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History in Nephrology

Legends whose contributions inspire us even today!

***Dr. Nikolai Korotkov:
the low-pitch sounds that stand high***

Milestones in the Discovery of Hypertension

- **1733 – Stephen Hales**
→ **First measurement of blood pressure (animal experiment)**
- **1896 – Scipione Riva Rocci**
→ **Invented mercury sphygmomanometer**
- **1905 – Nikolai Korotkoff**
→ **Discovered Korotkoff sounds (SBP & DBP measurement)**

Historical Notes

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Dr N. S. Korotkov: the low-pitch sounds that stand high

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Blood pressure (BP) measurement is believed to be one of the most frequently used diagnostic tests in medicine. It is due to the Russian surgeon, Nikolai Sergeevich Korotkov (the alternative spelling is Korotkoff), that the technique in its current setup is both simple and precise enough to be routinely performed, via sphygmomanometry, by a person armed with a stethoscope. There is a major gap, however, between our knowledge of the technique itself, on the one hand, and the personality of the man who introduced it at the beginning of this century, on the other. A few Russian-language journal papers, a single booklet [1], and the only authentic photographic portrait (Figure 1) presented for the first time as late as half a century after the man's demise [2], can be considered but symbolic gratitude toward the person who had done so much for us. As to the published data outside Russia, the original biographical materials had been collected and summarized by Segal [3–7] followed by a few reports of other authors [8,9]. In the present paper we offer a summary of the essential facts of Korotkov's life, in particular, concerning his discovery, as well as the disastrous events that haunted the man persistently and led eventually to his premature end.

N. S. Korotkov was born on 26 February 1874, in the Mid-Russian city of Kursk. He was a son of an undistinguished merchant. In 1893, after finishing secondary school (*gymnasium*), he entered the Medical Faculty of the Kharkov University and three semesters later changed it for the most renowned medical school in the then Russia, the Medical Faculty of Moscow University. He graduated, with distinction, late in 1898. Due to red-tape, obstacles, and delays, only in 1900 could the bright youth be accepted as a supernumerary (unpaid, or freelance) ordinator (resident intern) at the Surgical Clinic of his *alma mater*. Since neither private diaries nor any of Korotkov's friends' notes are available, the genuine reasons for his following career moves, that is, the voluntary missions to

serve as a surgeon at the Red Cross units in the Far East during the Boxer Rebellion (1900) and later during the Russo-Japanese War (1904–1905), remain obscure. What might the motivation have been? Was it longing for deep involvement in surgical practice, desire for money on which to live, a wish to test himself for firmness and toughness, or on the other hand a lack of ambition for immediate promotion and making or moneymaking (in 1904 Korotkov married a nurse who shared all his hardships with him)—the



Fig. 1. Nikolai S. Korotkov, soon after graduating from the Moscow University.

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“From sound to science – Korotkoff transformed blood pressure into a measurable clinical vital sign.”

Legacy

- **Foundation of modern non-invasive BP measurement**
- **Still the gold standard in clinical practice**

Conclusion: Hypertension evolved from a physiological observation → measurable clinical disease