



History

Paul Gerson Unna (1850–1929) – Genius of all times

Reshmi Gangan

Department of Dermatology, Primary Health Care Corporation, Doha, Qatar.

***Corresponding author:**

Reshmi Gangan,
Department of Dermatology,
Primary Health Care
Corporation, Doha, Qatar.

reshgang@yahoo.co.in

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ABSTRACT

Paul Gerson Unna, one of the leading dermatologists of Central Europe, was way ahead of his time. The originality of this meticulous researcher always reflected in his works on anatomy and histology of the skin. Field of dermatology was made very attractive and appealing to many at that time by his first book on histopathology. His revolutionary Unna boot was only a minor invention when compared to his extensive contribution to the educational research and therapeutic dermatology.

Keywords: Histopathology, Paul Gerson Unna, Unna's boot, Unna's disease, Unna-thost syndrome

EARLY LIFE, EDUCATION, AND FAMILY

One of the most renowned dermatologists, a pioneer in dermatopathology, Paul Gerson Unna, was born on September 8, 1850, in Hamburg, Germany.^[1] His father Moritz Adolph Unna was a prominent Jewish local physician and mother Ida Gerson, was the daughter of a physician whose ancestry of 200 years saw a physician in every generation.^[1] His elder sister Julie de Boor was a famous portrait painter. Unna was educated at the Gelehrtenschule des Johanneums in Hamburg. In 1870, when he was 20, to show his reverence and admiration to his maternal grandfather Gerson, his middle name was added when he became Paul Gerson Unna.^[1]

Unna began his medical study at the University of Heidelberg which was interrupted when he was called upon to fight in the Franco-Prussian war during which he was severely wounded by a French rifle ball that shattered his thigh.^[1] He later contributed his pension toward prizes in dermatology research. After the war, he resumed his studies in 1871 in Heidelberg, and later went to the University of Leipzig.^[1] Under the guidance of Professor Heinrich Wilhelm Waldeyer, who is still passionately remembered for various anatomical structures that bear his name and the introduction of the tissue stain hematoxylin, Unna attained his doctorate in Strasbourg.^[1]

Unna received his dermatological training in Vienna under the expert guidance of eminent brains, Ferdinand von Hebra, Moritz Kaposi, and Heinrich Auspitz.^[1]

Unna had four children, three of them (Karl, Paul Jr., and Georg Wilhelm) were dermatologists, and the fourth, Eugen, a pharmacist. He was an ardent music lover and conducted weekly concerts where he performed as an eminent cellist.^[1]

CONTROVERSY

Unna's doctoral work under the guidance of Professor Waldeyer, on the subject of the histology and development of the epidermis, was published in 1876. The thesis "The development

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and anatomy of the human skin and its adnexa (“Entwicklungsgeschichte und Anatomie der menschlichen Haut und ihrer Anhangsgebilde”) held a lot of new ideas and concepts. The original and contentious proposals were met with intense criticism from German pathologist Friedrich Daniel von Recklinghausen.^[1] Unna made many corrections when it was rewritten and ultimately it was accepted and published.

Unna got acquainted with eminent dermatologist Hansen at the medical congress in Copenhagen in 1884 and accompanied him on visits to several Norwegian leproseries. The interest in leprosy led to studies in its pathology and therapy which dragged him into a bitter controversy with Neisser and his pupils which lasted for more than a quarter of a century. Neisser was of the opinion that the large polymorphonuclear cells filled with bacilli were specific lepra cells while Unna took the view that they were clumps of bacilli with their surrounding gloea, the nuclei belonging to adjacent connective tissue cells.^[1]

WORK

Unna returned to Hamburg after his dermatological training and for a short period worked along with his father in his clinic, and then in Sankt Georg Hospital after which he opened his dermatology practice in 1881. A private hospital Dermatologikum, entirely dedicated to dermatology, was opened in 1884 in Hamburg Eimsbüttel.^[1] This attracted a lot of scholars from all over the world in later years. During this time, he published his first book “Histopathology of Skin Diseases” (Histopathologie der Hautkrankheiten), which is considered until today as one of the most fundamental works in dermatology.^[2] He detailed the entire dermatology at that time, described all known skin diseases and put forward new therapies. The chapter on “Nevi” is hailed to be a classic even today. Along with his school friend, Oskar Lassar and Hans von Hebra, Unna founded the monthly journal for practical dermatology the name of which was later changed to Dermatologic weekly.^[3] Many inventions described in the journal are still being used, which include cignolin (dithranol/anthralin) for psoriasis, leukoplast plaster (zinc oxide tape) for fixation of dressings, and eucerin, known worldwide today as “Nivea crème.”^[2]

The introduction of ichthyol and resorcinol in 1886 to treat skin diseases was a major innovation.^[3] He was the first to describe stratum granulosum, investigated the biochemical processes of the skin, and initiated layer projection as a method for skin investigations.^[1] In 1891, Unna together with Henri Leloir of France, Malcolm Morris of England, and Louis Duhring of the United States, prepared the International Atlas of Rare Skin Diseases, which helped not only the students but teachers as well, to a great degree.^[2,4]

In 1907, the title of Professor was conferred on him by the Hamburg senate. One year later, he became the chief physician of the Eppendorf hospital. In 1919, Unna became an official honorary Professor at the University of Hamburg and received the first chair for dermatology.^[4]

With the pharmacist, Paul Beiersdorf, Unna had cooperated very closely in the invention of various dermatological products. In his honor, name Unnastrasse is given to the street in Hamburg, where the Beiersdorf company is located.^[1]

LEGACY

1. In 1927, Unna described for the 1st time what was to be called Unna’s disease, a chronic disease of the scalp, face, and trunk where sebaceous glands are prominent (seborrheic dermatitis).^[5,6]
2. Along with Arthur Thost, the Unna-Thost syndrome or Unna-Thost keratoderma (diffuse non-epidermolytic palmoplantar keratoderma) was described which is an autosomal dominant hereditary condition characterized by well-demarcated symmetric often “waxy” keratoderma involving the whole of palms and soles.^[7]
3. Unna’s boot is a special gauze (usually 4 inches wide and 10 yards long) bandage, a compression bandage used for the treatment of venous stasis ulcers and other venous insufficiencies of the leg. It is used as a supportive bandage for sprains, burns, and ulcers. The Gauze is impregnated with a thick creamy mixture of zinc oxide and calamine to promote healing. It may also contain castor oil, white petrolatum, acacia, and glycerin.^[8]
4. Unna described the plasma cell and conducted extensive research hunting the agent causing soft chancre, a work he continued even after the agent was identified by Agosto Ducrey.
5. Several stains have been prepared by Unna which included one for demonstrating fungus in smear preparations, Unna stain, an alkaline methylene blue stain for plasma cells, Unna-Pappenheim stain, a contrast stain to detect RNA and DNA (in tissue sections) and to demonstrate plasma cells and Unna-Taenzer stain, an orcein solution for elastic tissue.^[9]
6. Unna mark (salmon patch, nevus flammeus, stork bite, angel’s kiss) – A benign capillary vascular malformation present at birth on the nape of the neck in 25%–50% of normal infants.

CONCLUSION

The contributions of Paul Gerson Unna to the field of dermatology are immeasurable. Among his contemporaries, he has been rated possibly as the most competitive. He gave

his life and soul for the betterment of various dermatological practices widely practiced at the time, revolutionized with new innovations, excelled in the development of dermatologic microscopy, and improved clinical description of a number of dermatologic conditions. A prodigious worker and a creative writer, he was harshly described as a pompous little man who seldom smiled. On January 29, 1929, 4 days after he revised the manuscript of a brief autobiography, Unna died at the age of 78 from an attack of influenza.^[9] As a tribute to this great legend, Professor Paul Gerson Unna Academy was founded in Germany in 2016, where a range of current, practice-oriented continuing education courses are delivered with exchange of knowledge and experience. Dermatology as an outstanding field of medicine would have never achieved the present enlightened status, if not for the hard work, dedication, passion, enthusiasm, and commitment by one of the unparalleled brains ever lived, Paul Gerson Unna.

Declaration of patient consent

Not required as there are no patients in this article.

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Conflicts of interest

There are no conflicts of interest.

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