

Typhus, Chopsticks, and Filial Piety

By Lawrence A Dworkin, MD; Harry Dworkin, MD

When my father died in March 2004, one of my tasks was sorting through his old papers and photos. I knew he was a physician in the Army Medical Corp in WWII, serving in the China-India-Burma Theater, where he ran a field hospital caring for American soldiers and their Chinese allies. I found the following report scrawled on dog-eared sheets of paper now yellow with age.

This is a report of 250 cases of typhus fever seen in a clearing station in Burma from November 1943 through January 1944. Of this group, there were 13 deaths, a mortality rate of 5%. Our cases were mostly Chinese soldiers clearing the jungle; 50 cases were drawn from one Chinese company engaged in clearing elephant grass at an airfield.

The first cases were thought to be measles due to congestion of the eyes and nose, and the macular rash. The diagnosis was changed after one of these patients died. It was our first encounter with typhus, scourge of numerous armies.

Our Chinese patients were brought into our station 3-14 days after falling ill. The picture was confused with malaria, because of the headache, chilliness, high fever and generalized aching. However, the intensity of the headaches, the chilly sensations rather than the shaking chill of malaria, the anorexia and the acutely ill appearance suggested more than the usual malaria case. After the appearance of the rash and the initial lesion, diagnosis of typhus was simplified.

On admission, the patients were acutely ill, dehydrated, with severe headache, generalized muscular and joint aching, chilly sensation, anorexia, nausea and vomiting. In most cases, an initial lesion could be found, a central eschar of 1-2 mm with a surrounding raised areola. The location of the initial lesion varied; most commonly it was located on the abdomen, back or chest. The patient had to be unclothed completely and thorough search made, because these lesions were sometimes on the ankle, leg, thigh, arms, neck, mastoid process or buttock. A regional adenopathy was practically always present, and frequently a generalized adenopathy could be found.

The initial lesion was seen in 75% of our cases and appeared early. These lesions tended towards healing, even in the cases who died. The eschar would dry up and fall off in one-to-two weeks.

The rash occurred later, between the fifth and eighth day of the disease. Generally, it was macular, as seen in measles, except the reddish coloration was so faint the rash could be seen only by good light. The rash could be maculopapular or even pinpoint papules. The distribution was usually the abdomen, anterior and posterior chest. Several cases showed a macular rash on the face and a few had involvement of the extremities. The rash would disappear in two-to-four days. The rash was seen in 60% of our cases; undoubtedly the percentage would have been much higher if we had seen them earlier in the disease.

We had no interpreter most of the time, so had to depend on our poor command of the Chinese language for our medical histories.

Our laboratory facilities were limited to CBC and urinalysis. We were struck by the kidney damage, revealed by numerous granular casts and constant trace of albumin. RBCs and WBCs were frequently encountered in the urine. The urine served as a good indicator of prognosis, the state of dehydration, and severity of the disease.

Severe anemias are common in the Chinese due to hookworm and other intestinal parasites, as well as a vitamin deficient diet. Leukopenia is the most frequent finding in the tropical diseases encountered, so the majority of the patients had a leukopenia. The relationship between polys and lymphs showed no consistent pattern. One strange thing we encountered was the lack of eosinophils. Eosinophilias were routinely found in Chinese patients on the basis of intestinal parasites. The percentage of eosinophils was low or even absent in a large percentage of our cases.

The treatment of these cases was largely nursing. The sulfanilamides were used on the first group of cases encountered but proved of no value. Neosarsphenamine was tried and was soon discarded as being ineffectual. Fifty cc

Lawrence A Dworkin, MD, (left) is a pathologist with Northwest Permanente. He was a member of the NWP Board of Directors and an early contributor to the development of the electronic medical record at KP. E-mail: lawrence.dworkin@kp.org.

Harry Dworkin, MD, (right) (deceased) father of Lawrence Dworkin, returned from military service in WWII to practice medicine in Cincinnati, OH for 50 years. He spent his last few years as a KP member in Portland, OR. He died in March 2004 at age 92.



soul of the healer

of blood from a convalescent patient was given into the buttocks of a patient, but no benefit was derived.

Our treatment rapidly narrowed down to bed rest and large quantities of fluids by mouth and intravenously, iron, brewer's yeast, vitamins, citric acid, and forced feeding.

Fluid administration was the number one adjunct to life. Our supply of intravenous fluids was limited, so we had to content ourselves with giving 1-2000 cc of 5% glucose in saline, and supplemental fluids by mouth. Some patients would drink water willingly, some had to be coaxed, and still others would only take water after the addition of sugar. The water had to be hot, as our Chinese patients would not drink cold water. The tongue and urine findings were the most reliable indicator of success in combating dehydration. The tongue was a barometer to be read daily. Of the cases that died, no matter how vigorous we were in pushing fluids, the dehydration and acidosis would become progressive. The tongue would remain dry, the number of casts in the urine would increase, and urine output fall.

Few of these typhus patients would eat unless the importance of eating was explained. Many had to be fed; the use of chopsticks by an American ward man in feeding these patients was quite an act of juggling.

Many of the Chinese encountered had subclinical cases of avitaminosis. The loss of body fluids with typhus aggravated this, so we attempted to keep up the nutritional state of the body at all times. The patient had to be aroused from his apathy to be fed. Milk was given as an adjunct to the diet. Many patients would only take milk with sugar added. Two cases suddenly developed the red sprouting and bleeding of the gum tissue typical of scurvy. Vitamins were of extreme importance, and brewer's yeast and vitamin C were given. Before getting a supply of vitamin C, we

obtained wild lemons growing nearby and made a lemonade for the patients with scurvy. Their response was miraculous. Since anemia was common, powdered iron was made into pills, given daily.

The temperature fell by lysis, never by crisis. A break in the temperature could be expected two to three weeks after the onset of illness. A receding temperature often meant the patient was out of the woods, although in five cases, a normal temperature was seen for two to three days, only to be followed by the demise of the patient.

The truest indicator of the patient's recovery was seen before the fall in temperature, when patients would begin to eat without urging and gradually their appetite would increase. We learned that a Chinese soldier who does not eat is still acutely ill, and conversely, the picking up of the chopsticks by the patient's own volition means he is on the road to recovery.

The complications encountered were numerous, the most common being deafness. Fortunately, with convalescence, the hearing also tended to return to near normal.

My father's description of this epidemic makes scrub typhus due to *Rickettsia tsutsugamushi* most likely. This was 1943-44; chloramphenicol became available in 1947 and the tetracyclines were introduced in 1948. The mortality of typhus in the pre-antibiotic era often exceeded 50%.

I took some chopsticks up to my father's gravesite at Willamette National Cemetery, and placed them next to the bunch of flowers I usually bring. I like to think that some Chinese kids are picking up their chopsticks this morning, thanks to my father doing the best he could to pull their great-grandfathers through the typhus epidemic of 1943-1944, somewhere in the Naga Hills of Burma near Shimbwiyang. ♦

The Needs of Sick People

We try to have everything as nice as possible for them.
If anybody needs pleasant surroundings, who needs them as much as sick people?

— Sidney R Garfield, MD, 1906-84, quoted in Paul de Kruif's *Life Among the Doctors*
This "Moment in History" quote collected by Steve Gilford, KP Historian