Blackwater Fever: Divine Retribution or Genetic Happenstance?

Imagine a remote tribe, say in sub-Saharan Africa, 700 years ago. Its population of about 4,000 survives on a rice-based, agrarian economy. Their excess harvests are periodically traded with neighboring clans to augment the variety of their diet and to provide additional household needs. Other than rare exogamous marriages, there is virtually no immigration or emigration; hence the tribal population, except for intervals of inter-tribal warfare, gradually increases as the yearly births generally outnumber the deaths.

What medical problems might this tribe encounter? As with any sub-Saharan community, they will certainly be burdened by a full range of parasitic diseases generally insect-borne. Most of the residents will have been beset with malaria, as well as a variety of parasitic worms, and, from childhood, a host of other parasitic afflictions.

Survival was necessarily precarious, with high mortality rates particularly in childhood; but over the many generations, certain members of the tribe, endowed with variant genetic traits, overcame diseases such as malaria; they did not avoid these pestilences but rather, through genetically-enhanced resistance, managed to survive in an unremittingly hostile environment. Thus, generation by generation – empowered by the remorseless darwinian axiom that proclaims survival be granted to the fittest – an increasing number of the tribal citizenry became endowed with those inheritable traits that increased systemic resistance to certain diseases.

These genetic traits did not prevent these diseases; they merely converted them from an acute, often lethal infection, to milder, lingering disorders.

The African continent, however, could not quell the interest or avarice of those living to its north or northeast. Arabic trading posts were established along the African east coast by the 13th Century. And Dar es Salaam, now a thriving city of some 2.5 million Tanzanians, was already a commercial site over eight centuries ago. fostering limited trade with the African interior including slavery. By 1415 the Portuguese had established a small European foothold in northern Africa. And by 1434 Portuguese mariners had reached Cape Bojador (latitude 26 degrees north) and by 1441 had begun to capture Africans for slavery. In 1494, two years after Columbus's initial voyage to the West, Spain and Portugal signed the infamous Treaty of Tordesillas dividing the non-Christian world between these two nations. The other west European nations, also seeking African colonies, ignored the treaty.

What has this to do with that hypothetical village of 4,000 native Africans? Sooner or later, European colonists ventured beyond their coastal strongholds to plunge into the continental interior for purposes as varied as missionary conversion, commerce or the capture of slaves.

And sooner or later, with Europeaners dwelling in the same environment as the indigenous Africans, these latecomers to the continental interior were confronted with the same panoply of tropical afflictions; and they too were bitten by malaria-bearing mosquitoes. But the native population, having lived with the menace of malaria for a hundred generations, had inherited a modest measure of resistance to the disease; not so with the white slavers, their soldiers, missionaries or adventurers seeking precious metals.

The medical literature of 1830 carried an article by a French naval officer noting an allegedly new disease in East Africa. This illness began suddenly, with high fever, shaking chills, marked asthenia, rapid pulse, bilious vomiting, obvious jaundice, and, within days, a progressive darkening of the urine.

This disease, called blackwater fever, was originally confused with yellow fever or some sort of morbidity affecting the liver. Certainly the jaundice, the bile-stained vomitus and the darkened urine collectively pointed toward a disease of the liver. Only belatedly was it recognized as a complication of malaria.

As more and more of these cases were recognized in central Africa – and later, in India and China – it became apparent that the acute breakdown of red blood cells was the catastrophic event leading to free hemoglobin and fragmented red blood cells clogging the kidneys and discoloring the urine. And further, that this was not a new disease but rather a severe complication in a patient already burdened by the most serious form of falciparum malaria.

Blackwater fever, strangely, was largely confined to Europeaners dwelling in malarial Africa, especially blonds from northern Europe. Was this divine retribution for the European rape of the African continent? Or was it the process of natural selection which had so altered the genetic profile of resident Africans to make them slightly more resistant to the secondary ravages of the malignant form of malaria?

In 1942, just months after this nation's entrance into a global war beyond our boundaries, the United States Army issued a lengthy bulletin describing the hazards of blackwater fever, ending with this sentence: "Recurrence of blackwater fever is common, especially in the tropics. Send patient to temperate zone if possible."

– Stanley M. Aronson, MD

Stanley M. Aronson, MD is dean of medicine emeritus, Brown University.

Disclosure of Financial Interests

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Correspondence
e-mail: SMAMD@cox.net