

## Chapter II

numb and swelled. In one or two persons the pain has lasted some hours, or even days; but this has happened, when the complaint has been long lasting and thoroughly rooted in the constitution.

The descriptions are, of course, a composite based on nearly a hundred patients, but the individual case histories, many of which are now in the archives of the Royal College of Physicians of London, described the individual features which now clearly identify the presenting pain as anginal.<sup>16</sup> Although Heberden was initially unaware of any association with coronary arterial disease, his description of angina pectoris with its wealth of detail has never been bettered. It includes a clear-cut account of the distribution of the pain and its relation to exertion, other aggravating and some relieving factors, associated symptoms, and, in addition, the sense of impending dissolution or *angor animi*, and the natural history of the condition. William Heberden was one of the most learned physicians of his day and by 1768 a Fellow of the Royal College of Physicians of London of more than thirty years standing.<sup>17</sup> He had been chosen to give the Royal College Harveian oration and was a Gulstonian and Croonian lecturer. He was acquainted with the recent works of physicians on the Continent of Europe and was a classicist with a sound knowledge of Hebrew, Greek and Latin.<sup>18</sup> He was medically well read, yet even when his *Commentaries* were being written he had become acquainted with but one possible account, a two thousand year earlier observation by Erasistratus of Chios of a symptom complex that might conceivably be understood as being anginal. In his *Commentaries*, Heberden continued to describe angina pectoris as a condition which, “hitherto hardly had a place . . . in medical books”, the description of Erasistratus being the *only* earlier one to which he did make reference.<sup>19</sup> In 1772 he apparently knew of but one other physician who had seen any similar patients. John Fothergill, a prominent contemporary physician with wide general interests, writing in 1776, referred to angina pectoris specifically as, “the disease of that kind which is so fully and judiciously described by Dr. Heberden”. Fothergill too was apparently unaware of any earlier descriptions.<sup>20</sup>

### The Earlier Years

The enquiry will continue with a review of the clinical records prior to 1768 that have been considered by some medical historians to be possible descriptions of the pain of angina pectoris, whether typical or otherwise. The first phrase that is relevant to the present investigation is that of Erasistratus. It has come down to us through

<sup>16</sup> W Heberden, case notes, *Index historiae morborum*, Royal College of Physicians of London, manuscript 342.

<sup>17</sup> Ernest Heberden, *William Heberden: physician of the age of reason*, London, Royal Society of Medicine Services, 1989, p. 13.

<sup>18</sup> *Ibid.*, pp. 167, 111.

<sup>19</sup> Heberden, *op. cit.*, note 15 above, p. 297, fn.

<sup>20</sup> John Fothergill, ‘Case of an angina pectoris with remarks’, *Medical Observations and Inquiries*, 1776, 5: 233–51, p. 235.

## Historical Evidence

a fifth-century Latin translation from the original Greek by Caelius Aurelianus.<sup>21</sup> “Erasistratus memorat paralyseos genus et paradoxon apellat quo ambulantes repente sistuntur et ambulare non possunt et tum rursus ambulare sinuntur.” It may be translated as a report that Erasistratus of Chios had mentioned a kind of paralysis that he called a “paradoxon” which comes suddenly and repeatedly with walking so that subjects cannot walk, but after stopping it leaves and they can walk again. The Latin fragment has been quoted in full to highlight two points. First, the use of the plural forms *ambulantes* and *possunt* indicates that more than one patient was being described. It is not known whether the original Greek used the dual number or the plural, so whether there were only two patients or more than two is unknown, the text being available only in Latin translation. Secondly, the word *dolor* or an equivalent Latin term denoting pain does not appear. The description of the symptom as starting with effort and stopping with rest is compatible with exertional angina, and was considered as such by Heberden but must nevertheless be considered inconclusive. Erasistratus was not an unknown in the ancient world and although born on the Aegean Island of Chios he became a member of the Alexandrian School early in the third century before the Common Era. The School then flourished under the patronage of Ptolemy Soter, a general in the army of Alexander the Great who had become the first Hellenic King of Egypt. Erasistratus was a pupil of Theophrastus, himself a student of Aristotle. He achieved prominence in his own lifetime and was recognized as an authority in many aspects of medicine. Galen, through whom his writings have been preserved, acknowledged his influence, referring to his followers as “Erasistrians”.<sup>22</sup> His teachings subsequently became known to a wide medical readership following Caelius Aurelianus’ translation into Latin. Physicians in the Classical Era and subsequently were therefore alerted to there having once been patients with an exertionally related symptom that was sudden in onset and relieved by rest. Their silence on the subject is therefore all the more remarkable.

Seneca, in the first century of the Common Era, described a condition from which he himself suffered, and commented on his own symptoms. “The attack is very short and like a storm. It usually ends within an hour. To have any other abnormality is only to be sick, to have this is to be dying.”<sup>23</sup> There was no mention of pain or relation to effort so that, apart from its episodic nature and the associated *angor animi*, there is nothing to suggest angina pectoris. Caleb Parry, writing at the end of the eighteenth century when the relationship of angina to coronary arterial disease was already known, thought that Seneca’s symptoms were pulmonary in origin,<sup>24</sup> and in his twentieth-century history of coronary heart disease, J O Leibowitz described this as a view shared by modern medical historians.<sup>25</sup>

The next possible description is a thousand years later and had its origins in

<sup>21</sup> Caelius Aurelianus, *On acute diseases, and On chronic diseases*, transl. I E Drabkin, University of Chicago Press, 1950, p. 574–5.

<sup>22</sup> J F Dobson, ‘Erasistratus’, *Proc Royal Soc Med*, 1927, **20** (2): 825–32, p. 825.

<sup>23</sup> Clifford Allbutt, *Diseases of the arteries including angina pectoris*, London, Macmillan, 1915, p. 319.

<sup>24</sup> Caleb H Parry, *An inquiry into the symptoms and causes of the syncope anginosa, commonly called angina pectoris*, Bath, R Cruttwell, 1799, p. 36.

<sup>25</sup> J O Leibowitz, *The history of coronary disease*, London, Wellcome Institute of the History of Medicine, 1970, p. 97.

## Chapter II

England. Mayr-Harting and Harris have suggested that Gervase, a twelfth-century Norman official of the Sheriff of Ely, a Cathedral City in the Fens district of England, suffered a myocardial infarct prior to his sudden death. He was reportedly a “craftsman of anger, an inventor of crime”. The night before he was due to appear in a lawsuit, St Etheldreda, then dead some 500 years, appeared before him in a dream and rebuked him in a terrifying voice. She then pushed the point of her staff heavily on the place of his heart, as if to pierce him through, and her two accompanying sisters attacked him in similar fashion. The fearful groans and horrible cries of Gervase aroused his servants, to whom he described the episode. The pain returned, presumably after a short remission, and having cried out that he was dying, he did indeed expire. Mayr-Harting and Harris speculated that he had suffered a myocardial infarction precipitated by the acute emotional distress associated with a nightmare. There seems to have been an accompanying sense of pressure on his chest and *angor animi*.<sup>26</sup> However, there is no record of his having suffered any preceding pain on effort, and alternate explanations for chest pain in association with sudden death are possible.

The Chronicles of Sir John Froissart contain an account of the sudden death of the Comte de Foix in France in 1391. He had been hunting on a hot day and in the evening, while about to wash his hands, he changed colour from an oppression at his heart, fell back on his seat exclaiming, “I am a dead man”, suffered great pain and died within half an hour. It is possible that he was having a myocardial infarct accompanied by *angor animi*, but the description is not detailed enough to warrant a definite diagnosis.<sup>27</sup> Certainly there is no recording of preceding chest pain, either with the exertion of hunting or with any other physical activity.

In the early seventeenth century, William Harvey engaged in correspondence with Jean Riolan, Professor of Anatomy and Botany at the University of Paris and committed to Galen’s theories concerning the circulation, including belief in direct flow of blood between the ventricles. In one of his communications to Riolan, William Harvey described the case of Sir Robert Darcy who in middle life suffered frequent distressing pain in the chest, especially in the “night season” (*nocturno tempore*), accompanied by a dread of fainting or suffocation. He grew steadily worse, became cachectic, developed dropsy and finally died in a paroxysm. The autopsy showed a rupture of the left ventricle and therefore suggests a terminal acute myocardial infarction.<sup>28</sup> The earlier pains could have been anginal, but there is no record of any relation to exertion. This omission is particularly noteworthy because Harvey, although best known for his discovery of the circulation of the blood, was also a very observant and experienced clinician. Sir Robert almost certainly suffered a myocardial infarction, but the cause, as discussed in a later chapter, could have been other than coronary arteriosclerosis or thrombosis.

<sup>26</sup> H Mayr-Harting and P Harris, ‘St. Etheldreda and the death of Gervase’, *Int J Cardiol*, 1986, 12: 369–71, p. 370.

<sup>27</sup> Sir John Froissart, *Chronicles*, transl. Thomas Johnes, London, H G Bohn, 1849, vol. 2, pp. 498–9, quoted in Leibowitz, *op. cit.*, note 25 above, pp. 179–80.

<sup>28</sup> William Harvey, *Exercitatio anatomica, de motu cordis et sanguinis in animalibus*, Rotterdam, Arnold Leers, 1648, pp. 99–102.

### Historical Evidence

The illness suffered by Henry Hyde in the years preceding his death in 1632 was chronicled by his son Edward Hyde, Earl of Clarendon, who described how his father suffered repeated episodes of left arm pain prior to the terminal event. These pains were very severe and associated with *angor animi*, or fear of dying. They were episodic with a sense of well-being between the paroxysms. Death came during one of his usual attacks.<sup>29</sup> This is a very perceptive recording by a man who was a statesman, a member of Charles II's Privy Council and Lord Chancellor, but who had no medical training. The description of episodic pain is certainly compatible with angina pectoris, notwithstanding the absence of any mention of relation to effort.

There are two descriptions of chest pain related to exertion in Giovanni Battista Morgagni's monumental 1761 work *De sedibus et causis morborum*, translated into English in 1769 by Benjamin Alexander as *The seats and causes of disease*. As the original description was in Latin, the *lingua franca* of the eighteenth-century medical world, its contents could have been read and understood by any physician in Europe. Morgagni, who could be considered one of the fathers of clinical pathology, recorded about 500 cases, brief clinical descriptions being followed in most instances by autopsy findings. Among them he described a nobleman of over fifty years of age about whom he had been consulted in 1730. The patient had by then suffered for some ten years from a sense of weight and constriction in the chest, as if something was wedged in his oesophagus. The sensation radiated to the lower sternum and was accompanied by some difficulty in breathing. At the onset the distress only occurred when he walked, especially if up a steep slope. Subsequently, it would come more often and when bending forward, especially after dinner and when going to bed, but it eased if he stood up. The final attack awoke him at night and lasted two or three hours. He collapsed after repeated venesections and died, but there was no autopsy. Some of the associated features described by Morgagni are suggestive of gastro-oesophageal reflux, which often coexists with ischaemic heart disease in patients over the age of fifty. However, the description of pain brought on by effort and relieved by rest but with progressive worsening suggests very strongly that, whatever else were his complaints, the nobleman from Padua did indeed suffer from angina pectoris.<sup>30</sup> A second patient of Morgagni was a woman of forty-two who had painful chest "crises" with physical effort accompanied by left arm numbness and respiratory "torture", but which were relieved when she rested. She died suddenly in 1707. At autopsy her heart was found to be voluminous. There were extensive irregularities and "ossified" plaques in the aorta and its main branches.<sup>31</sup> Although known since the late fifteenth century,<sup>32</sup> the coronary arteries were not mentioned in the postmortem report and there was no description of anything that could now be understood as a myocardial infarction. Nevertheless, the account of her symptoms stands out as the earliest ever description that is clear cut and highly suggestive of angina, occurring as it did repeatedly on effort and being relieved by rest.

<sup>29</sup> Leibowitz, *op. cit.*, note 25 above, pp. 65–7.

<sup>30</sup> Morgagni, *op. cit.*, note 8 above, vol. I, epistle xviii, p. 455.

<sup>31</sup> *Ibid.*, epistle xxvi, p. 819.

<sup>32</sup> Leibowitz, *op. cit.*, note 25 above, p. 47.

## Chapter II

In 1748 another typical case was described by Friedrich Hoffmann, Professor of Medicine at the University of Halle. He recorded the history of a man in his seventies who had, over the space of years, a tight and severe pain in the region of the heart extending to the breastbone and radiating throughout his chest. This was accompanied by anxiety and difficulty in breathing that began to overcome him. The symptoms became more intense with any physical movement, and in particular they occurred if when unwell he walked up a slope or climbed some stairs. It even came with the effort of dressing himself. The severity was such that more often than not he had to desist from all activity in order to obtain relief from pain. Hoffmann made no mention of any other patient with similar symptoms, either in his practice or in the literature.<sup>33</sup>

Nicolas Rougnon described a patient with chest pain in 1768, five months before Heberden's presentation to the Royal College of Physicians of London. The patient, a retired captain and son of a professor of medicine in Besançon, was rather obese and had a history of difficulty in breathing brought on by slight physical exertion. This worsened and as his disease progressed the patient could not walk more than 100 steps quickly without feeling a kind of suffocation, especially when trying to speak. The attack would subside when he stopped walking for a few moments and he was rarely affected when he walked slowly. Six weeks before his death he complained of a strange discomfort over the whole anterior part of his breast, as if caused by a breastplate. During silence and rest he hardly experienced this disorder. Finally, after hurrying and then climbing two flights of stairs after a meal, he sat down and died on the instant.<sup>34</sup> Despite absence of pain, the symptoms might be considered an angina equivalent, but without any degree of certainty as a sense of suffocation and discomfort in the chest can accompany left heart failure of any cause. Other early descriptions of chest pain must be regarded as non-specific in character even when followed by sudden death, as the causes of this combination are legion. In particular, from about 1500 onwards, syphilis reached epidemic proportions in Europe<sup>35</sup> and many pre-terminal chest pains were associated with the aneurysms of the aorta with which the disease is associated and with death frequently following rupture of the artery.<sup>36</sup>

This review shows that between the immediate post-Hippocratic era in the ancient Hellenic world and the mid-eighteenth century, the occasion of Heberden's first presentation, it was possible to find just ten recorded clinical reports that have suggested to some medical historians the possibility that they were descriptions of angina pectoris. Of these, only eight were described as having episodic symptoms, a relationship of the dominant symptom to exertion was present in just six, but in three only was there any suggestion of pain brought on repeatedly by effort and relieved by rest. These three alone could be considered unequivocal descriptions of

<sup>33</sup> Friedrich Hoffmann, 'Consultationes medicae: casus lxxxiii', 1748, 1: 385. Quoted in the original Latin in H Bogart, *An inaugural dissertation on angina pectoris*, New York, C S Van Winkle, 1813, pp. 19–20.

<sup>34</sup> N F Rougnon, *Journal de Scavans*, July 1768, quoted in Leibowitz, op. cit., note 25 above, p. 99.

<sup>35</sup> Porter, op. cit., note 7 above, p. 167.

<sup>36</sup> *Ibid.*, p. 361.

angina pectoris, the remaining seven accounts varying from possible to unlikely. With just two exceptions, no author described more than a single patient during the two millennia that linked the times of Erasistratus with those of Heberden. Certainly there are other descriptions in earlier writings of chest pain, sweating, shortness of breath, distress and ultimate death, but before 1768 there is, apart from those just listed, no other mention of the distinctive and characteristic features of angina of effort. This silence is of special note as the physicians responsible for the earlier descriptions were men of standing and their accounts appeared in books or journals that were widely available. They were therefore of easy access to the general medical community and would have sufficed to make angina pectoris a potentially recognizable entity were it anything but phenomenally rare.

Noteworthy among the absences in early medical writings is the failure of Pliny the Elder to describe anything remotely resembling the pain of angina pectoris in a work devoted exclusively to sudden death.<sup>37</sup> Even more remarkable is the omission of any such descriptions in the writings of Giovanni Maria Lancisi. He had been specifically asked by Pope Clement VII to review all aspects of sudden death as this had reached epidemic proportions in Rome in the year 1705. Lancisi's results were published in 1707 in considerable detail in a wide ranging book devoted exclusively to the topic. In this volume, *De subitaneis mortibus*, there is but one conceivable allusion to angina pectoris.<sup>38</sup> Lancisi reports, "interni pectoris dolores, qui modo spirandi difficultatem, praesertim per accliviam modo cordis angorum, saepe pulses inaequalitatem". This can be rendered into English as, "there are pains of the interior of the chest which are accompanied sometimes by difficulty in breathing, especially on going uphill; sometimes by distress of the heart and often by irregularity of the pulse". Critical examination of the Latin text shows that it is indeed, as in the above translation, not the pain but the difficulty in breathing that is related to going uphill. This distinction was noted by J Iain McDougall when publishing with me an English rendering of the sections of Lancisi's book dealing with the cardiovascular causes of sudden death.<sup>39</sup> A similar conclusion was reached by Paul Dudley White and Alfred Boursy in their translation. Although they considered that the pain might have been anginal, they listed left ventricular failure or mitral valve disease with pulmonary congestion as possible causes. These conditions are typically associated with painless shortness of breath that occurs not only with effort but typically when the patient is recumbent, as instanced by Lancisi.<sup>40</sup>

Morgagni was not alone in documenting case histories and this practice was not confined to teachers in the great universities. As an example, Doctor William Brownrigg, who practised in the remote northwestern Cumberland port of Whitehaven in the early part of the eighteenth century, kept case histories of 127 patients, none of whom had any symptoms that could be remotely associated with angina

<sup>37</sup> Pliny the Elder, 'Sudden death' in *Natural history*, transl. H Rackham, 10 vols., Cambridge, MA, Harvard University Press, 1942, vol. 2, book 7.

<sup>38</sup> Giovanni Maria Lancisi, *De subitaneis mortibus Liber I*, Rome, F Bagni, 1707, p. 66.

<sup>39</sup> J Iain McDougall and Leon Michaels, 'Cardiovascular causes of sudden death in "De subitaneis mortibus" by Giovanni Maria Lancisi', *Bull Hist Med*, 1972, 45: 486-94, p. 489.

<sup>40</sup> Giovanni Maria Lancisi, *De subitaneis mortibus*, transl. Paul D White and A V Boursy, New York, St John's University Press, 1971, p. 52.

## Chapter II

pectoris.<sup>41</sup> Apart from the exceptions already noted, there was none in any other case record collections from before the late eighteenth century.

The possibility of severe, recurrent, disabling and eventually life-threatening chest pain going unnoticed must be viewed in the light of our understanding of the art and science of medicine as it existed 200 and more years ago. Knowledge of anatomy was limited and that of physiology in its infancy. There was no understanding of the causes of disease as perceived nowadays, and there was in consequence a tendency to confuse illnesses with similar clinical presentations but different causes. Symptoms were sometimes described as if they were disease entities and disease entities were categorized primarily by their symptoms. Examination of the patient was very limited and largely confined to inspection and palpation, notably of the pulse. As physicians were invariably men, concern for the proprieties as then conceived often prevented any physical examination of female patients. Consultations could even be based on accounts of symptoms given by third parties, the patient not being seen at all by the physician rendering an opinion. However, these limitations should not obscure the fact that many physicians who lived before the mid-eighteenth century were very astute observers and possessed an ability to describe symptoms, findings on inspection and clinical course as fully as is done today. This capacity may be gauged by consideration of the historical status of two conditions other than angina pectoris, as described in my earlier study.<sup>42</sup> The first selected was gout because it is an episodic complaint and now recognized as a risk factor for development of coronary heart disease.<sup>43</sup> Like the latter, it has been an affliction of the privileged, associated with eating to excess and the two conditions not infrequently occur in the same patient. The second disease chosen was migraine because, like angina pectoris, it too presents as a distinctive and episodic symptom complex with a state of well-being between the episodes, and usually without any obvious outward manifestations of disease during the attacks.<sup>44</sup>

The acute arthritis of gout was described in antiquity by a number of authorities including Hippocrates or a member of his school, and centuries later by Galen. It was certainly no rarity and distinguished sufferers included King Henry VII, Martin Luther, and Cardinal Wolsey.<sup>45</sup> Thomas Sydenham, himself a victim, not only described accurately the inflammatory features of the acute arthritis in the great toe, but also its general manifestations during subsequent years. These included the episodic recurrences, calcareous deposits in the region of affected joints, disturbances of urination, and an association with kidney stones. As with all early descriptions, his account made no mention of any patient with gout complaining of chest pain

<sup>41</sup> Jean Ward and Joan Yell (eds and transl.), *The medical casebook of William Brownrigg, M.D., F.R.S. (1712–1800) of the Town of Whitehaven in Cumberland, Medical History*, Supplement No. 13, London, Wellcome Institute for the History of Medicine, 1993, pp. 1–160.

<sup>42</sup> Leon Michaels, 'Aetiology of coronary heart disease: an historical approach', *Br Heart J*, 1966, **28**: 258–64, p. 258.

<sup>43</sup> Arthur P Hall, 'Correlations among hyperuricemia, hypercholesterolemia, coronary disease and hypertension', *Arthritis Rheum*, 1965, **8**: 846–64, p. 848.

<sup>44</sup> Michaels, *op. cit.*, note 42 above, p. 259.

<sup>45</sup> Dudley Hart, 'Gout and non-gout through the ages', *Br J Clin Pract*, 1985, **39**: 91–2, pp. 91, 92.

## Historical Evidence

on effort at any time during the course of the disease.<sup>46</sup> This silence contrasts with the subsequently recognized association with angina pectoris, beginning within five years of Heberden's 1772 publication, when Fothergill reported a history of a gouty foot in a patient with subsequent typical anginal pain on exertion.<sup>47</sup>

In past times migraine may have been confused on occasion with headaches due to other causes. Nevertheless, an association between paroxysmal one-sided headaches and coincident visual and abdominal disturbances was already recognized in antiquity by Galen. The descriptive term hemicrania and the name *migrana* were already being used in Roman times. In the sixth century, Alexander of Tralles described hemicrania, the concept of unilateral headaches being implicit in the term. Caelius Aurelianus too noted involvement of half of the head, including the temple and region of one eye. He recorded an association with nausea and bilious vomiting and described accompanying dizziness, disturbance of vision, a need to close the eyes in order to avoid the aggravating effect of light and the beneficial effects of rest in a dark room.<sup>48</sup> Heberden included an account of migraine in his *Commentaries* using the classical name hemicrania, and observed that liability to attacks may be life-long. He recorded that they were usually unilateral and recorded an association with "great disorder of the stomach" including vomiting and also transient visual disturbances, including flashes of light that would now be termed fortification spectra. Of greater relevance for the present discussion however, is the way in which he alluded to migraine as a well-known and familiar disease, "Very early distinguished by medical writers from other species of headaches".<sup>49</sup> In this respect, the contrast with his comments on the previous exceedingly great rarity of angina pectoris is striking. His medical predecessors were, as indicated, well able to recognize a condition that resembles angina pectoris in presenting with symptoms that are intermittent and unaccompanied by outward manifestations of disease, and with the patient well between the attacks.

Means of speedily alleviating the pain of angina are now readily to hand. In contrast, in Heberden's times availability of amyl nitrite was still a century away. Without it the relief with rest would inevitably have been somewhat delayed and recurrences of the pain with renewed exertion sooner. In an era in which no long-term medication for prevention or palliation was available, the course of angina pectoris was usually one of increasing severity, with the pain coming more frequently, earlier in the course of exertion, with ever greater intensity and longer in duration. Once fully established, the pain must have often been terrifying in its severity and understandably accompanied by fear of sudden death. The condition, as we know from some of Heberden's case records, could have continued episodically in individual patients for a decade or more. It would therefore seem hardly plausible that the pain of angina pectoris could have gone unnoticed by the medical community if indeed it had been anything but exceedingly rare before the mid-eighteenth century.

<sup>46</sup> Thomas Sydenham, *Compleat method of curing almost all diseases*, 4th ed., London, T Horne and R Parker, 1710, p. 104.

<sup>47</sup> Fothergill, *op. cit.*, note 20 above, p. 237.

<sup>48</sup> F C Rose, *The history of migraine from Mesopotamia to medieval times, Cephalalgia*, Supplement No. 15, 1995, p. 1.

<sup>49</sup> Heberden, *op. cit.*, note 15 above, pp. 75–7.



## Chapter II

The virtual absence of earlier descriptions did not escape notice in the years that immediately followed the first widespread recognition of angina pectoris. Henry Bogart, for example, commented in 1813 that “It is somewhat singular that a disease characterized by such peculiar symptoms as belonged to that which is now generally known by physicians under the name of angina pectoris should have escaped the attention of the ancients and that we should be indebted to authors of comparatively late times for all that has been written on it. Yet such is the fact”.<sup>50</sup>

Little less in significance is the absence during the Georgian era of any reference to chest pain on exertion by non-medical writers. Among the population of eighteenth-century England there was tremendous concern with matters of health, understandable in view of the great frequency of disease affecting people of all ages, and the high death rate in infancy, childhood and all stages of adult life. Members of the literate middle and upper classes often kept diaries and their personal experiences with disease were recorded. James Boswell’s *London journal* for instance, is peppered with references to his own frailties, mental and physical, and their course and treatment.<sup>51</sup> Writers in general had no hesitation in describing their own symptoms and those of their families and friends in very great detail, and considerations of delicacy did not inhibit them when documenting complete accounts of any disturbances of bodily function. Among the educated members of English society at any rate there was much speculation about the causes of disease and acquaintance with medical writings and opinions was widespread. As a further example, an account of Heberden’s description of angina was printed as early as March 1772 in *The Critical Review or Annals of Literature*, a magazine published by “A Society of Gentlemen” and with a predominantly nonmedical readership.<sup>52</sup> Nevertheless, prior to 1768, the Earl of Clarendon appears to have been the only layman to have described the pain in a way that could be understood readily as a variant of angina pectoris.<sup>53</sup>

Independent negative evidence for the extreme rarity of angina pectoris is provided by examination of the London Bills of Mortality. From Tudor times onward, every English parish had been compelled by law to record the numbers and the causes of all deaths as they occurred. Beginning in 1603, deaths in London were published weekly in the Bills. There were deficiencies of which contemporaries, including Heberden himself, were aware. The causes as they were listed are indicative of the way in which maladies were then categorized. Some designations such as smallpox, tuberculosis or asthma are readily recognizable from descriptions of that time. The diagnoses are therefore acceptable notwithstanding occasional uncertainties in individual patients. Frequently, however, symptoms or symptom complexes were listed as causes of death as if they were disease entities. In some such cases possible causes of disease may be inferred. For example, apoplexy as listed in the Bills could indicate an abnormality of limb movements including paralysis as now associated

<sup>50</sup> Bogart, *op. cit.*, note 33 above, pp. 3–4.

<sup>51</sup> James Boswell, *The London journal 1762–1763*, ed. Frederick A Pottle, M K Danziger, and F Brady, London, McGraw-Hill, 1989.

<sup>52</sup> *The Critical Review or Annals of Literature*, A Society of Gentleman, 1772, 33: 203–4.

<sup>53</sup> Leibowitz, *op. cit.*, note 25 above, p. 65.

## *Historical Evidence*

*Table II.1*  
Causes of death, from London Bills of Mortality,  
last three weeks of 1700  
(Original spelling retained)

---

Abortive	Liver grown
Accident	Lunatick
Aged	Mortification
Apoplexy	Murder
Bleeding	Overlaid
Cancer	Plurisie
Canker	Purples
Childbed	Rheumatism
Chrisoms <sup>1</sup>	Rickets
Collick	Rising of the Lights <sup>5</sup>
Consumption	Rupture
Dropsy	Spotted Fever
Fever	Stillborn
Fistula	Stone
Flux <sup>2</sup> and Smallpox	Stopping of the Stomach
Frenchpox <sup>3</sup>	Suddenly
Gangrene	Surfeit
Grief	Teeth
Gripping in guts	Thrush
Impostume <sup>4</sup>	Tissick <sup>6</sup>
Infant	Wound
Jaundice	

---

<sup>1</sup>Infants under 1 month. <sup>2</sup>Discharge. <sup>3</sup>Syphilis. <sup>4</sup>Abscess. <sup>5</sup>Asthma. <sup>6</sup>Phthisis.

with a stroke. Jaundice suggests either a haemolytic process, then undiagnosable as such, or a disease of the hepatobiliary system, the latter being the more likely in view of its greater prevalence. Examination of the Bills of Mortality of the London parishes from the early eighteenth century, a 1700 example of which is shown in Table II.1, reveals no conditions that could now be attributed to either accelerated angina pectoris or a myocardial infarct. The records of the next ninety-three years are equally silent in this respect. However, in 1794 a condition described as “palpitation of the heart” was recorded for the first time and once only. There was none reported during the next three years, but from 1798 onwards this condition was listed fairly regularly as a cause of death. It appeared in the Bills in sixteen of the next twenty years for a total of seventy entries. In 1816 there were eleven fatalities attributed to “palpitation of the heart”, the largest number in a single year. In no other respect was there any noteworthy change in the pattern of deaths recorded in the Bills of Mortality during the years from 1794 to 1816. Although a relationship of “palpitation of the heart” to coronary heart disease cannot be proven, it is a frequent complication and the sudden appearance for the first time and the subsequent steady recurrence of an apparently cardiac cause of death is striking. It raises the possibility that a heart condition not present earlier had become manifest.

## Chapter II

Sudden deaths, reported in the Bills without any elaboration, rose from 16.9 per 10,000 total deaths recorded in the period 1691–95 to 67.9 per 10,000 during the years 1771–79.<sup>54</sup> Whilst instantaneous death is almost invariably cardiac in origin, this is not true of “sudden” death, with the interval between the onset of symptoms and death either unstated or not known. In contemporary medical literature, it is usually defined as occurring within twenty-four hours of the onset of symptoms and it can be due to a variety of factors of which only one is cardiac. An eighteenth-century example of an infectious cause is fulminating smallpox, which could be fatal in hours and was not diagnosable clinically if death occurred before appearance of the characteristic skin lesions.<sup>55</sup> Heberden himself listed rupture of blood vessels, suffocation from “inundations” of phlegm and “breaking” lung abscesses among the causes of sudden death.<sup>56</sup> However, the fourfold *increase* that occurred at a time when angina pectoris, often with fatal outcome, was first becoming manifest raises the distinct possibility that a new cardiac cause of death was then emerging.

In contrast to a handful of possible cases noted in total by earlier physicians, Heberden in his 1768 presentation reported a history of angina pectoris in some twenty patients. These had been seen during about twenty of the years during which he had been engaged in practice.<sup>57</sup> In further contrast, between 1772, when his publication in the *Transactions* appeared, and 1782, when at age seventy-two he greatly reduced his practice and devoted his energies in large measure to writing his *Commentaries*, the total number had risen to nearly 100, an almost eightfold increase in average annual incidence.<sup>58</sup> The series incidentally included only three females. The greater frequency cannot be attributed to Heberden being less aware of the condition before 1768 but alerted to it afterwards. Perusal of his case records shows that his first patient with angina was seen in 1748 at the latest.<sup>59</sup> The second died suddenly in April of the same year, having by then suffered a fourteen-year history of chest pain on walking, after talking excessively or when experiencing emotional upsets. Even if Heberden had seen neither individual previously, he would have acquired twenty years of familiarity with angina pectoris by 1768. His earliest note of a patient with nocturnal chest pain dates from 1756, and his first recording of pain worsened by walking after a meal from some time between 1759 and 1765.<sup>60</sup> It follows that any failure to report more than twenty patients with angina pectoris before 1768 cannot be attributed to Heberden having been unaware of the symptom complex during the earlier years and therefore unable to recognize it when patients presented themselves. The contrast between a score of patients seen in the twenty years before 1768 and almost eighty more in less than half of that time afterwards strongly suggests that patients with angina pectoris had in fact been very few and far between in the earlier period, but increasingly common subsequently.

<sup>54</sup> Personal examination of the London Bills of Mortality, Guildhall Library, City of London.

<sup>55</sup> F W Price (ed.), *A textbook of the practice of medicine*, London, Oxford University Press, 1946, p. 161.

<sup>56</sup> Heberden, *op. cit.*, note 16 above, manuscript 342.

<sup>57</sup> Heberden, *op. cit.*, note 2 above, p. 61.

<sup>58</sup> Heberden, *op. cit.*, note 15 above, p. 295.

<sup>59</sup> Heberden, *op. cit.*, note 16 above, manuscript 342.

<sup>60</sup> *Ibid.*