Clinical Aspects of Shigellosis in Reference of Sigmoidoscopic Findings and Histopathological Changes of the Colon

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INTRODUCTION

In 1896, Shiga isolated the causative organism from the feces and the intestinal walls of patients suffering from clinical dysentery in Tokyo, which is Shigella dysenteriae type 1. He confirmed the proof of pathogenicity of the organism by the finding of specific agglutinins against the organism in the blood of patients suffering, convalescing or recently recovered from the disease.

Six years later, also in Tokyo, Kenzo Futaki isolated another type of Shigella from dysentery patients which is known as Sh. flexneri, isolated in Philippine in 1900 by Flexner.

In Japan, since then for about sixty years, for notified dysentery cases the statistics indicated the morbidity 50 to 100 per one hundred thousand people every years; namely each year several ten thousands were notified.

The predominating serotype of these dysentery patients were mostly Sh. flexneri, partially Sh. sonnei, seldom Sh. ambiguа. Sh. dysenteriae 1 were never isolated.

However, in 1945 when the II war ended Sh. dys. 1 epidemic occurred in Tokyo.

In 1945 and 1946, the predominating serotype was Sh. dys. 1 not Sh. flexneri. However, in 1947, Sh. flexneri exceeded Sh. dys. 1 again; in the following years Sh. dys. 1 disappeared. The exceptional epidemic of Sh. dys. 1 in Tokyo seemed to be caused by return of many soldiers from oversea battlefields, besides unusual life-environment, such as overcrowding, poor sanitation, malnutrition etc. According to the past
history, the war situation had accompanied with the spread of dysentery. In 1896, when Shiga discovered Sh. dys. 1 in Tokyo, China-Japan war ended, and many soldiers returned from the continent. It is supposed that the outbreak of Sh. dys. 1 in Tokyo was caused by the postwar situation. In other words, Sh. dys. 1 was not able to live in Japan, except during the special period influenced by the war.

Ekiri is the particular manifestation in infants suffering from Shigella infection. Before the war, in Japan where dysentery cases were prevalent, Ekiri cases used to be found in 10-30% among them. The onset is very sudden. Abruptly, it begins with high fever; sometimes, the convulsion is the first sign. And soon, the encephalopathic syndrome and the circulatory disorders follow; consciousness clouded, drowsy or exciting, delirious. The face is pale, cyanotic, pulse feeble, extremities chill. In the most cases, diarrhoe is seen; liquid stool with mucuss, often with blood. Vomiting occurs in the beginning of the disease. The course is very rapid and serious; without adequate treatment, patients will die within 48 hours.

On the autopsies of Ekiri cases, remarkable findings were high grade cerebral edema, fatty liver and enlargement of the right ventricle with stagnation of blood.

Prof. Suwa, pathologist, explained this phenomena, so that arteries all over the body contract through excessive reaction against certain infection such as Shigellosis. The effect of the contraction of arteries were found particularly conspicuous in the brain and the lung. The result in the brain is cerebral edema and in the lung because of artery contraction., the blood cannot be emptied from the right ventricle into the lung. The lung seemed to be anemic. Then, the circulatory blood volume suddenly drops, thus the collapse occurs. Regarding to the pathogenesis of the Ekiri, there were several hypotheses presented; infants of particular constitution suffer from Ekiri, allergic theory, amine intoxication or excess reaction against Shigella infection and so on.

In 1947, U. S. Government sent the Ekiri Research Commission to the occupied Japan. The group headed by Dr. Dodd, pediatrician, investigated Ekiri cases mainly in the Tokyo Metropolitan Komagome Hospital where I was working. After two months investigation, they concluded that Ekiri is signs of the tetany induced by Shigella infection. According to their opinion, Ca defisiency in infants is remarkably notified. They recommended Calcium infection for treatment of the Ekiri and emphasized additional Calcium to bread for prevention of Ekiri. However, any hypothesis could not reach to the clarification of the problem "what is the Ekiri", which everybody could accept. Meanwhile,
Ekiri cases had decreased markedly and finally disappeared.

The appearance of the colon affected with Shigella will be demonstrated on the sigmoidoscopic examination. The histopathological changes of the mucosa of the colon of Shigella infection will be shown in specimens taken by the rectal biopsies.