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SOME CASES OF CIGUATERA AND COGNATE
ICHTHYOSARCOTOXISM REPORTED FROM TOKYO

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With the increasing landings since the end of World War II of fishes from alien waters, the people of Tokyo and adjacent prefectures have been exposed to the danger of being poisoned by eating hitherto unknown or familiar fishes from the tropics. The Office of Sanitary Inspection at the Central Wholesale Market of Tokyo Prefecture has made every effort to stop the selling of dubious fishes at the market. Nevertheless, a few cases of ciguatera and cognate ichthyosarcotoxism have been observed in Tokyo and vicinity.

Ciguatera caused by a barracuda

On the 20th May, 1949, an outbreak of food poisoning occurred in Tokyo caused by ingestion of a barracuda, Sphyræna picuda Bloch & Schneider, measuring ca. 1 m. in total length. About thirty persons of five families who had eaten the flesh were all poisoned. The fish was caught by tuna long line somewhere in the tropical region of the Pacific Ocean, and sold at the Central Wholesale Market of Tokyo Prefecture to a middleman who sold it to a retailer in the city. The poisoned persons purchased the fish which had been preserved in good condition at the retailer, and none of them was conscious of any putrid odour or unusual taste. It is hardly conceivable that the poisoning was due to bacterial deterioration of the fish. About an hour after eating the fish, numbness in lips and mouth first appeared in all patients, and this was followed by oral paresthesia, tottering, and symptoms similar to drunkenness. There was slavering in heavy cases, but no vomiting, nausea or diarrhea. Although the symptoms were very severe, all patients appeared to have recovered within two days without leaving ill effect.

Through the courtesy of a technical officer of the Division of Sanitation of the Metropolitan Government (namely, the Government of Tokyo Prefecture) to which the Office of the Sanitary Inspection of the Central Wholesale Market belongs, 55 g. of the fillet of the barracuda boiled with soy was sent to Professor Yoshiro Hashimoto for study. The fillet was saved by one of the patient's families and recovered by officials after the outbreak. Despite insufficiency of the test material, Professor Hashimoto was able to find a new type of poison in the fillet (cf. Hashimoto, 1956).

The same species of the barracuda which caused the ciguatera mentioned above is usually eaten by Japanese people without any poisoning resulting if the fish is caught in Japanese waters. Professor Hashimoto and his collaborators tested the toxicity of five individuals of the same kind of barracuda taken about 600 miles south-east of the Bonin Islands in July, 1949, but they were nontoxic (cf. Hashimoto, 1956).

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Since the outbreak of the ciguatera caused by the barracuda*, the Ministry of Health and Welfare decided to issue an ordinance, and handling of this fish has been prohibited in Japan, and thereafter no case of the poisoning caused by the barracuda has been reported from Tokyo and vicinity.

Ciguatera caused by a lutjanid or another red fish

About 3 p.m., July 13th, 1966, three boys of a junior high school in Tokyo visited the Central Wholesale Market of Tokyo Prefecture and were given by the crew of a fishing boat anchored there two red fishes measuring ca. 60 cm. in total length and each weighing ca. 3 kg. Upon returning home, they asked a nearby fishmonger to fillet them, and distributed the fillets to their families and neighbours. Eleven persons ate the fish for supper, and they were all poisoned within one to seven hours after the supper. The symptoms were vomiting, diarrhea, and paralysis. Five of these people went to a hospital. By the 23rd of the month, all the patients had more or less recovered with only slight paralysis remaining.

The record given above was submitted on the 27th of that month from the chief of a ward branch of the Division of Sanitation of the Metropolitan Government to the Director of the Division, and a copy of the record was passed on to Professor Hashimoto. Due to lack of sufficient material, identification of the fish and test of the toxicity of the fillet were impossible, but it is thought probable that the fish was a member of Lutjanidae or some other teleost and that the main cause of the poisoning was not deterioration of the fish. The fish were frozen when the boys received them from the fishermen.

It is regretted that the rules differ from prefecture to prefecture. Fishermen bringing in dubious fishes to Tokyo are usually ignorant about the rules of the Government of Tokyo Prefecture, and upon being informed about the rules stop unloading. Sometimes they may sell the fishes to other markets where there are no such rules for landing.

Poisoning caused by dried puffer

Thanks to an ordinance issued by the Metropolitan Government, the eating of fresh puffers (tetraodontids) rarely causes poisoning in Tokyo and vicinity. Dried flesh of puffers have long been thought nontoxic, and is consumed widely in Japan, and it is unlikely that the people in Tokyo have ever suspected it of toxicity. On the 2nd March, 1968, an old man (74 years old) and his wife (53 years old) ate three pieces of dried puffer, each weighing 15 g., for supper (later identified with Fugu vermicularis radiatus (Abe) by me) and the next morning at 11 o'clock ate two pieces of dried puffer purchased along with the pieces eaten in the previous evening from a super market in Tokyo. Whereas fresh fish consumed by Tokyo citizens are usually sold to retailers through the Central Wholesale Market of Tokyo Prefecture, some of the frozen or dried or salted fish are, as in the case of canned foods, distributed directly from fishing companies or makers to retailers or restaurants without being inspected by the people at the sanitation offices of the Metropolitan Government. The two persons who ate the dried flesh of the puffer felt nausea and numbness in lips at 11.30 a.m. (30 minutes after the lunch), and sent for a doctor, who treated the patients and let them vomit. They recovered at 1 p.m. of the same day. The case was reported by a newspaper in the evening of the same day, and an additional case of the poisoning caused by similar dried flesh from the same super market was reported by telephone to a sanitation office. But the reporter did not inform the office of the name and address of the patient.

* This was later observed in other prefectures.

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References

JONES, J. D. 1956. Observations on fish poisoning in Mauritius. Proc. Roy. Soc. Arts & Science of Mauritius, vol. i, pt. 4, pp. 367-385.

HASHIMOTO, Y. 1956. A note on the poison of a barracuda, Sphyraena picuda Bloch & Schneider. Bull. Japan. Soc. Sci. Fisheries, vol. xxi, no. 11, pp. 1153-1157.

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