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# Theodor E. Kocher (1841-1917): Nobel Surgeon Of The Last Century

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## Abstract

Theodor Kocher was born in Bern on 23 August 1841 to an old family of the Berne Lake district. His father was chief engineer for the Canton Berne. He studied at the University of Berne, and after finishing his MD, took a study trip to Berlin, London, and Paris to acquaint himself with the state of the art in medical science. He did a lot of experimental work on the thyroid gland & was the first to excise the thyroid for goiter in 1876. He single handedly reduced the mortality of thyroid surgery not only by being extremely pain-staking and cautious in his surgical approach but also by maintaining total asepsis at all times.

His new method of repositioning dislocated shoulders made him instantly known. In 1872, he was made full professor of surgery at the still-young University of Berne. Kocher's growing fame as an instructor, researcher and author brought him offers of full professorship and department chair from Europe's top universities. But he remained true to his home university, and during his 45 years' service here as professor and clinical director at Insel Hospital, he created the prominent Surgeon's School in Bern, which has produced many generations of doctors and a series of leading surgeons. Kocher's life-long achievement was based on a combination of mental acuity, intuition & religious work ethic.

In 1909, for his life-time monumental work on the thyroid gland, he became the first surgeon ever to receive the prestigious Nobel Prize.

Emil Theodor Kocher was born on August 25, 1841, at Berne.<sup>1,2</sup> His father, a Chief-Engineer, was a very keen worker and kept him constantly at work. The influence of a devoted mother and later the loving care of a self-sacrificing wife, enabled him to pass without interruption through the continuous strait of secondary school and University. He obtained his doctorate in 1865.

Kocher studied in Zurich, Berlin, London, Paris and Vienna, a student of Theodor Billroth (1829-1894) and Bernhard von Langenbeck (1810-1887). Kocher received his medical doctorate in Bern in 1865. Following an educational journey abroad he was assistant with Prof. George Albert Lücke (1829-1884) in the surgical clinic in Bern. He succeeded Lücke, as Prof. of surgery in Bern in 1872 and in 1874 published the report of his first 13 goitre operations with only 2 deaths.<sup>1,3</sup> He did a lot of experimental work on the thyroid gland and was the first to excise the thyroid for goitre in 1876.

In 1883 Kocher announced his discovery of a cretinoid pattern in patients after total excision of the thyroid

gland.<sup>1,2,3</sup> However, there were only transitory signs of the pathological pattern, when a portion of the gland was left intact.

By 1912 Kocher had performed 2,000 thyroid excisions.<sup>1,2</sup> When he died in 1917, more than 7,000 thyroid operations had been done in his clinic; three quarters by him. The mortality decreased steadily from 14% in 1884 to 2.4% in 1889 and 0.18% in 1898. Truly remarkable, when the era in which he was undertaking the operation is considered. This is to a high degree attributable to Kocher not only being extremely painstaking and careful, but also to his maintaining total asepsis at all times.

Kocher's other surgical contributions include a method for reducing dislocations of the shoulder and improvements in operations on the stomach, the lungs, the tongue, and cranial nerves, and for hernia.<sup>4</sup> He also devised many new surgical techniques, instruments, and appliances. The forceps and incision in gallbladder surgery that bear his name, remain in general use. His textbook on operative surgery, *Chirurgische Operationslehre* (1892), was published in many editions and

languages.<sup>4,5</sup>

He undertook a lot of experimental work on animals and was interested in the physiology of the brain and the spinal cord. He evolved a hydrodynamic theory for the effect of gunshot wounds and attempted in 1912 to accelerate haemostasis in internal haemorrhage by injecting a sterile coagulating fluid, which had been derived by Anton Fonio (1889) from platelets.

Kocher's methods were somewhat similar to those of Joseph Lister (1827-1912) and William Hallsted (1852-1922) in that he relied on absolute precision and care rather than speed and show, and in this was vindicated by his low mortality figures.<sup>5</sup>

Notably three men, Lister, Hallsted and Kocher, did more to improve operative mortality than any other surgeons of their time and ended the days when surgeons were regarded as good only if they were quick, rapid and spectacular. In 1909, the Kocher Institute in Bern was established as a permanent memorial to him.

Kocher was an honorary member of numerous academies and medical societies, e.g. the German Surgical Society.<sup>4,5</sup> He was an Honorary Fellow of the Royal College of Surgeons; L.I.D. Edinburgh University; Honorary Member of the Royal Society of Sciences, Uppsala; Honorary Member of the American Surgical Society; of the New York Academy of Medicine and the College of Physicians, Philadelphia; the Imperial Military Medical Academy, St. Petersburg; the Academy of Medicine, Turin; the Imperial Medical Society of Constantinople; the Royal Medical Society of Vienna; Royal Medico-Surgical Society, London; the London Medical Society; the London Chemical Society; the Medical Society of Finland; and various societies in Milwaukee, Dresden, Leipzig and Erlangen. He was a Corresponding Member of the Surgical Society of Paris and of the Royal Society of Medical and Natural Sciences of Brussels; of the Belgian Academy of Medicine; the German Society of Neurologists and of the Hufeland Society of Berlin; Honorary M.D. of the Free University of Brussels. In 1902, he was President of the German Society of Surgeons in Berlin and President of the First International Surgical Congress, 1905, in Brussels.

Emil Theodor Kocher won the prestigious Nobel Prize in Medicine in the year 1909 for his pioneering work on the physiology, pathology and surgery of the thyroid gland.<sup>1,3</sup> He retired as professor of surgery in 1911.

Kocher married Marie Witchi (1851-1921).<sup>2</sup> They had three sons, the eldest of whom, Albert (1872-1941) became Assistant Professor of Surgery and gave his father considerable help in his work.

Theodor Kocher died at Berne on July 27, 1917.<sup>1</sup> Several gifts and donations from his descendants & students revived his memory. The Theodor Kocher Institute, Kochergasse, Kocher Park, and two Kocher busts keep the outstanding work & name of Theodor Kocher current in the life of the city of Berne even today.

## **ASSOCIATED EPONYMS**

### **KOCHER ZONDE**

Spoon-shaped probe for goitre operations.

### **KOCHER'S ARCED INCISION**

Oblique incision for opening the knee joint.

### **KOCHER'S INCISION I**

Oblique abdominal incision over the thyroid gland paralleling the thoracic cage on the right side of the abdomen for cholecystectomy.

### **KOCHER'S INCISION II**

Transverse incision over the thyroid gland in the neck for thyroidectomies.

### **KOCHER'S METHOD I**

A method for fixation of the uterus.

### **KOCHER'S METHOD II**

Invagination method for radical operation for inguinal hernia

### **KOCHER'S METHOD III**

Method for reducing dislocations of the shoulder.

### **KOCHER'S REFLEX**

Contraction of abdominal muscles following moderate compression of the testicle.

### **KOCHER'S SIGN**

Eyelid phenomenon in hyperthyroidism and Basedow's disease.

### **KOCHER'S SYNDROME**

Splenomegaly with or without lymphocytosis and lymphadenopathy in thyrotoxicosis.

**KOCHER'S TWEEZERS, FORCEPS & PROBE  
KOCHER-DEBRÉ-SEMÉLAIGNE SYNDROME OR  
DISEASE**

A syndrome of hypothyroidism associated muscular enlargement to give the appearance of an infant Hercules.

**KOCHERISATION**

Operative technique in opening the duodenum to expose the ampulla of the common bile duct.

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