

ANGINA PECTORIS

— *A Historical Overview (Part 1)*

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This is the first instalment of a three-part series on the history of angina pectoris.

Introduction

We all know *angina pectoris* to mean “chest pain related to myocardial ischaemia, usually due to coronary artery disease, either from obstruction of the arteries, or reduced flow during bradycardia”. *Angina* is a Latin word, meaning “infection of the throat”, which was in turn derived from a Greek term (*ankhon*) meaning “strangling”. *Pectoris* is derived from the Latin *pectus*, meaning “chest”. Thus, *angina pectoris* literally means “strangling in the chest”. The ischaemic concept of *angina pectoris* was established by a British team of doctors.

Sushruta (circa 600 BC)

Sushruta was a famous surgeon from Kashi (now Varanasi, India) who taught and practiced Medicine around 600 BC. The *Sushruta Samhita*, a compilation of his teachings, contains descriptions of 1,120 illnesses and 700 medicinal plants. Sushruta described *hritshoola*, meaning "heart pain". It was temporary, related to exertion and emotion, relieved by rest, and was linked to *medoraga* (obesity).¹

Aulus Cornelius Celsus (25 BC - circa 50 AD)

Celsus was a Roman intellectual. In his medical book *De Medicina* (the only surviving segment of his much larger encyclopaedia), he drew attention to the importance of observing oedema for prognostication.



Thomas of Wroclaw (1297 - circa 1378)

Thomas was the titular Bishop of Sarepta, a Phoenician city (now part of Lebanon), from 1350 until his death. Thomas was probably from Wroclaw, the capital of historical Silesia (today located mostly in Poland). He studied Medicine in parts of what is now France and Italy, and was physician to John XXII (Pope from 1316 to 1334) and various European kings. In a medical book linked to him, *De syncope et debilitate cordis* ("On syncope and heart disease"), Thomas mentions disability of the heart associated with palpitations and syncope. However, there is no mention of chest pain. Polish obstetrician Piotr Cziachowski tried to link these fainting spells to heart dysfunction in his 1620 treatise "Heart beating and fainting spells in the pregnant".²

1642: William Harvey

Harvey is credited with the discovery of blood circulation in 1628. In 1642, Harvey introduced the concept that the organs required circulating blood to stay in a healthy state.



1667: Edward Hyde

Hyde, the first Earl of Clarendon (1609 - 1674), the grandfather of two English monarchs (Queen Mary II and Queen Anne) was an important English historian and statesman. His father was Henry Hyde (circa 1563 - 1632), an English politician and lawyer. In the junior Hyde's 1667 biography, he described (in the third person) his father's illness and eventual sudden death, which is thought to resemble angina pectoris, although this term was not actually used:



... he was ... seized on by so sharp a pain in the left arm for half a quarter of an hour ... that the torment made him as pale ... as if he were dead ... As soon as it was over, which was quickly, he was the cheerfullest man living ... In the year 1632 ... (on) Michaelmas day ... he went to visit his brother Sir Lawrence ... and ... to the church ... and (then) his house, and was no sooner come thither into a lower room, than having made water, the pain in his arm seizing upon him, he fell down dead, without the last motion of any limb.

1705: Raymond de Vieussens (1635 or 1641 - 1715)

Vieussens was a French anatomist. In 1705, he published a book titled *Novum vasorum corporis humani systema* ("Vessels of the human body"), considered a classic work for describing the coronary arteries in great detail for the first time.

1708: Adam Christian Thebesius (1686 - 1732)

Thebesius was a German anatomist, well known for his studies of coronary circulation. He studied Medicine in Leiden. In his 1708 graduation thesis "De circulo sanguinis in corde" ("On the circulation of blood in the heart"), he described the cardiac veins, which are now known as Thebesian veins. He described the ossification of the coronary arteries in an autopsy.



**1756: John Fothergill
(1712 - 1780)**

Fothergill was a prominent London physician who graduated from Edinburgh. He was also a keen botanist, and a close friend of Benjamin Franklin (one of America's Founding Fathers). Not much is known about him because he was a very modest man, but he is remembered for his description of tic douloureux (trigeminal neuralgia).



Fothergill was a keen member of the Medical Society of Physicians, and most of his original medical observations were presented at the society's meetings in 1774 and 1775 respectively,³ a few years after Heberden's (see below) descriptions. He first observed angina some time before 1756. He wrote: "I have very seldom met with this disease, but it was attended with an irregular and intermitting pulse ... but often when the patient was free from pain and at rest"³

In 1773 or 1774, he asked for an autopsy on one of his patients, named RM, who had angina pectoris. The patient was a 58-year-old man who first consulted Fothergill in 1773 for "a spasm in the breast, which at first affected him only when he used exercise, and chiefly when he walked up hill". The patient died suddenly in May while recuperating in Bath. Fothergill, while in London, arranged for an autopsy to be done in Bath. He requested that the dissection was to specifically "attend to the condition of the heart with all possible accuracy". This implies that Fothergill thought that angina pectoris was of a cardiac origin. He wrote that a small white cicatrix (scar), "as big as a sixpence", was found near the apex of the heart. He suggested that an immense amount of fat found in the abdomen and chest impeded blood flow in the heart and lungs, but as to the exact cause of the chest pain and death, he wrote: "Time and further opportunities must inform us of the rest"³

In 1774, a 63-year-old patient named HR (possibly Fothergill's patient Mr Rook), consulted Fothergill for a painful sensation constriction in the breast. The patient was described as "inclined to corpulency", and had been unable to walk up a moderate incline for three to four years. In March 1775, the patient "fell down and expired immediately" in London. Scottish pathologist John Hunter said that the patient had died "in a passion of anger with his broker"⁴ Fothergill persuaded the relatives to allow Hunter to perform an autopsy, which was done the day after death. Hunter wrote: "The heart ... was paler than common ... many parts of the left ventricle (were) almost white and hard, having just the appearance of a beginning ossification. ... The aorta had several small ossifications ... and several white parts, which are generally the beginning of ossifications. ... The two coronary arteries, from their origins to many of their ramifications upon the heart,

were become one piece of bone."³ In this autopsy case, Fothergill did not speculate on the aetiology of the angina, but commented: "The state of the parts about the heart fully shows, that under such circumstances, it is impossible to bear with impunity the effects of sudden and violent agitations, whether they arise from gusts of passion, or suddenly accelerated muscular motion."³

In 1776, Fothergill published two case reports on these two patients with angina pectoris who had died.

**1761: Giovanni Battista Morgagni
(1682 - 1771)**

Morgagni was an Italian anatomist and pathologist. He studied Medicine and philosophy in Bologna. In 1712, he was appointed Professor of Medicine at the University of Padua, and then Professor of Anatomy in 1715.

In 1761, he published his letters, articles and case reports as *De Sedibus, et causis morborum per anatomen indagatis libri quinque* ("On the sites and putative causes of diseases as investigated by anatomy"), in five volumes. Despite its inaccuracies (for example, mistaking normal anatomy for pathological lesions), it was a very useful book on systematic morbid anatomy, containing very precise descriptions of some 700 autopsies. The book pushed the boundaries of Anatomy and Pathology.

After the autopsy of an important deceased patient, Morgagni wrote: "He was attended, out of regard to the dignity of the patient, by three physicians, who were thought to be the most skilful of that time, and without doubt were so, or at least they were the oldest! ... (The physicians) applied remedies in great number and variety, and for a long time together. (The man) suffered much from many physicians"⁵

A famous line he wrote is still worthy of keeping in mind: that many physicians kill their patients "because they do not know when to be quiet".

One of his aphorisms, known by almost all forensic pathologists, states: "Those who have dissected or inspected many (bodies), have at least learned to doubt, when others who are ignorant of anatomy and do not take the trouble to attend to it, are in no doubt at all."

In his book, Morgagni described chest pain associated with dyspnoea, with autopsies showing ossification of the aorta and its branches.

**1768: William Heberden
(1710 - 1801)**

Heberden was a London-born doctor trained at Cambridge (entering at age 14). He was elected as a Fellow of the Royal College of Physicians in London in 1746,



and then began practice in London. Among his children from his second marriage was William Heberden the Younger, who followed his father's footsteps into Medicine, and who published his father's notes after the latter's death. The "Heberden's nodes" of osteoarthritis are named after the senior Heberden.

The senior Heberden first described chest pain with sudden death as a complication at a meeting of the College of Physicians in July 1768. Heberden's practice was not hospital-based, and he had limited opportunity for autopsies of the cases of sudden deaths he saw.

Heberden's first article on chest pain, "Some account of a disorder of the breast", was published in 1772, in the journal *Medical Transactions of the College of Physicians*, based on his observation of 20 cases over 20 years. This was later published posthumously in 1802 as "Pectoris Dolor" ("Pain or grief in the chest"), in the book *Commentaries on the History and Cure of Diseases*, with the patient population size now being 100.

... there is a disorder of the breast marked with strong and peculiar symptoms, considerable for the kind of danger belonging to it ... The seat of it, and sense of strangling, and anxiety with which it is attended, may make it not improperly be called angina pectoris. They who are afflicted with it are seized while they are walking (more especially if it be up hill, and soon after eating) with a painful and most disagreeable sensation in the breast, which seems as if it would extinguish life, if it were to increase or continue; but the moment they stand still, all this uneasiness vanishes.

It ... very frequently extends from the breast to the middle of the left arm. ... Males are most liable to that disease, especially such as have passed their fiftieth year. After it has continued a year or more, it will not cease so instantaneously upon standing still; and it will come on not only when the persons are walking but when they are lying down, especially if they lie on their left side, and oblige them to rise up out of their beds. In some ... cases it has been brought on by ... any disturbance of mind. ... The termination of the angina pectoris is remarkable. For, if no accidents intervene, but the disease go on to its height, the patients all suddenly fall down, and perish almost immediately.

Heberden's description above was so detailed that angina pectoris is still sometimes known as Heberden's angina. (This should not be confused with Ludwig's angina, which alludes to the strangling feeling due to cellulitis at the floor of the mouth.)

Heberden was very puzzled by the intermittent nature of the chest pain, and that patients appeared to be healthy between episodes of pain. He did not know the aetiology of the chest pain, and thought it was from the breast rather than the heart. (The confusion of the heart and the related digestive organs is reflected in the use of the term *cardia*

[from the Greek *kardia* meaning "heart"] to refer to the proximal part of the stomach.)

Heberden's account of chest pain became well-known when the popular scholarly magazine *Critical Review* published it in its second issue in March 1772.

A month later, a reader recognised the described symptoms. He wrote an anonymous letter to Heberden, noting that Heberden did not know the cause of the symptoms, and requested that he arrange for the former's autopsy if he died suddenly. Three weeks later, Heberden was notified that the writer of the letter had died suddenly, and he asked Scottish pathologist John Hunter to do the autopsy. Edward Jenner (who pioneered smallpox vaccination in 1796), Hunter's student, attended the autopsy in May 1772. At this autopsy, Hunter found no pathology that could account for the sudden death. We do not know whether Hunter was dealing with a case of angina pectoris with no gross coronary artery disease (CAD), or whether he missed the CAD since he probably did not know what he was looking for. Jenner wrote to English physician Caleb Hillier Parry in 1799 that "I can almost positively say the coronary arteries of the heart were not examined". Later in November 1772, Heberden reported to the College of Physicians that "since it was not due owing to ... morbid destruction of parts necessary to life, we need not despair of finding a cure".

(You can read more about Hunter, Jenner and Parry in the next part of this series.) **SMA**

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