PCB Poisoning in Japan

by Gensyu Umeda

The most serious PCB catastrophe the world has known took place about four years ago in Japan, where thousands of persons are said to have displayed symptoms characteristic of PCB intoxication. Gensyu Umeda describes the disease here.

In March of 1968 a great many cases of a strange, previously unknown disease appeared in the northern and western parts of the Japanese island of Kyushu, particularly in the Fukuoka and Nagasaki prefectures.

Clinical and chemical analyses were performed and in August it was determined that the disease was brought on by some kinds of organic chlorides.

In November it was discovered that the specific cause of the disease was a contaminant in Kanemi Rice Oil, a common food-stuff. The oil was manufactured by the Kanemi Rice Oil Co. Ltd. The contaminant was identified as Kanechlor 400, which is the brand name for a particular PCB (polychlorinated biphenyls). The disease was named "Kanemi Yusho".

There are an estimated 15,000 victims of the disease. However, only 1,081 persons have been officially diagnosed as victims of Kanemi Yusho. Local governments and the central government refuse to officially recognize many of the victims who should, in all fairness, be supported financially by these government bodies.

CLINICAL ANALYSES

Clinical analyses of Kanemi Yusho victims revealed that there are four types of the disease.

Latent type

The patient has no significant physical symptoms and no subjective symptoms of Yusho. Nontheless, PCB has been detected in patients of this category. For example, when analysis was performed on materials removed surgically, PCB was found. And when women with no obvious symptoms gave birth to babies who displayed typical symptoms of the disease, it became obvious that those women were contaminated. Another example: babies fed with mother's milk displayed pathological symptoms in six months or later.

A baby newly born of a contaminated mother of the latent type displays some characteristic physical symptoms such as hypersecretion of cheese-like or mucoid discharge from the eyes; disturbance in growth; and pigmentation of the skin and nails and of the mucous membrane of the eye and mouth.

Visceral Type

The patient of this type has no characteristic dermatological signs. Instead there are complaints of complicated symptoms as well as physical signs of pathological processes in the viscera. Examples of these are general fatigue, nausea or vomiting, mild jaundice indicating liver injury, colic-like attacks of abdominal pain, diarrhea, productive cough, chronic bronchitis or bronchiectasis, asthmatic attacks, and pneumonia. The occurrence of pathological changes of this kind has been demonstrated by x-ray analysis.

In cases of the visceral type, PCB is detected in sputum, blood or material surgically removed, and in many instances there is an increase in the concentration of triglycerides and pre*beta*lipoproteins in the blood.

Latent and visceral types are seldom officially recognized as victims of PCB contamination and are seldom diagnosed as Yusho. But these cases are of great significance with regard to the disruption of the environment by PCB and the contamination of the human body by PCB which are liable to occur in the near future.

Manifest type

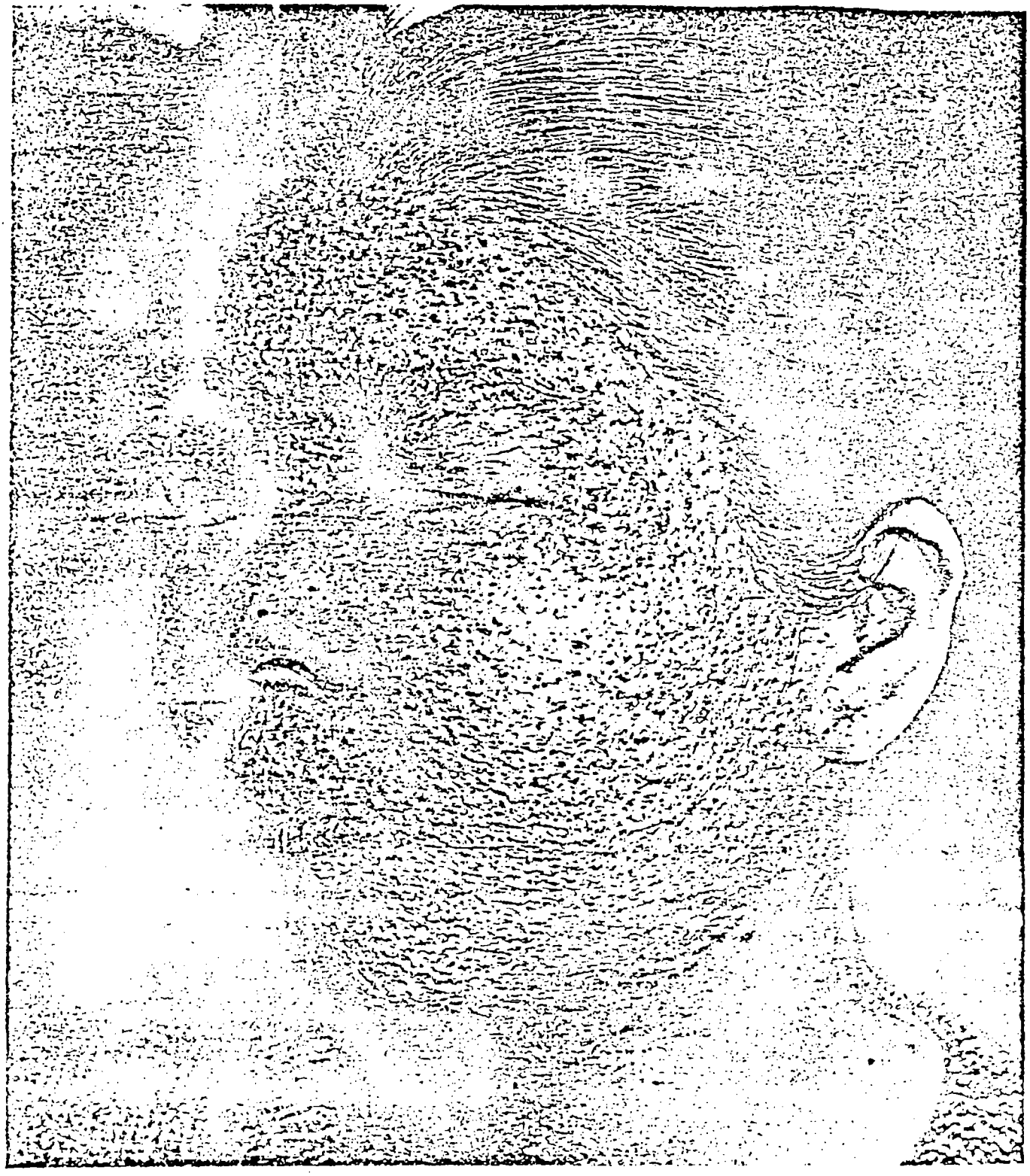
Many of the cases generally known by the term "Yusho" belong to this type. The characteristic physical signs and subjective symptoms include chloracne, comedo-like eruptions and follicular accentuation as seen in the photo on the opposite page and the photo on page 134. Other symptoms are dark-brownish pigmentation of skin and nails and of the mucous membrane of the eye and mouth; hypersecretion of cheese-like discharge from the eyes; loss of hair; loss of libido; general fatigue; numbness of the extremities or neuralgia-like pain; headache; stomachache; abdominal pain; nausea; vomiting; dizziness; disturbances of higher nervous activities (e.g. forgetfulness); local impairment of blood circulation; vomiting as a result of changes in conditioned reflexes to disturbance from fatty

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Photos on opposite page and on page 133: chloracne, comedo-like eruptions and follicular accentuation.

See colour photos on inside back cover of Japanese patients with some of the symptoms of the manifest type of Kanemi Yusho.

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foods; flattening or deformation of nails; deformities of joints and bones; poor development of teeth in children; morphological changes of teeth of a pathological nature. In addition, other pathologically complicated changes have been observed recently.

Although patients suffering from these symptoms are typical Kanemi Yusho cases, many of them have not yet been officially recognized as victims of the disease.

Tardive Type

Some cases of a delayed (tardive) type have been observed. Physical signs and symptoms specific to Yusho are manifested, regardless of the amount of PCB the patient ingested. The symptoms appear one to three years later. The reason for this is not clear at this time (1).

TREATMENT AND PROGNOSIS

Yusho is very difficult to treat and its prognosis is not always benign. Treatments administered in attempts to ameliorate the suffering and complicated symptoms of the patients are generally not successful . . . with one exception. Patients are slightly ameliorated when human placentas that have been kept in cold storage are administered by injection or transplant. These measures are especially effective with regard to the nonspecific symptom complex or the nonspecific reactions of the organism as a whole.

Acupuncture and moxibustion (used in the Kampô medical approach, a Chinese method of treatment) is recognized to be more effective in dealing with pain such as headache, stomachache, stiff shoulders, low back pain, and pain or numbness of the extremities (2).

Concerning the prognosis, the following symptoms are in my opinion the most serious ones:

1. Functional disturbance of the higher parts of the central nervous system particularly of the cerebral cortex. This is especially serious in young children, who may display symptoms at birth or during the first years of life.
2. Changes in the cardiovascular system are being observed. This is an important tendency at the present time. The changes may relate both to the function of the heart, as demonstrated by EKG analysis, and to the peripheral circulation. The occurrence of signs of local impairment of blood circulation was already mentioned.
3. A new tendency that has recently been discovered is the deformity of bones; especially deformities of the fingers, toes, ankles, wrists or vertebrae. The deformities are accompanied by pain.
4. In some cases changes have been observed in the teeth, e.g. breakdown, loss or sudden snapping of teeth (3).

References and Notes:
1. G. Umeda, *Iwaki 67*, pp. 6–9 (1972).
2. G. Umeda, *Min Iren Iryo* 14, pp. 17–35 (1970).
3. G. Umeda, *Clinical Aspects of PCB Poisoning* (Abstract of the 45th Congress of the Japanese Association of Industrial Health, Tokyo, April, 1972).

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Japanese patients with some of the symptoms typical of the mainly type of Kanemi Yusho, a disease caused by the ingestion of PCB

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Acquired in Color

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