

# Primo Dorello

A century ago an ambitious young anatomist in [Rome](#), Primo Dorello, who sought to understand the cause of [abducens nerve palsy](#) that often occurred in patients with severe [middle ear infections](#), conducted intricate studies on the intracranial course of the nerve. In his findings, he identified that the [abducens nerve](#) passes through a narrow sinus near the apex of the [petrous bone](#), which formed an osteofibrous canal. Dorello suggested that in this enclosed region the abducens nerve may be particularly vulnerable to compression due to the vascular edema accompanying the infection <sup>1)</sup>.

Although his work was widely appreciated, it was not well received by all. Interestingly, [Giuseppe Conte Gradenigo](#), one of the most prominent Italian otologists of the early 20th century, who was known for his work on a triad of symptoms ([Gradenigo's syndrome](#)) that accompanies petrous apicitis, a result of severe middle ear infections, was obstinate in his criticism of Dorello's findings. Thus a scientific duel began, with a series of correspondence between these two academics—one who was relatively new to the otological community (Dorello) and one who was well reputed in that community (Gradenigo). The disagreement ultimately ebbed in 1909, when Dorello published a report in response to Gradenigo's criticisms and convinced Gradenigo to change his views.

Today [Dorello's canal](#) is widely recognized as a key landmark in skull base surgery of the petroclival region and holds clinical significance due to its relation to the abducent nerve and surrounding vascular structures. Yet, although academics such as Dorello and Gradenigo are recognized for their work on the canal, it is important not to forget the others throughout history who have contributed to the modern-day understanding of this anatomical structure. In fact, although the level of anatomical detail found in Dorello's work was previously unmatched, the first description of the canal was made by the experienced Austrian anatomist Wenzel Leopold Gruber in 1859, almost 50 years prior to Dorello's landmark publication. Another critical figure in building the understanding of Dorello's canal was [Harris Holmes Vail](#), a young otolaryngologist from Harvard Medical School, who in 1922 became the first person to describe Dorello's canal in the English language. Vail conducted his own detailed anatomical studies on cadavers, and his publication not only reaffirmed Dorello's findings but also immortalized the eponym used today—"Dorello's canal." In this article the authors review the life and contributions of Gruber, Dorello, Gradenigo, and Vail, four men who played a critical role in the discovery of Dorello's canal and paved the way toward the current understanding of the canal as a key clinical and surgical entity <sup>2)</sup>.

<sup>1)</sup>

Dorello P. Atti della Clinica Oto-Rino-Laringoiatrica della R. Università di Roma; 1905. Considerazioni sopra la causa della paralisi transitoria dell'abducente nelle flogosi dell'orecchio medio.

<sup>2)</sup>

Reddy RK, Reddy RK, Jyung RW, Eloy JA, Liu JK. Gruber, Gradenigo, Dorello, and Vail: key personalities in the historical evolution and modern-day understanding of Dorello's canal. J Neurosurg. 2016 Jan;124(1):224-33. doi: 10.3171/2014.12.JNS14835. Epub 2015 Jun 26. PubMed PMID: 26115474.

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