

Vincenzo Quercioli

A review of early 20th century literature regarding [atlas fractures](#) led Domenicucci et al. discover a paper written in Italian by Professor Vincenzo Quercioli in 1908, at that time an assistant surgeon at the University of Siena. The work was published in the journal *Il Policlinico*, which at that time was directed by Professor [Francesco Durante](#). The paper described the first case of a quadripartite fracture of the atlas, and it accurately reported the mechanism of injury, symptoms, neurological examination, treatment, complications, and cause of death of the patient.

Quercioli performed an autopsy on the patient and gave a detailed description of anatomopathological features. In particular, he identified the 4 symmetrical fracture lines related to the arches of the atlas and the substantial integrity of the [atlantoaxial ligaments](#), particularly the transverse ligament. Based on those findings, Quercioli concluded that the mechanism of trauma was an axial force. This force passed through the center of the vertebral ring and caused symmetrical displacement and compression of the articular masses. These concepts of dynamic physics led Quercioli to conclude that, because the atlas is wedge shaped, the masses of the atlas reacted to stress by moving away from the center. This reaction resulted in stretching the front and rear arches, which then fractured at their 4 points of weakness. The integrity of the [spinal cord](#) was intact, based on a negative neurological examination for CNS lesions. Thus, he concluded that these injuries were not fatal and could be cured by appropriate treatment with a [Minerva cast](#) and, in the presence of swallowing disorders, with a nasogastric tube. The case described by Quercioli was later mentioned in two classic works on atlas fractures by Sir [Geoffrey Jefferson](#), published in 1920 and 1927. In those works, Jefferson proposed his classification of 5 different anatomopathological classes; this work is widely cited in the literature and should be considered a classic. The patterns and deductions that Jefferson reported on these fractures appeared to draw upon the scientific experience of Quercioli and his description of the quadripartite atlas fracture, which appeared to be unique, even in Jefferson's review. Therefore, the authors believe that they have identified another scientist and pioneer of the atlas fracture in Professor Vincenzo Quercioli. With his brilliant insights, which remain useful and valid, Quercioli led the way to further research on the subject. ¹⁾

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Domenicucci M, Dugoni DE, Mancarella C, D'Elia A, Missori P. Vincenzo Quercioli (1876-1939), researcher and pioneer of the atlas fracture. *J Neurosurg Spine*. 2015 Mar;22(3):253-8. doi: 10.3171/2014.11.SPINE14483. Epub 2015 Jan 2. PubMed PMID: 25555052.

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