Warren Tay (1843–1927) [1]

By: Nardi, Tiffany Keywords: Congenital Heart Defects [2]

Warren Tay studied and treated diseases of the eye in the nineteenth century in England. Tay studied a lethal nervous system disorder occurring in children, a disorder later named Tay-Sachs disease. Those afflicted with the disease had deteriorating motor skills, blindness, and mental impairment that culminates in death between ages three to five. While working as surgeon at London Hospital in London, England, Tay began seeing patients that displayed a rare circular pigmentation in the eye's macular region, the oval-shaped region on the back of the eye. Tay kept detailed records of those patients, later determining that they correlated with a neurodegenerative disorder. Tay reported the first clinical features of the developmental disorder Tay-Sachs, which helped further the research on that disease.

Born in 1843, Tay received his medical education from the Royal College of Surgeons in London, England, in 1866. Once Tay graduated, he became a member of the Royal College of Surgeons, a professional organization [3] of surgeons in England. In 1868, Tay became an assistant surgeon at the Hospital for Diseases of the Skin at Blackfriars in London. A year later, Tay became fellow of the Royal College of Surgeons, a professional title allowing him to start practicing as a surgeon in London. That year, at the age of twenty-five, Tay became assistant surgeon and ophthalmologist, or an eye doctor, at the London Hospital [4]. During his time at the London Hospital, Tay worked with John Hutchinson, a surgeon who practiced in many medical fields and lectured about surgery. Tay was Hutchinson's assistant at several institutions where Hutchinson worked, including Moorfields Eye Hospital in London. In 1869, Tay also began working as a surgeon at the North-Eastern Hospital for Children in London. There, he was a general surgeon as well as an ophthalmologist.

While working with Hutchinson, Tay conducted routine follow-ups on some of Hutchinson's patients. In 1874, at Moorfields Eye Hospital, Tay performed an eye exam to inspect the back part of a patient's eye. In that exam, Tay noticed abnormal yellow spots in the center region of the back of the eye. Tay brought the abnormality to Hutchinson's attention, and in 1875, Hutchinson published an article on the subject. In the article, he acknowledged Tay's contributions to the discovery and referred to the abnormality as Tay's Choroiditis, which persisted into the twentieth century as the name for the condition.

In 1881, Tay reported his findings of a twelve-month-old infant who displayed weakness in both the neck and limbs two to three weeks after birth. Tay also reported that the infant had a yellowish spot at the back of each eye with a brownish-red, circular dot at the center. Six months after Tay's observation, the infant died. Tay contacted his two colleagues, Hutchinson and Hughlings Jackson, a neurologist at several hospitals in London, to help determine what caused the infant's death. However, because the family did not allow the physicians to conduct an autopsy of the infant, the investigation halted. In 1884, Tay reported his clinical findings of the new disease to the Ophthalmological Society of the United Kingdom.

Three years later, Tay reported on three other children, who were in the same family as his first patient. All of those children had the same symptoms, which resulted in their early deaths. Tay noted that the disease clustered in families rather than being distributed randomly throughout the population. Tay's observations identified deterioration of motor skills and eye sight that occurred in infants. Tay's observations of the condition aligned with those of Bernard Sachs in 1887. Tay's pigmentation observations complemented Sachs's definition by providing the first visible symptom of what later became called Tay-Sachs disease.

Tay continued to work at Moorfields Eye Hospital until his retirement in the early 1900s. Tay never married. He lived in a brick house located at Finsbury Square in London, with many former London Hospital colleagues as neighbors. According to one of his obituaries, he had an appreciation for literature. Near the end of his life, Tay suffered from damage to the optic nerve at the back of the eye, a condition called chronic glaucoma, which can lead to complete loss of sight. At the time of his death, he had severe impairment of one eye. He died on 15 May 1827, at the age of eighty-four. Later research revealed that genetic mutations cause Tay-Sachs disease, and that those mutations are common in Ashkenazi Jews.

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The arterial switch operation, also called the Jatene procedure, is an operation in which surgeons redirect the flow of blood through abnormal hearts. In 1975, Adib Jatene conducted the first successful arterial switch operation on a human infant. The arterial switch operation corrects a condition called transposition of the great arteries, abbreviated TGA, also called transposition of the great vessels, abbreviated TGV. TGA occurs when the pulmonary artery, which supplies deoxygenated blood to the lungs, and the aorta, which takes oxygenated blood to the body, are switched, or transposed. The switch between the aorta and pulmonary artery results in dangerously low levels of oxygen, a condition called cyanosis, in newborn infants, which causes them to die if a surgeon does not correct it.

Subject

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Publisher

Arizona State University. School of Life Sciences. Center for Biology and Society. Embryo Project Encyclopedia.

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Format

Articles [22]

Last Modified

Wednesday, July 4, 2018 - 04:40

DC Date

2017-05-27

DC Date Accessioned

Saturday, May 27, 2017 - 16:01

DC Date Available

Saturday, May 27, 2017 - 16:01

DC Date Created

2017-05-27

DC Date Created Standard

Saturday, May 27, 2017 - 07:00

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