



Commentaries

Localizing the Wandering Uterus

Conversion disorders have been recognized forever although not formally studied until the great French neurologist, Charcot, turned to this problem in the mid 19th century. The patients were predominantly women, perhaps all women, who manifested a variety of clinical signs that could not be explained by any known derangements of neurological structures. Freud, who studied with Charcot, developed an interest in this area, later publishing the case of conversion-weakness in Anna O. Anna O, of course, was cured by psychoanalysis and went on to a prominent career as a social worker.

The term “conversion disorder,” which has been used interchangeably with “hysteria,” refers to the presumed mechanism by which non-organically explicable neurological abnormalities result when emotional distress is allegedly “converted” into physical manifestations. The term “hysteria,” which predated Charcot, is derived from the Greek term for uterus. It was used to describe these disorders because they were thought to occur only in women, and were ascribed to a problem with the uterus, which was thought to wander.

Conversion symptoms are so common that they are discussed in the vernacular in such phrases as, “so-and-so is a pain in the neck” (or some other place). In short, “so and so” causes so much aggravation that one experiences his presence as physically painful. It is common to blame headaches, for example, on stress at work, difficulty with relatives, etc. It is unlikely that anyone doubts that stress may cause pain in vulnerable people. Yet the notion that stress may cause weakness, numbness, blindness, muteness, tremors, impaired walking, or seizures, is accepted more in the general sense than in a specific case. “Yes, I think that stress may cause these problems in some people, but not in me.”

A few decades ago, before the era of modern imaging and invasive testing, several studies reviewed the long-term out-

come of patients who had been diagnosed with psychogenic explanations for their symptoms and signs. They found that from 30-50% ultimately *were explained* as the result of organic lesions. Neurological patients were found to have MS or unusual, but clearly organic forms of epilepsy. Inflammatory bowel disease explained many with non-specific GI symptoms. Systemic lupus erythematosus and other autoimmune disorders became apparent. Metabolic derangements became identifiable, and these, in retrospect, did explain the earlier symptoms. This undermined clinicians’ confidence in their diagnoses, particularly psychiatrists who were put in the difficult position of trying to “cure” someone of a presumed psychogenic disorder that later turned out to be multiple sclerosis or a brain tumor. However, in recent times, similar studies have revealed an amazingly low incidence of mis-diagnoses. The vast majority of current diagnoses of non-organic disorders are, it seems, correct. The problem thus moves from, “is it organic?” to “how did this happen?” and “what to do about it?” And the answer is, unfortunately, not known. Psychoanalysis has been more helpful in explaining than in treating it.

Since I’m a movement-disorders specialist I know most about conversion disorders in this area. The diagnosis of psychogenic disorder is made in about 5% of new patients referred to movement-disorder centers in the western world. This certainly underestimates the problem because many of the disorders are transient and resolve before the appointment to the specialist’s office. My experience doing general neurology consults in hospitals suggests a percentage quite a bit greater than 5%. It is not terribly uncommon to give tPA, for example, to patients who were thought to have had strokes, but actually had psychogenic weakness. I’ve seen one patient who has had tPA twice for psychogenic “strokes.”

The natural history of conversion disorders in general is interesting. The vast majority resolve without treatment in the first few weeks, while those that persist for several months generally persist forever. These are often disabling, and no treatment is known to be effective. The patients generally do poorly. The neurologist dismisses them with, “no neurological disorder;” then the psychiatrist dismisses them with “no psychiatric disorder.” Only recently have some neurologists followed these patients, even if the etiology of the disorder is psychiatric, just as we follow people with untreatable degenerative disorders. This is support and is important, but it is not treatment, at least not specific treatment.

While many of these patients share a variety of common psychiatric comorbidities, such as childhood abuse, personality disorders, post traumatic stress disorders, not all do, and many, on the surface, appear to not have much in the way of psychiatric dysfunction. This, of course, makes life hard for the psychiatrist and, worse for the poor patient.

In recent years, studies have tried to figure out “how” rather than “why” conversion disorders occur, by using fMRI, a crude measure of brain activity, while the patient has conversion symptoms, and comparing the results to normal controls feigning the same disorder. In one study, the conversion patients had intermittent tremors and the fMRI were obtained while the patient had the conversion tremor and then again when the same patient voluntarily mimicked the tremor, thus acting as his own control. The fMRI patterns differed when the conversion disorder patients had their conversion-tremor, presumably voluntary but unconscious, from when they feigned the exact same tremor. This implies that physiological underpinnings explain how some patients develop neurological symptoms which are generated unconsciously. These physiological alterations will not explain why some patients develop these problems but may, in time, suggest how to treat them. It is not clear in this early stage whether this imaging modality will allow us even to diagnose the problem.

These studies are important because conversion disorders are common, confounding to all involved and may provide insights into the dynamics of unconscious

motivations. The different symptoms have been associated with different brain alterations. No single region has been implicated to suggest that there is a region devoted to “self-awareness.” The data provide a philosophical conundrum. How can an unconscious disorder be “non-organic?”

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Ancient Speculation On the Seeds of Pestilence

Most noteworthy scientific discoveries represent dramatic departures from prevailing dogma, courageous leaps into unexplored territory. But the germ theory of disease is not one of those quantum leaps. Without lessening the seminal contributions of Louis Pasteur (1822 – 1895) and his coworkers, it must nonetheless be recognized that many prior thinkers, centuries before Pasteur, had envisioned the possibility of an invisible *something* that was transmitted from the already-sickened to those about to fall sick; that some agent – if not visible at least corporeal – accounted for the dynamics of communicable disease. Many speculated over the centuries, but it was Anton Leeuwenhoek (1632 – 1723) who provided the instruments to observe these erstwhile invisible creatures and Louis Pasteur who provided the incontrovertible proof of their vital role in the causation of many human ailments.

In the absence of suitable scientific instruments, how might a physician in the year 180 CE explain the phenomenon of a contagious disease? He will observe, first, that certain diseases such as phthisis (tuberculosis) or ophthalmia (trachoma) readily infect those who come near while sufferers of dropsy or apoplexy do not seem to convey their ailment to others solely by proximity. An analogy was made to the phenomenon of magnetism: those things proximal to the magnet were attracted while those more distal were not. Still, how does the contagion get to be transmitted from one human to another? What specifically is being transmitted? Something physical? Or metaphysical?

This hypothetical physician's thinking must then confront an ontological question: Is the disease initiated by divine intent or by earthly cause? If it is caused by celestial intervention, then the ailment lay beyond the physician's earthly remedies. And so his thinking then gravitates toward the alternative: that the contagion is incited by a secular mechanism.

If earthly, might it be in the form of a vapor, such as the putrid mists emanating from swamps? Certainly the idea of morbid vapors – called miasma – causing malaria (Italian for bad air) was a widely accepted etiologic premise. To cite Lucretius (99 – 55 BCE), “When the deadly seed flying about the atmosphere come together, the air putrifies and becomes dangerous.” Three centuries earlier, Thucydides (460 – 395 BCE), historian of the plague of Athens, accepted that “The circumambient air carries certain seeds of plague” and presumed, further, that breathing in the putrid exhalations of

swamps and dead bodies produced the hot pestilential atmosphere that provoked the great plague.”

So the mists of the evening, generated by swamps, yielded bad air. But what was the inherent badness in bad air? Was it something spiritual (as in “Satan's pestiferous breath”) or something particulate? And could invisible things still be particulate?

Marcus Varro (116 – 27 BCE) was more specific in his speculation. He declared that “swamps bred invisible animalcula (*animalia quaedam minuta*) which on being breathed through the nose and mouth cause disease.” Certainly a wild hypothesis singularly free of any supporting evidence.

Claudius Galenus, known as Galen, was born in 129 CE in the Greek colony of Pergamon in Asia Minor. He was the son of a wealthy contractor who spared no expense in seeing that Galen was well-educated in philosophy and eventually in medicine. Galen traveled widely, wrote extensively, lived through the great Antonine plague, was personal physician to both gladiators and Roman emperors including Marcus Aurelius, and was Europe's most authoritative physician for over a thousand years after his death.

Galen wrote extensively, and reflected deeply, on the nature of contagion and the mechanisms underlying the spread of pestilential diseases; and further, whether this represented a tangible – if invisible – seed; or, alternatively, whether it was a miasma, a formless but deadly vapor which attacked all who inhaled its miasmatic poison. He favored the idea of a particulate seed, but it is not clear whether he construed “the disease seed” as a literal entity or merely a figurative metaphor. Galen went a step further proposing that the development of a disease required both the initiating seeds as well as a systemic alteration making the human more receptive, more vulnerable to the workings of the invasive seeds. Galen envisaged various environmental influences, such as excessive consumption of wine, as predisposing factors.

When working with ill-formed ideas and groundless speculations – and in the absence of substantive observations – scientists tend to seek analogies and metaphors. And in their gropings to explain why some fevers seem to be transmitted from person to person by proximity, they sought out happenings in their daily lives that bore a resemblance to the transmission of pestilence. The seed, an inconspicuous little