

As an alternative to the [transcranial](#) route the [transsphenoidal](#) approach was developed simultaneously in the first decade of the 20th century in the [United States](#) and in [Europe](#), in particular in the [Austrian](#) monarchy. One reason that [Vienna](#) became the cradle for the minimally invasive approach to [pituitary tumors](#) using an [endonasal transsphenoidal approach](#) was among others due to the basic and detailed anatomical studies of the [paranasal sinuses](#) performed in Vienna by the Austrian anatomist and Violin virtuoso [Emil Zuckerkandl](#) (1849–1910). His main work “On normal and pathological anatomy of the paranasal sinus and its pneumatic adnexes” in [1882](#) was the anatomical presupposition for the Viennese ENT surgeons to successfully develop minimally invasive endonasal approaches to pituitary tumors <sup>1)</sup>.

<sup>1)</sup>

Zuckerkandl E. Normale und pathologische Anatomie der Nasenhöhlen und ihrer pneumatisierten Anhänge. Vienna, Austria: Braumüller; 1882.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**



Permanent link:

[https://neurosurgerywiki.com/wiki/doku.php?id=emil\\_zuckerkandl](https://neurosurgerywiki.com/wiki/doku.php?id=emil_zuckerkandl)

Last update: **2025/05/13 02:04**