

## Thomas Addison (1793–1860)

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Thomas Addison is best remembered for two conditions that bear his name—progressive adrenal disease with deficiency of adrenal cortical hormones; and pernicious anaemia.

He was born in April 1793,<sup>1</sup> at Long Benton, Newcastle-upon-Tyne and died on June 29 1860, at 15 Wellington Villas, Brighton. The son of Sarah and Joseph Addison, a grocer and flour dealer in Long Benton,<sup>2</sup> Addison was first sent to school in a roadside cottage where his teacher was John Rutter, the parish clerk, who years later also taught Robert Stephenson.

He proceeded to the Royal Free Grammar School, Newcastle-upon-Tyne, and learned Latin so well that he made notes in that language. This explains his lifelong precision in language. His father endeavoured to provide an education and a social status much higher than his own. In 1812 Thomas became a medical student at the University of Edinburgh and in August 1815 gained an MD with a thesis 'Concerning Syphilis and Mercury' (now in the Wellcome Library, London). In that year he moved to Skinner Street, Snow Hill, London, to become house surgeon at the Lock Hospital, and entered as pupil to the Public Dispensary. Thomas Bateman (1778–1821), an acclaimed dermatologist, instilled in him a lasting interest in skin diseases. He progressed rapidly: the 1817 Guy's Hospital records show:

'Dec. 13, 1817, from Edinburgh, T. Addison, M.D., paid pounds 22-1s to be a perpetual Physician's pupil.'

He obtained his LRCP in December 1819, was promoted to assistant physician and in 1827 became lecturer in *materia medica*. His lectures were so popular that his lecture-fees were assessed at £700 or £800 a year. In 1835 Addison with Richard Bright gave lectures on practical medicine, and in 1837 Addison became full physician to Guy's Hospital. Unlike the charming and cheerful Bright with wealthy parentage and broad education, Addison concealed nervousness and timidity beneath a proud and haughty exterior. In the words of Samuel Wilks:



Figure 1 Thomas Addison [Courtesy of Guys' Hospital]

'a quick hasty and impassioned manner of expression is not unfrequently the result of a deficient controlling power. We know . . . that, although wearing the outward garb of resolution, he was beyond most other men, most liable to sink under trial.'<sup>1</sup>

Probably for these reasons his professional preferment came late in life. For example, not until 1838 was he elected a Fellow of the Royal College of Physicians. His shyness and occasional severity stood in the way of a large private practice; nevertheless, his diagnostic brilliance and his lucid and forceful teaching were appreciated at Guy's, where he showed devotion to patients and students alike. His enquiring mind and scientific curiosity were apparent, for

in a biographical prefix to his published writings he was described as

‘Possessing unusually vigorous perceptive powers, being shrewd and sagacious beyond the average of men, the patient before him was scanned with a penetrating glance from which few diseases could escape detection . . . [he] would remain at the bedside with a dogged determination to track out the disease to its very source for a period which often wearied his class and his attendant friends.’<sup>3</sup>

The story of ‘Addison’s disease’ begins with the adrenal glands, first described by Eustachius in 1714. Addison first wrote a short article in the *London Medical Gazette* (1849): ‘Anaemia—disease of the suprarenal capsules in which the disease is not distinctly separated from a new form of anaemia’. Then, in 1855, came his monograph, one of the unsurpassed medical works of the nineteenth century. Addison describes here for the first time two chronic diseases which he could not clearly separate—‘On the Constitutional and Local Effects of Disease of the Suprarenal Capsule’.<sup>3</sup> The entity he related was doubted by Hughes Bennett (1812–1875) in Edinburgh but confirmed by Trousseau (1801–1867) in Paris, who recognized suprarenal failure and named it Addison’s disease. The monograph describes how, when investigating a peculiar form of anaemia, he found pathological changes in both suprarenal glands that appeared to be independent of the anaemia. He had with Samuel Wilks collected 11 patients.

He described the symptoms of 11 cases:

‘The discoloration pervades the whole surface of the body, but is commonly most strongly manifested on the face, neck, superior extremities, penis, scrotum, and in the flexures of the axillae and around the navel . . . The leading and characteristic features of the morbid state to which I would direct your attention are, anaemia, general languor and debility, remarkable feebleness of the heart’s action, irritability of the stomach, and a peculiar change of the colour in the skin, occurring in connection with a diseased condition of the suprarenal capsules.’

One patient had been treated by Bright, who had noted typical clinical features but failed to incriminate the adrenals. Indeed Addison critically commented:

‘It did not appear that Dr. Bright either entertained a suspicion of the disease of the capsules before death, or was led at any period to associate the colour of the skin with the diseased condition of the organs, although his well-known sagacity induced him to suggest the probable existence of some internal malignant disease. In this as in most other cases, we have the same remarkable

prostration, the usual gastric symptoms, the same absence of any very obvious and adequate cause of the patient’s actual condition together with a discoloration of the skin, sufficiently striking to have arrested Dr. Bright’s attention even during the life of the patient.’

Interestingly, to his pupils his essay on suprarenal failure ranked far below his elucidation of phthisis and his impressive teaching.

In most cases of Addison’s disease today the pathogenesis is autoimmune, as exemplified by the polyglandular autoimmune syndromes where it is evident in two-thirds of type 1 and almost all cases of type 2. Tuberculosis now accounts for about 20% of primary adrenal insufficiency in developed countries, whereas in Addison’s day it was found at autopsy in 70–90% of cases.

The description of ‘Addison’s anaemia’ came in 1849, in a lecture to the South London Medical Society.<sup>4</sup> But in 1822 James Scarth Combe, in the *Transactions of the Medico-Surgical Society of Edinburgh*, had described ‘idiopathic anaemia’ and never sought priority for this new disease—pernicious anaemia. In the *Medical Times and Gazette* of London in 1874, Biermer of Zurich wrote of a new ‘idiopathic anaemia’ not yet described in England. Within a week, Samuel Wilks refuted this claim in the *British Medical Journal*, stating that the disease was well known in England since Addison had lectured on it in 1843. Addison observed its insidious onset in either sex, usually in middle life. He related:

‘the countenance gets pale, the whites of the eyes become pearly, the general frame flabby rather than wasted . . . the whole surface of the body presents a blanched, smooth and waxy appearance; the lips, gums, and tongue seem bloodless . . . extreme languor and faintness supervene, breathlessness and palpitations being produced by the most trifling exertion or emotion; some slight oedema is probably perceived in the ankles; the debility becomes extreme . . . the disease . . . resisted all remedial efforts and sooner or later terminated fatally . . . On examining the bodies I have failed to discover any organic lesion that could properly or reasonably be assigned as an adequate cause . . .’

The condition became known as pernicious anaemia—usually caused by loss of the ‘intrinsic factor’ required for absorption of cyanocobalamin.

Addison made other signal contributions (Box 1). He wrote volume 1 of *Elements of the Practice of Medicine* (1839), but the planned two further volumes with Bright never emerged. It contained an early and comprehensive account of ‘Inflammation of the caecum and appendix vermiformis’. He also gave an identifiable account of biliary cirrhosis,<sup>5</sup> previously described by Pierre-François-Olive Rayer in

Box 1 Thomas Addison—selected additional bibliography

- Dissertatio medica inauguralis quaedam de syphilide et hydrargyro complectens* [Doctoral thesis]. University of Edinburgh, 1815
- [With William Gull] On a certain affection of the skin, vitiligoidea plana tuberosa, with remarks. *Guy's Hosp Rep* 1851;7:265–76
- [With Johan Morgan] *An Essay on the Operation of Poisonous Agents upon the Living Body*. London: Longman Rees, 1829
- Observations on the Disorders of Females Connected with Uterine Irritation*. London, 1830
- [With Richard Bright] *Elements of the Practice of Medicine*, 3 parts. London, 1836–1839
- On the influence of electricity, as a remedy in certain convulsive and spasmodic diseases. *Guy's Hosp Rep* 1837;2:493–507
- Observations on the Anatomy of the Lungs, 1840*. In: *Collected Writings*. London, 1868
- Observations on pneumonia and its consequences. *Guy's Hosp Rep* 1843;1:365–402
- On the pathology of phthisis. *Guy's Hosp Rep* 1845;3:1–38
- On the Constitutional and Local Effects of Disease of the Suprarenal Capsules*. London, 1855

*Traité théorique et pratique des maladies de la peau* (1826–1827), Paris, 1835. In 1824 Addison founded the Department of Dermatology at Guy's, which still possesses a collection of wax models of skin disorders prepared under his supervision. 'On a certain affection of the skin, vitiligoidea plana tuberosa', presents a seminal account of *xanthoma planum et tuberosum*, a common sequel to hypercholesterolaemia. Addison with Sir William Gull (1816–1890) described *xanthoma diabeticorum*, and he also depicted circumscribed scleroderma (morphoea). In 1843 he correctly described the pathology of pneumonia, which until that time was thought to be an interstitial pneumonitis. He had traced the bronchial branches to their alveolar termination where he discovered 'pneumonic deposits in the air cells'.

Addison was preoccupied with the challenge of clinical bedside diagnosis. He told his students that, if he could not reach a diagnosis in a patient, he would think of all the possible explanations for the symptoms on his way to and from the hospital. With Bright he was a pioneer in instilling scientific principles in the art of diagnosis, and in trying to correlate physiological signs in life with the pathology found at autopsy. However, with the limited therapeutic tools available to him he was less concerned with treatment.

In his time, Guy's established a reorganization of medicine in which both Bright and Addison were involved. Of the new developments not all were popular. Even the use of Laennec's stethoscope was viewed with scorn by some physicians, though Addison maintained that

'Laënnec contributed more towards the advancement of the medical art than any other single individual, either of ancient or of modern times.'

He married Catherine Hauxwell at Lanercost Church in September 1847. They were childless. A somewhat ambivalent statement in the medical press gives one person's impression of him:

'He is a fine, dashing, big, burly, busting man, proud and pompous as a parish beadle in his robe of office. Dark, and of sallow complexion, an intelligent countenance and noble forehead, he is what the ladies would renounce a fine man. He had mentally and physically a tall idea of himself. Every sentence is polished, is powerful: he prefers the grandiloquent. Slow and studied are his opening sentences, studied the regularity of his intonations. The advantages of his tall and graceful person are artfully employed to add to the favourable impression; his attitudes, tones and manner are studied and systematic.'

However, for many years his life was blighted by depression and, along with his innate shyness, this probably accounted for some aspects of his behaviour that sadly deprived him of the affection and understanding of certain colleagues. It precipitated retirement in 1860. He then revealed to his students:

'A considerable breakdown in my health has scared me from the anxieties, responsibilities and excitement of my profession; whether temporarily or permanently cannot yet be determined but, whatever may be the issue, be assured that nothing was better calculated to soothe me than the kind interest manifested by the pupils of Guy's Hospital during the many trying years devoted to that institution.'

Within three months, on 19 June 1860, he was dead from suicide:

'Dr Addison, formerly a physician to Guy's Hospital, committed suicide by jumping down the area [i.e. the space between the front of the house and the street] of 15 Wellington Villas, where he had for some time been residing, under the care of two attendants, having before attempted self-destruction. He was 72 years of age [sic],

and laboured under the form of insanity called melancholia, resulting from overwork of the brain. He was walking in the garden with his attendants, when he was summoned in to dinner. He made as if towards the front door, but suddenly threw himself over a dwarf-wall into the area—a distance of nine feet—and, falling on his head, the frontal bone was fractured, and death resulted at one o'clock yesterday morning.<sup>6</sup>

His remains were taken for burial to Lanercost Abbey, Cumberland, near his childhood home.<sup>7</sup> Full acknowledgement came late. On 7 July 1860 the *Medical Times and Gazette* printed a note of Addison's death, but to their lasting shame neither *The Lancet* nor the *British Medical Journal* published obituaries. However, Sir Samuel Wilks (1824–1911) wrote a fitting epitaph:

'The personal power which he possessed was the secret of his position, much superior to what Bright could ever claim, and equal, if not greater, than that of Sir Astley Cooper.'

In his memory was placed a bust (by Joseph Towne) in the pathology museum, a hall in Guy's hospital was named after him, and a marble wall table in the chapel perpetuated his memory. In this period, Guy's had three physicians of the highest calibre—Bright, Addison and Hodgkin. Many thought Addison the greatest of them.

## REFERENCES

- 1 *Munk's Roll: Lives of the Fellows of the Royal College of Physicians of London*, Vol III (1801–1825). London: RCP, 1878:205
- 2 Headlam Greenhow E. *Addison's Disease, the Croonian Lectures for 1875*. London: Longmans, Green, 1875
- 3 Addison T. On the constitutional and local effects of disease of the suprarenal capsule. In: *A Collection of the Published Writings of the late Thomas Addison MD*. London: New Sydenham Society, 1868
- 4 Addison T. Chronic suprarenal insufficiency, usually due to tuberculosis of suprarenal capsule. *Lond Med Gazette*. 1849;**43**:517–18
- 5 Addison T, Gull WW. On certain affection of the skin, vitiligo: plana, tuberosa. *Guy's Hosp Rep* 1850–1851;**7**:265–72
- 6 Charles Douglas Wehner [www.wehner.org/addison/cv]
- 7 Sutherland FM: Nova et vetera. Thomas Addison 1793–1860. *BMJ* 1960;**5194**:304–5