

DÉJERINE-KLUMPKE SYNDROME: AUGUSTA DÉJERINE-KLUMPKE

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Augusta Déjerine-Klumpke (1859-1927) is most recognized for her neuroanatomic and clinical descriptions of brachial plexus paralyses, mainly lower trunk brachial plexopathy. The hallmark finding in lower trunk brachial plexopathy is hand weakness commonly associated with oculopupillary phenomena (Horner's syndrome). Early in her medical training, Augusta Déjerine-Klumpke saw a patient with total brachial plexus paralysis and oculopupillary involvement. This led her to conduct experiments on the matter, and in 1885, her work was published in the *Revue de Médecine*. She presented a patient case series as well as her hypothesis that only lesions involving proximal nerve root injury at the level of the lower plexus were accompanied by oculopupillary changes. As a result of her work, she became known as an expert on the subject, and this condition has since been known as Déjerine-Klumpke syndrome or, as we commonly refer to it today, Klumpke's palsy.

Klumpke's palsy is only one of Augusta Déjerine-Klumpke's great accomplishments as a physician and woman in medicine. She was born in San Francisco, California in 1859 to an American woman, Dorothea Mathilda Tolle, and an English businessman, John Gerald Klumpke. She was the second of six children and always excelled in the sciences. She moved to Europe in 1871 with her mother after her parents separated. She entered medical school in Paris in 1877, and despite significant resistance she was eventually accepted for a medical externship in 1882. Then in 1884, after a vigorous campaign, the French government allowed women to compete for internships, and Dr. Augusta Déjerine-Klumpke became the first female intern of the Parisian hospital.

In addition to her accomplishments as a woman in medicine and her work on brachial plexopathy, Dr. Déjerine-Klumpke made many other contributions to the field of neurology and trained many future neurologists. She married Jules Déjerine, already a highly regarded neurologist, in 1888. Together they published multiple manuscripts including a comprehensive, systematic, 2-volume book of neuron topography entitled: *Anatomie des centres nerveux* in 1895. Over the course of her career she furthered our understanding of the nervous system with descriptions of secondary degeneration following lesions of the cortex, the connections of the red nucleus, aberrant pathways of the pyramidal tract, cuneus fibers in the corpus callosum, and the anatomical concept of the lesions involved in Broca's aphasia. In addition to her significant contributions to the field of neuroanatomy, throughout her career she remained true to her call as a clinical physician. She took care of the wounded during World War I prompting an interest in traumatic cerebral and spinal cord injuries. She helped standardize protocols for paraplegic patients and was a pioneer in the area of spinal cord injury rehabilitation. Her many students included Andre-Thomas, Gustave Roussy, Jean Lhermitte, and Jean Alexandre Barre.

Upon her death in 1927, Augusta Déjerine-Klumpke had published more than 56 papers related to neurology and neuroanatomy, had received 2 Legion of Honor medals, and had been the first female president of the French Society of Neurology. Augusta Déjerine-Klumpke was a true pioneer in her day and is an inspirational, driven woman who made a significant impact on the fields of neurology and neuroanatomy and for the future of women in medicine.

References

- Berhoune NN, Thobois S, Gobert F et al. Augusta Dejerine-Klumpke (1859-1927): An extraordinary neurologist and an inspiration for all women in medical careers. *Pediatr Neurol.* 2014;50(6):547-8.
- Bogousslavsky J. The Klumpke Family – Memories by Doctor Déjerine, Born Augusta Klumpke. *Euro Neurol.* 2005;53:113–120.
- Ulgen BO, Brumblay H, Yang LJ et al. Augusta Déjerine-Klumpke, M.D. (1859-1927): a historical perspective on Klumpke's palsy. *Neurosurgery.* 2008;63(2):359-66. discussion 366-7.
- Zupanc M. Madame Augusta Dejerine-Klumpke. In: Ashwal, S, editor. *The Founders of Child Neurology.* San Francisco: Norman Publishing, 1990:215-221.