

GENETICS

Twice Fertilized Egg Cell

► THE FIRST known instance of a child born from a doubly fertilized human egg cell was reported by a geneticist and a pediatrician from the University of Washington, Seattle.

The patient, now a normal and healthy four-year-old girl, was first seen in the University Hospital clinics nearly two years ago.

The fact that one eye was hazel and one was brown provided a clue that brought the geneticist and the physician together. Although hetero-chromia (different eye colors) occurs in perhaps one person in a hundred, other minor abnormalities made the girl an interesting possibility for further study.

Dr. Sorrell Waxman, associate professor of pediatrics, checked the output of endocrine glands but found no abnormality. The geneticist, Dr. Stanley Gartler, who is also an associate professor of medicine, found that white blood cells showed a normal 46 chromosomes present in each.

Enlarged photographs of the chromosomes matched for size and shape, however, provided the fact that makes the little girl medically unique. Her blood carried both the XX chromosome pattern found only in females and the XY chromosomes found only in males.

An exploratory operation disclosed that the girl had one normal ovary and one

ovotestis, a mixed organ that combines male and female characteristics. The mixed organ was removed, leaving one normal ovary intact.

"The surgical procedure leaves us with every expectation that the little girl will continue through succeeding phases of growth into a perfectly normal young woman," Dr. Waxman told a news conference for reporters attending the International Seminar for Science Writers at the Century 21 Exposition in Seattle.

Samples of skin and other tissues, also examined by the team, showed that chromosomes of other tissues contained both the XX and XY patterns. The red blood cells proved to contain two separate populations, each with different characteristics determined by dual inheritance.

The blood studies were conducted by Dr. Eloise Giblett, chief of research for the King County Central Blood Bank.

The scientists reported in the Proceedings of the National Academy of Sciences, 48: 332, 1962, that the red-cell phenomenon showed two different sperm cells fertilized two egg nuclei at conception. Whether these two nuclei occurred in a single egg cell, or whether two different egg cells were separately fertilized but later fused, is not definitely known.

• Science News Letter, 82:130 September 1, 1962

MEDICINE

Hemophilia B Detection

► A NEW METHOD of detecting carriers of hemophilia B, a form of the disease in which blood fails to clot properly, has been announced by two researchers at the University of Utah College of Medicine in Salt Lake City.

A deficiency in factor IX, a vital blood component, distinguishes this disease from the more common classical hemophilia. Hemophilia B is also called Christmas disease after a youngster named Christmas, in whom the variation was discovered in 1952.

Both types of hemophilia are inherited. They are found only in males, with a few known exceptions, and are transmitted by daughters of affected males to their sons.

So far only 33% of previous tests for carriers, all of whom are women, have been effective. The new method has increased the screening efficiency to 79% and the investigators believe 100% effectiveness can be achieved.

Testing is the same in the old and new methods up to a point, that is, the length of time blood plasma is exposed to glass surfaces in laboratory analysis.

In both tests a small amount of blood is drawn from the arm of the suspected carrier. The plasma is then separated from the red blood cells and mixed with plasma from the blood of a person known to have

hemophilia B. Clotting time for normal, healthy blood containing sufficient factor IX is about five minutes, but in hemophiliacs the clotting time may be an hour or more.

If the woman whose blood is being tested is not a carrier of the abnormal gene, the factor IX in her blood will act to correct its deficiency in the plasma of the known hemophiliac's blood, and clotting time will be reduced to the normal five minutes in the test blood.

If the suspect is a carrier, the reduced amount of factor IX she has in her blood plasma will only partially correct the total deficiency in the plasma sample of the known hemophiliac's blood. Clotting time may be reduced from an hour or so to perhaps ten minutes.

Tests resulting in partial correction label the suspect as a carrier.

However, in the old test, the necessary exposure to glass surfaces triggered the "Hageman factor," or basis of the clotting process, thereby masking the desired coagulation reaction.

Efforts to minimize the exposure to glass, which have hitherto been attempted, have been unsuccessful in the assay for factor IX. The new test increases the glass contact to "excess."

Drs. Paul Didisheim and Robert L. E. Vandervoort reported the new test in the

magazine Blood, Aug. 1962. After giving the plasma prolonged contact with glass so that it was maximally affected, they established a standardized level of exposure for all tests and developed a rigid control system.

The investigators' research was supported by a grant from the National Institute of Arthritis and Metabolic Diseases.

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MEDICINE

Stillborn Babies Saved By Chilling in Water

► SEVERAL stillborn babies have been brought back to life by immersion in water chilled to between 50 degrees and 59 degrees Fahrenheit, a team of doctors at the Sabbatsberg Hospital in Stockholm have reported.

Prof. Bjorn Westin, head of the team, said the treatment must be started immediately after birth, and is not applicable to babies who have started to breathe.

The baby's body is lowered in the chilled water and kept there as long as necessary. Gradually the water is heated to normal body temperature, with a consequent increase in the baby's consumption of oxygen. At the end of the treatment the infant is placed in an ordinary incubator.

Examination of the babies after one to two years has shown that they have developed normally with no brain injuries detected.

Other maternity clinics in Sweden and in Finland have adopted the treatment, which was first used in animal experiments.

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SPACE

No Russian Space Delay From U.S. H-Bomb Test

► SOVIET charges that America's high altitude nuclear bomb blast July 9, 1962, "dirtied" space and has delayed Soviet plans to put a cosmonaut into higher orbits are not based on scientific fact, SCIENCE SERVICE learned. (See p. 133)

The U. S. high H-bomb test did, in fact, extend the intensity of radiation slightly below the 600 miles altitude at which the inner Van Allen belt surrounding the earth begins. However, according to the U. S. Atomic Energy Commission, the maximum intensity of the expanded area is at 800 miles altitude, well within the inner Van Allen belt which encircles the earth from 600 miles to 3,400 miles altitude. Neither Soviet nor U. S. scientists have ever seriously suggested that a man could orbit within the Van Allen regions. Both U. S. and USSR manned orbits have been under 200 miles, well below the intense Van Allen radiation areas.

Information currently is being collected by the AEC on the distribution of electrons from the high H-bomb shot by satellite measurements; but there are no indications that they extend into the orbits planned either for Project Mercury or coming Soviet launches.

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