *infection without disease is the rule rather than the*

exception….The pathogenic [germs] characteristic of a community do commonly become established in the tissues of a very large percentage of normal persons and yet cause clinical disease only in a very small percentage of them. (Dubos 1958, pp. 21-22. Emphasis mine.)

This leads us to the question that Rene Dubos, apparently alone among his colleagues, pondered for the rest of his life: if most of the time we are able to peacefully coexist with a disease germ in our body (a fact Pasteur did not adequately reckon with), what happens when it suddenly starts multiplying rapidly and we get sick? Have our defenses weakened and allowed the germs to proliferate and go on the attack (which is the thought that frightens us so terribly), or are they merely multiplying because our body's biochemistry has been disturbed and is making available to the germs a suddenly increased supply of their preferred nourishment?

The latter is not a new thought; it was postulated by Pasteur's contemporaries. Claude Bernard, Rudolf Virchow, Rudolf Steiner, and Max Pettenkofer held the conviction that the decisive and determining factor in infectious diseases was not the microbe itself but rather the particular condition of the patient's "host terrain" that favored the growth of a particular microbe. In this view, microbes were not predators but were scavengers feeding on toxic substances produced by imbalance, disease, and decay in the host body's terrain, just as flies feed on dung and garbage. For these scientists, killing microbes without improving the imbalances that fed the microbes was like killing flies in a messy, untidy kitchen without cleaning up the kitchen. Pettenkofer even drank a test tube of virulent cholera bacteria to prove his point that they would do no harm if the inner terrain was healthy. Pettenkofer's terrain apparently was healthy because he suffered no ill effects at all from his bacterial brew. Nevertheless, the germ theory was an idea whose time had arrived, and for many reasons the concept of germs as vicious predators soon prevailed over the view that they were opportunistic scavengers.

Action and Reaction

The consequences of the germs-as-predators idea are millions of unnecessary prescriptions written for antibiotics, and thousands of injuries and deaths from drug reactions, including 450 deaths per year from Tylenol alone (Wolfe 2002). The engine driving this inappropriate and dangerous use of antibiotics and anti-inflammatory drugs is the fear generated by our common misconception that we are under attack by predatory microbes whenever we experience fever, pain, congestion and other symptoms of typical acute inflammations such as coughs, colds, flu, or sore throats.

Another misconception is that the symptoms of an acute infectious-inflammatory illness like scarlet fever, polio, smallpox or flu are caused by the viciousness, the virulence, of the bacteria or the viruses which we imagine are attacking the cells and tissues of our body. The sicker we are, that is, the more intense our symptoms, the more vicious we assume the attacking viruses and bacteria to be.

In over thirty years of practicing medicine, I've found that this assumption, shared by almost all physicians and their patients, provokes more unreasoning fear and unnecessary use of drugs than any other.

The confusion stems from the fact that in an acute infectious-inflammatory illness we are experiencing not one happening but two polar opposite happenings that occur together. The first happening is that bacteria or viruses proliferate in our body. If these microbes were predators, we would expect their proliferation to coincide with the worst of our symptoms, but this is not the case. Most of the germ proliferation, which we falsely imagine as an inner attack, happens during the incubation period of the illness when we have few or no symptoms. Viruses and bacteria may enter our blood stream in large numbers, and may even start to leave our body, excreted in mucus and feces, without any awareness of illness on our part beside possible minor malaise, headache or tiredness. These symptoms might appear at the end of the incubation period during the few days of prelude or "prodrome" just before the full-blown illness begins. When the incubation period is over, the second phase of the process begins: the clinical illness comes on with all its strong symptoms of fever, pain, weakness, irritation, and often anxiety, and it may feel as if we are being attacked. In reality, the inner process causing our symptoms is neither an attack nor a battle, but an intense housecleaning.

These two two phases of illness are related to each other as a *reaction* is related to an *action*. Comparing illness to a housecleaning, the action is the gradual, mostly unnoticed accumulation of dirt and dust (along with the tiny creatures who make their home in dirt and dust) in the house, and the reaction occurs when the housekeeper can no longer tolerate the dirt and disorder and suddenly decides to turn the house upside down in order to clean it from top to bottom. In a house, as in the human body, the necessary housecleaning is a much bigger disturbance to the comfortable routine of the household than the accumulation of dirt and dust.

A Good Cleaning Out

Our immune system is the housekeeper of our body. Usually it keeps well abreast of its work, quietly escorting

dead and dying cells to the exits of our body and making sure that waste matter and poisons are cleared out. From birth until death, this ongoing maintenance work never ceases, and is responsible for keeping us healthy and free of illness. But when on occasion our immune system determines that a deep housecleaning is needed, that's when the dust flies and we get sick! If you are wondering where the germs are in this comparison of the human body to a household, they are the flies, ants, cockroaches, or mice that live in the house's inner recesses, unreached by the housekeeper and living on the accumulating crumbs and kitchen scraps.

The function of the immune system in this context is to create inflammation. Inflammation, as the word implies, is like a fire in the body, burning up the waste and debris, along with the germs that feed on waste and debris, and cleansing the body. So it is our immune system that causes us to become sick, by creating inflammation to drive out infection and renew us.

The accumulation of cellular waste materials and toxic by-products of our body's biochemical metabolic processes may go on for hours or years unnoticed by us because the body has various ways it can store toxic substances to keep them from irritating and poisoning us. We are postulating that various stressors, such as chilling, extreme exertion, or emotional stress cause a weakening or a breach in our storage processes that allows the toxins to escape from their storage sites in the body. Bacteria are attracted to, and feed on, these newly liberated toxins and begin to proliferate. The multiplying germs then provoke our inner housekeeper, the immune system, to action, and that's when we noticeably come down with the illness. And so, when we fall ill following an acute stress of some kind, it is because our inner balance was upset and our safely stored toxins were spilled. The spillage of toxins may also be triggered by the stress of our exposure to an ill person to whose acute infectious-inflammatory illness we are open and unguarded.

Thus we "catch" the illness and enter the incubation period when bacteria or viruses rapidly proliferate without producing major symptoms. The incubation period differs according to whether the illness is bacterial or viral. In a bacterial illness specific types of bacteria are attracted to the particular types of toxins released from storage and made available to them during the incubation period. In a viral illness the viruses themselves are a special form of toxic waste product which cells release when they are provoked by stress (as in an outbreak of herpes or shingles) or by "catching" an illness from another person.

When symptoms do set in, their intensity is a direct expression of the intensity of the reaction of our immune system. If I am correct in asserting that an acute infectious-inflammatory illness is really an intense housecleaning and not a battle against predatory invaders, then people with stronger immune systems and thus stronger housecleanings would be expected to have more intense acute inflammatory symptoms and stronger discharges than those with weaker immune systems. By inflammatory symptoms I mean pain, redness, swelling and fever followed by a good discharge of mucus, pus, rash or diarrhea.

In my medical practice I have repeatedly found that the stronger and more robust children become ill more intensely and acutely (with good outcomes nevertheless) than the weaker, pale and allergic children. I remember well one boy in my practice whose mother often brought him to the office because he felt unwell and weak. Usually in children who complain of feeling sick, one can find some evidence of an inflammation in the body, a red throat, a red ear, congested lungs or sinuses, some degree of fever, swollen glands, etc. In this boy I could find nothing. There were no signs of inflammation and no symptoms other than subjective fatigue and feeling unwell. Blood tests revealed a familial immune system deficiency.

This case brought home to me the fact that a weak immune system has difficulty reacting to a gradually accumulating infection of uncleared cellular waste and microbes. *Without a strong reaction of the immune system*, *there is no acute illness*, but only a vague malaise and fatigue, which are symptoms of a low-grade poisoning or toxicity in the body. When I would see this boy with the immune system deficiency in my office feeling unwell, it was as if he were stuck in the incubation period of an acute infectious-inflammatory illness, unable to become properly and acutely ill because his immune system was too weak to react with the inflammatory healing crisis he needed to clear out his body.

The Role of Antibiotics

All the experts agree that antibiotics are massively overprescribed in the U.S. – used in conditions that don't require them. Why does this overprescribing continue unabated despite large efforts to educate physicians about the proper use of antibiotics? One reason will immediately be recognized by most physicians: almost daily we see patients who come into the office seeking antibiotics. These patients have two chief concerns: either their symptoms are too intense or they've been going on too long, or both.

If we understand the illness to be a housecleaning, then these concerns are very much minimized. "Your immune system is doing a good job – you will soon bring this healthy, much-needed housecleaning to a successful conclusion" is what a physician of the housecleaning persuasion might say. Microbes are an important stimulus, provoking the immune system to react and thereby bringing on the symptoms of acute inflammatory illness. When we kill or inhibit the microbes with antibiotics, we inhibit the immune system at the same time. This inhibits the inflammatory symptoms that belong to an active immune response, creating the illusion that we have healed the illness when in reality we have suppressed the symptoms and interfered with the immune system's work before its job was done. This is a suppression, not a healing, and it is crucial to understand the difference between the two.

Children who are able to have their normal childhood healing crises, consisting of fevers and discharges, thereby exercise and build their cellular immune systems to be strong and resilient, which is a great benefit for their overall health. Vaccinations, antibiotics and anti-inflammatory drugs like Tylenol and ibuprofen all interfere with this inflammatory cleansing of the body and the immune system-strengthening that results.

If we stop housecleaning in order to have some peace, we will have to put up with an untidy house. An untidy house and an inactive housekeeper are conditions that in the short run lead to a return of flies and ants, and in the long run lead to chronic disease and cancer. An important way to prevent cancer is to appreciate the great wisdom and benefit of our occasional inflammatory housecleanings and to refrain from obstructing them unnecessarily with antibiotics and anti-inflammatory drugs. This point was recently supported by the publication of research suggesting that antibiotics increase the risk of breast cancer (Velicer, Heckbert, et al. 2004). Inflammation is the natural enemy of cancer.

Nevertheless, antibiotics are lifesaving drugs when an acute infectious-inflammatory illness becomes dangerous. This danger stems partly from the intensity of the inflammation, but more so, I believe, from the toxicity and the sheer volume of the metabolic wastes and poisons which are stirred up and mobilized by the inflammation. If our organism has the strength to clear out all these toxins and discharge them from our body, the illness usually resolves itself. If we lack this strength, then the discerning physician will attempt to support and promote the discharging, detoxifying process, keeping a watchful eye on the patient's strength, and will use an antibiotic if needed to prevent complications or death from the poisons that have been stirred up by an overzealous immune system. This is a toxic or septic inflammation, and in such a crisis, an antibiotic is a blessing. But the likelihood of our ever having to experience such a toxic crisis will be greatly diminished if we understand how to allow all our smaller, non-threatening inflammatory crises to do their housecleaning work.

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In his award-winning book of essays, *The Lives of a Cell* (1974), the dean of Yale Medical School, Dr. Lewis Thomas, confirmed some of the contrarian points I've made in this article. Although he diplomatically avoided the scavenger versus predator debate in the book's essay on "Germs," he readily emphasized the dominant role of the immune system in causing overt infectious/inflammatory illness:

> We can carry brucella [a type of bacteria] for long periods in the cells…without any awareness of their existence; then cyclically, for reasons not understood…we sense them, *and the reaction of sensing is the clinical disease*….it is our response to their presence that makes the disease. Our arsenals for fighting off bacteria are so powerful…that we are in more danger from them than from the invaders. [Emphasis added.]

Research since 1974 has considerably advanced our understanding of how, if not why, our own immune system can make us terribly sick. Dr. Kevin Tracy's *Fatal Sequence: The Killer Within* (2005), focuses on the dreaded medical complication of sepsis with multiple organ failure, which ranks as the third most common cause of death in U.S. hospitals today. Previous generations of physicians, myself included, had been taught that in sepsis the patient's immune defenses are overwhelmed by a massive uncontrolled proliferation of bacteria in the bloodstream, often with lethal consequences. Yet this explanation was severely challenged by the occasional case of severe or even fatal sepsis in which no bacteria at all could be found.

Kevin Tracey's book details the astonishing unraveling of this mystery. In the dramatic life-threatening illness of sepsis, the bacteria are today no longer considered the perpetrators. Now the blame is squarely placed on an overreactive, trigger-happy immune system which can set the whole devastating sepsis process in motion in response to many bacteria, to only a few bacteria, or to no bacteria at all but to other stressors such as surgery, childbirth, blunt trauma, or muscle strain (Stevens 1992). About this potentially lethal overreaction of our own immune system Lewis Thomas observed wryly:

> All of this seems unnecessary, panic-driven…. It is, basically, a response to propaganda…we tear ourselves to

pieces because of symbols, and we are more vulnerable to this than to any host of predators. We are, in effect, at the mercy of our own Pentagons, most of the time. (Thomas 1974)

Today science has identified a number of chemicals called cytokines produced by our immune system. When certain of these cytokines are injected into lab rats, the poor creatures display all the signs and symptoms of sepsis and often they die. But why should the immune system, which we assume has evolved to protect and preserve us, occasionally be the cause of our demise? Medical science usually deals with such paradoxes by ignoring them. It is the "how" that is considered useful knowledge; the "why" is merely philosophical speculation, not an object for serious research. Yet the patient who has experienced a life-threatening illness will almost certainly wonder, at least briefly, "why?" Such a question is not to be dismissed. In most cases I believe the only useful and appropriate answer to the why of illness must arise, if at all, out of the patient's own quest for self knowledge, which it is the physician's role to support with careful discretion.

It is a good sign that more and more patients are finding such a quest to be an essential and salutary part of the illness experience. Our medical paradigm will inevitably change, I believe, so that in the future neither patient nor physician would ever seriously consider that the real reason for a life-changing infectious/inflammatory illness, or even a minor illness, was the random catching of a bug.

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References

Dubos, Rene J. (1958). *Bacterial and Mycotic Infections of Man*. Philadelphia: J. B. Lippincott.

Stevens D.L. (1992). "Invasive Group A Streptococcus Infections." *Clin. Infect. Dis.* vol. 14, pp. 2-11.

Thomas, Lewis (1974). *The Lives of a Cell*. New York: Viking Penguin.

Tracy, Kevin J. (2005). *Fatal Sequence: The Killer Within*. New York: Dana Press.

Velicer, Christine M., Susan R. Heckbert, et al. (2004). "Antibiotic use in Relation to the Risk of Breast Cancer," *JAMA* vol. 291, pp. 827-35.

Wolfe, Sidney (2002). "FDA Caves In to Industry, Fails to Adequately Address Tylenol Overdoses," *Health Letter* vol. 18, no. 11. Published by Public Citizen Health Research Group.

Practical Measures

Perhaps the most important point to remember in treating acute infectious-inflammatory illnesses is that *fever is good*, *toxicity is bad*, and *discharge of toxicity is very good.* The danger of an acute infectious-inflammatory illness is not the 105-degree fever nor the yellow thick mucus draining from the nose, but the amount of retained toxicity that is poisoning the patient because it is unable to be discharged from the body quickly enough. It is normal for the ill patient to be weak, lethargic and oversensitive. Symptoms suggesting that excessive retained toxicity is poisoning the body include increasing irritability and restlessness, an increasing look and feel of desperation or anxiety, and a decreasing ability to maintain consciousness and eye contact. If these are happening, call the doctor.

We physicians should be advising our patients how to recognize and treat toxicity. Up to 106 degrees F, the degree of fever is *not* a sign of the seriousness of the illness, but is rather a sign of how strongly the immune system is working to detoxify and clear out the illness. Therefore it is best to avoid fever-lowering drugs.

Here are some effective, age-old ways to support the immune system and to promote a good outcome of an acute infectious-inflammatory illness:

* Total rest and sleep, with as little distraction as possible. No television, radio, tapes or reading. Keep the patient very warmly dressed and covered. Sweating is good. Avoid chilling.
* A liquid diet of vegetable broth, herb teas, citrus juices. Add rice, millet, carrots or fruit if hungry. Absolutely no meat, fish, eggs, milk products, legumes, beans, nuts or seeds. The digestive power of the body must focus on the illness and not be burdened with food.
* Elimination through bowels, bladder and sweating is essential to treat toxicity and prevent its complications. Therefore encourage drinking of lukewarm clear fluids, and use prune juice or Milk of Magnesia to promote loose bowel movements once or twice daily.
* Provide a sick-room environment with warm, soft colors and textures and natural soft light. Include plants and flowers. The caregiver should be cheerful, peaceful, attentive, observant, encouraging, loving and respectful of the profound healing wisdom of the inner housekeeper she is assisting.

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