



Tumor in blood vessel metastasized from thyroid.

## Thyroid Ca Found In Fall-Out Victims

Four thyroid malignant neoplasms have been discovered in the Marshall Islanders who were accidentally exposed to radiation fall-out from a 1954 nuclear bomb test.

Three malignant neoplasms developed in the 53 heavily irradiated persons who were on the island of Rongelap at the time of the accident.

According to Robert A. Conard, MD, not even one such case would be expected in 15 years in a population of that size.

In a paper presented at the American Public Health Association meeting in Philadelphia, Dr. Conard said the three patients received 160 rads to 1,000 rads from radioactive iodines in food and water, plus 175 rads from whole body exposure. Fall-out was not blamed for the malignancy found in the fourth patient, a 34-year-old woman from Utrik who received only 15 rads from food and water and 14 rads from total body exposure.

Two of the malignant nodules, found during the 1969 annual medical survey of the Marshall Islanders, had metastasized to blood vessels. Two had metastasized to lymph nodes. Papillary carcinomas and mixed papillary and follicular carcinomas were found in the patients who were 22 to 40 years old at the time of surgery. Surgery was performed by Brown M. Dobyns, MD, at the Cleveland Metropolitan General Hospital.

All patients underwent complete thyroidectomy and are receiving hormone replacement therapy. Their prognosis is very good, Dr. Conard said.

Dr. Conard heads the medical team from Brookhaven National Laboratory which is responsible for following the health of the Marshall Islanders. Four years ago in *JAMA*, he reported the medical findings (including an increased incidence of benign thyroid nodules) from a 10-year study of exposed individuals (192:113 [May 10] 1965).

## Sodium Bicarbonate Can Mean Life Or Death In Near-Drowning

The patient is brought into the emergency room dazed or comatose. Twenty minutes later he is alert and asking to go home, his near-drowning episode behind him.

He doesn't go home for at least another 48 hours—a period of observation and further treatment if necessary. Yet, the worst generally is over.

How does such a rapid change in the patient's condition come about? Sodium bicarbonate is the answer, according to Shahed Hasan, MD, a fellow in pulmonary diseases at Mt. Sinai Hospital, Miami Beach.

The metabolic acidosis that almost invariably occurs as a result of near-drowning or submersion is even more severe than the hypoxemia, he told the fall meeting of the American College of Chest Physicians. "The acidosis must be corrected with sodium bicarbonate just as soon as it is ascertained that the airways are clear," he said. "This is the first priority; otherwise the patient may die."

Dr. Hasan reported on a series of 34 patients treated in this manner between February 1967 and June 1969. All recovered, he said, with no complications. The response to treatment was the same whether patients were submerged in fresh or salt water.

He believes that the severe metabolic acidosis occurs particularly in young and vigorous persons as a result of their great muscular exertion—to keep from drowning—while already in a hypoxic state.

Most near-drowning patients arriving at the hospital are given one or two ampules (1 ampule = 44.6 mEq) of sodium bicarbonate right away while a sample of arterial blood is being drawn for pH and blood gas analysis. "We can get the results of the arterial blood gas analyses in about three minutes," Dr. Hasan said, "and this tells us how much more sodium bicarbonate to inject, if any. The dosage for adults should be one ampule for each minus 5 of base excess.

"For some patients in less serious condition we wait for the results of the arterial blood gas analyses before administering sodium bicarbonate," he said.

Even the near-drowning victim experiencing cardiac arrhythmia

should be given sodium bicarbonate, Dr. Hasan explained, because arrhythmias occur as a result of the metabolic acidosis. When the acidosis is corrected, the arrhythmias will disappear unless, possibly, the patient had a pre-existing cardiac problem.

"The important point is that no time should be wasted in reversing the metabolic acidosis," Dr. Hasan urged. "I have seen patients recover with a pH as low as 6.8, which many physicians consider to be incompatible with life."

The second emergency treatment priority is oxygen therapy. Dr. Hasan prefers the use of intermittent positive pressure breathing every few hours, checked with serial arterial blood gas analyses. This drives the fluid back into the circulation.

Occasionally, however, continuous endotracheal ventilation is indicated, and in this case the breathing pattern is checked with a respirometer every hour.

Another Miami physician, anesthesiologist Jerome H. Modell, MD, of the University of Miami School of Medicine, generally agrees with this type of emergency treatment of near-drowning victims (*JAMA MEDICAL NEWS* 206:2445 [Dec 9] 1968).

Insofar as possible, specific procedures are followed in rescue operations and emergency room procedures connected with handling near-drowning cases at Mt. Sinai Hospital. "The organization of these procedures is very important," Dr. Hasan explained.

Prolonged resuscitation efforts are not carried out at poolside or on the beach. Instead, the patient is put into the ambulance as soon as it arrives and resuscitation is carried out en route to the hospital.

Arterial blood analysis equipment is routinely kept in the emergency room of the hospital. Dr. Hasan recommends this for all hospitals receiving a number of near-drowning patients. At Mt. Sinai, five instruments for analysis are kept well calibrated. Serial readings from three meters are taken simultaneously to see if all readings tally.

Co-investigators are Wilbur G. Avery, MD, Carl E. Fabian, MD, and Marvin A. Sackner, MD.