

History of Anatomy and Embryology

## The eminent Italian scholar Pietro d'Abano (1250-1315) and his contribution in anatomy

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### Abstract

Pietro d'Abano is recognized as a leading figure in the early history of European medical faculties. Translator and scholar, he translated and commented in Latin the doctrines of Greek and Arab physicians and philosophers having an ambitious attempt, to reconcile the opposing views of Arab medicine and Greek natural philosophy. Moreover he was one of the first to claim, three centuries before Harvey, that the heart is the source of blood vessels.

### Key words

Pietro d'Abano, medical translations, Conciliator, medieval anatomy.

### Introduction

Pietro d'Abano is considered to be the most important European medical teacher in the early fourteenth century. His hallmark work *Conciliator* remained in use in the European universities until the early modern period.

Besides his important philosophical work, Abano contributed significantly in the development of anatomy during the pre-Vesalian era.

### His life and career

Pietro d'Abano, known also as Petrus Paduanensis and Petrus de Apono or Aponensis, son of a notary, was born probably in 1250 in Abano village near Padua in Italy.

He was physician, philosopher, astrologer, mathematician and anatomist, a true *homo universalis* of his era (Daintith, 2009).

Around 1270 and 1290, in order to expand his horizons of knowledge, Abano decided to travel to Greece. Becoming a master of the Greek language, he studied the works of Hippocrates, Aristotle and Pythagoras and became impressed by their methodological work in medicine and their philosophical approach (Fig. 1).

He continued his journey to Constantinople where he was taught by Byzantine scholars the scientific works of eminent physicians as Orivasios, Alexandros of Tralles and Paul of Aegina. During that period he learned Arabian and became fascinated

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**Figure 1** – Pietro d'Abano: scholar and anatomist.

by the doctrines of Avicenna and Averroes (Kleinhenz, 2003). From Constantinople he went to Paris where he received medical training at the University and was promoted into the highest levels of scholarly debate, embracing the natural philosophy of Aristotle and Aristotle's interpreters. In Paris, he was known as "the Great Lombard" (Paschetto, 1984). In 1306 he returned in Italy and became Professor of medicine at Padua University. His teaching and fame contributed greatly to the steadily increasing reputation of Padua as centre of medical study during the later centuries (Pigeaud, 1989).

Abano translated and commented into Latin the works of Greek and Arab scholars and physicians as Averroes, Abraham Ben Ezra, Hippocrates, Galen, Dioscorides, Aristotle, Alexander of Aphrodisias, and Cassios. But his landmark work remains his book entitled *Conciliator Differentiarum, quæ inter Philosophos et Medicos Versantur* (Conciliator of the Differences debated between Philosophers and Physicians) also known as *Conciliator differentiarum philosophorum et praecipue medicorum* (Conciliator of the differences among philosophers and especially physicians) which was finished in 1303, revised in 1310 and published posthumously in 1472. The book presents more than 200 disputed questions on the subject of medical philosophy and attempts to reconcile the philosophical teachings of Aristotle and Galen and the opposed views of Arab medicine and Greek natural philosophy (Pietro d' Abano, 1565).

Besides *Conciliator*, Abano wrote a few other practical works as the *Expositio problematum Aristotelis* (Commentary on the problems of Aristotle, 1310), a collection of questions on various topics of natural philosophy, and *De motu octavae sphere* (On the motion of the eight spheres, 1310) focused mainly on astrology. In his treatise entitled *Compilatio physiognomiae* (1295) he emphasizes the relationships between astrology and medicine as he catalogues the predispositions of body and soul (Pioreschi, 2001). *De veneris* (On poisons, 1315) he classifies poisons and cures along with their effect on

the body and in his *Additio ad Mesue* (Addition to Mesue, 1471), he adds information about diseases of the heart to the *Universal Canons* of Johannes Mesue the younger (Siraisi, 2001).

However his career was not without controversy. For his rationalism, for his interest in astrology, for his attempts to interpret miracles through natural explanations and for his writings as the *Heptameron* and *Geomanzia* he was accused in 1315 as a heretic from the Catholic Church and was twice brought to the Inquisition. He died before a second trial was completed and his body was hidden by friends from place to place, and at last deposited in St. Augustin's Church, without epitaph, or any other mark of honor (Anonymous, 1967).

### **His anatomical work**

Besides philosophy and astrology Abano, showed a great interest in medicine and especially in anatomy. He contributed to the development of resolutio-compositive method in anatomy, a systematic method of inquiry (Shanks and Greek, 2009). Also he is credited for the first medical autopsy ever known in Padua in 1316 (Pigeaud, 1989). In his treatise *De Venenis*, he refers to the dissection of the corpse of an apothecary who had accidentally swallowed a lethal quantity of mercury. In *Conciliator, Differentia CXCIX*, he annexes a xylography to demonstrate the abdominal muscles (Park, 1994).

Moreover, Abano prepared a general statement that covered much of the dispute between Galenists and Aristotelists and in particular the question of whether the nerves arise in the heart or brain and whether the veins originate in the liver or heart (French, 1978).

He concluded that the heart is the centre of the body, the source of the other parts and their functions. "For the heart is like the sea, agitated by winds, and from it flow three great rivers, one of which flows through the whole body carrying spirit and blood through the artery called aorta... Another river flowing thence rises to the brain so that the nerves may be generated from the brain, from a matter related to a matter of the heart and that of the brain... This river, held back in its progress by an upper obstacle, produces a lake, that is, the brain, from which, laterally, originate smaller rivers, of which the largest is the spinal medulla, and the seven smaller rivulets are the seven pairs of nerves... Also from this sea arises, at the right auricle of the heart, another river... by which the matter of the heart is connected to the matter of the liver" (Pietro d' Abano, 1565).

Concerning the origin of the veins he claimed to have performed vivisections (of animals) and to have observed in the dying animal that it is the point of attachment of the vena cava to the heart that is the last to stop beating, and is the source of the veins.

Abano accepted in part the Galenic morphological anatomy and dealt with problems as the terminology of "the arterial vein" and "venous artery", without however departing from Aristotle, and also he seemed to be aware of the distinction between nerves, ligaments, and tendons, for he quotes the Persian physician Haly Abbas on the subject (French, 1978).

## Conclusion

Abano's synthesis of medicine and philosophy extended to the methodologies of Greek and Arabic disciplines contributing furthermore to the development of science and the rise of university teaching during the middle ages.

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