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Original paper

Charles Albert Elsberg (1871–1948) and his forgotten contributions to the treatment of Spinal Cord Injured patients

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Charles Albert Elsberg's parents, Albert and Rebecca, immigrated from Germany and settled in New York. One of his brothers, Nathaniel A. Elsberg (1872–1932), was a writer, lawyer, and politician from New York, who advocated for school integration. Charles Elsberg is remembered as the one who established the first Neurosurgery Service in NYC.

Elsberg was graduated from Columbia University College of Physicians and Surgeons in 1893, and, after working at Mount Sinai Hospital, he spent 2 years in Breslau, Germany, working in general surgery under Jan Mikulicz-Radecky (1850–1905) [1, 2].

Two Hungarian born surgeons: Arpad Gerster (1848–1923) and Max Thorek (1880–1960) arrived in New York and Chicago and became leading surgeons in America. One of Gerster's first residents was Charles Elsberg, "who went on to become the first surgeon in New York to devote his practice entirely to neurosurgery" [1].

In 1909 he joined the NYC-Neurological Institute, directed by Joseph Collins (1866–1950), Pearce Bailey (1865–1922), and Joseph Frankel (1867–1920).

At the request of the U.S. Surgeon General during World War I, Dr. Elsberg trained 200 neurological surgeons at the New York Neurosurgical School for the U.S. Army Medical Officers.

His contributions to the treatment of SCI is forgotten [3, 4], perhaps due to the fact that along his life, his clinical and scientific activities, span from general surgery, cardio-thoracic surgery, basic sciences, and general neurosurgery.

He wrote on the dispute between the surgical approach to penetrating SCI and the conservative one, the attempts "to regenerate" the severed cord, civilian versus military injuries with or without dural tear, complete versus incomplete damage, stable paralysis versus to slowly progressive improvement, development of post traumatic haematomyelia, the benefit of rhizotomy in old "spasticities", the care for the neurogenic bladder, and the problem of root pains at the upper level of the lesion, if they cannot be relieved by immobilization of the spine by a plaster jacket or other apparatus, may demand an operative interference (decompressive laminectomy with division of the necessary posterior nerve roots).

Among the last 200 laminectomies he has performed, 20 operations were done for chronic spinal lesions. Of these patients, 8 were completely relieved of their symptoms and 6 were improved. In 6 there was little or no improvement at all [5].

It is interesting to note, that Elsberg mentioned in his lectures, the achievements in understanding the physiology and repair of the peripheral nerves' injury, done by the Australian (Melbourne, Victoria) Basil Kilvington (1877–1947), and the works of Harte, Stewart and Coley. I found only that Richard Hickman Harte of Philadelphia lived from 1855 to 1925 and published a work on spinal tumors [6].

Elsberg discussed all the most important issues concerning SCI, long before Sir Ludwig Guttmann, and to the Bostonian Dr. Donald Munro (1889–1973), "a pioneer in optimism for people with a condition long considered hopeless" [7]. Along his life, Elsberg wrote three books and 200 articles. He first married at 67.

Charles A. Elsberg is remembered as one of the most influential writers on spinal decompression [8]. He described thoroughly the indications and contraindications for laminectomy. "He argued that the primary indications for operation were cases of tumor, trauma, and infection that were associated with symptoms localized to a spinal level. Patients with progressive symptoms should be operated on quickly, in the absence of contraindications such as metastatic cancer or advanced Pott's disease" [8].

Elsberg retired in 1937, and in 1938 he was nominated as the president of the neurosurgical society. He and Hyman Spotnitz (1908–2008), a psychoanalyst and psychiatrist who pioneered an approach of psychoanalysis patients with schizophrenia in the 1950s and was one of the pioneers of group therapy, showed interest in the theory of the activity of the nervous system in response to stimuli, especially, olfactory, visual, and auditory [9].

William W. Keen, Victor Horsley, Harvey Cushing, and Elsberg [10–14] are regarded as the pioneers in removal of central nervous tumors surgically.



Credit: Photograph of a young Charles Elsberg at the beginning of his surgical career. Public domain.

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REFERENCES

1. The rise of the Neurological Institute of New York. 2016; <https://thejns.org/view/journals/j-neurosurg/125/5/article-p1291.xml>.
2. Solomon RA. New York City at the dawn of neurological surgery. *J Neurosurg.* 2016;125:1291–1300.
3. Elsberg CA. On some lesions observed in operations for old injuries to the spinal cord, with remarks as to treatment. *Ann Surg.* 1919;69:239–44.
4. Elsberg CA. Experiments on motor nerve regeneration and the direct neurotization of paralyzed muscles by their own and by foreign nerves. *Science.* 1917;45:318–20. 30
5. Elsberg CA. On some lesions observed in operations for old injuries to the spinal cord, with remarks as to treatment. *Ann Surg.* 1919;69:239–44.
6. Harte RH. IV. The surgical treatment of intraspinal tumors. *Ann Surg.* 1905;42:524–42.
7. Bodner DR. A pioneer in optimism: the legacy of Donald Munro, MD. *J Spinal Cord Med.* 2009;32:355–6.
8. Elsberg CA. The laminectomy in stride. 2019; <https://clinicalgate.com/history-of-spine-surgery/>.
9. Elsberg CA, Levy I, Brewer ED. A new method for testing the sense of smell and for the establishment of olfactory values of odorous substances. *Science.* 1936;83:211–2.
10. Langer RM. Arpad Gerster and Max Thorek contributions to American surgery. *J Investig Surg.* 2009;22:162–6.
11. Elsberg CA. Some aspects of the diagnosis and surgical treatment of tumors of the spinal cord: with a study of the end results in a series of 119 operations. *Ann Surg.* 1925;81:1057–73.
12. Elsberg CA. Laminectomy for spina tumor: a report of experience in 37 cases. *Ann Surg.* 1914;60:454–62.
13. Elsberg CA. Observations upon a series of forty three laminectomies. *Ann Surg.* 1912;55:217–26.
14. Elsberg CA. The development of neurological surgery in New York City during the past twenty-five years: with remarks on advances due to experiences in the first world war. *Bull N Y Acad Med.* 1942;18:654–64.

COMPETING INTERESTS

The author declares no competing interests.

ADDITIONAL INFORMATION

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