

## PERINATAL LESSONS FROM THE PAST

# Oliver Wendell Holmes (1809–1894) and his essay on puerperal fever

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*Arch Dis Child Fetal Neonatal Ed* 2007;**92**:F325–F327. doi: 10.1136/adc.2005.077578

Doctor, teacher of anatomy, conversationalist, essayist, and poet, in 1843 Holmes combined his medical and literary skills in a masterly dissertation on the epidemiology and prevention of puerperal fever.

Oliver Wendell Holmes was born on 29 August 1809 in Cambridge, Massachusetts. His father, the Rev Abiel Holmes was a minister of the First Church, and his mother Sarah (Wendell) Holmes, a lively and lovable woman, was the daughter of a Boston merchant descended from early settlers. Oliver had three older sisters and a younger brother who became a lawyer. He received his early education in Cambridge, followed by four years at Phillips Academy in Andover. Then entering Harvard in 1829, he studied law for a year before turning to medicine and becoming apprenticed to Dr James Jackson, who became his counsellor and friend. He was described at the time as being 5' 3" tall with blue eyes and as a "handsome youth, gay and witty, he smoked devoutly, sang unmusically, and drank moderately, all with knack of writing amusing verse on the slightest provocation" (fig 1). Although he suffered from asthma, he was a keen oarsman and enjoyed fast driving in his chaise. In 1833 he interrupted his studies in Boston to travel to Paris, at that time the Mecca of medical research and education. There he studied under the great Pierre Louis, who became his beloved teacher, and under others including Velpeau and the surgeons Dupuytren and Larrey. He also travelled widely, visiting Holland, Switzerland, Italy, and England. Returning to the United States in December 1835, he received the Harvard degree of MD in 1836 and entered practice. At this time too, Holmes came into prominence as a medical essayist, winning Harvard's Boylston Prize on three occasions during 1836–37. He also taught anatomy, and in 1838 was appointed professor in that discipline at Dartmouth College, Hanover, a post he held for two years. In 1839 the University of Maryland offered him the chair of surgery in Baltimore, but he declined. He was too much of a Bostonian. The following year he married Amelia Lee Jackson, the daughter of Charles Jackson who was a justice of the Massachusetts Supreme Court. From this marriage there were three children: an elder son and namesake who became a justice of the United States Supreme Court, a daughter, and a younger son who became a Boston lawyer.<sup>1–3</sup>

In 1837 Holmes was appointed to the staff of the Boston Dispensary. During his early years after qualification he also taught physiology and pathology at the Tremont Street Medical College and, with Dr Bigelow, edited the American edition of Marshall Hall's textbook *The theory and practice of medicine*. With a group of some 24 young doctors, Holmes helped to found a discussion group, the Boston Society for Medical Improvement. In 1842 several fatal cases of puerperal fever had been reported at one of this Society's meetings, including the fact that a physician, Dr Whitney of Newton, had died after sustaining an accidental wound during the necropsy of a victim of this disease. Although not himself an obstetrician, Holmes determined to investigate the nature of this deadly condition.<sup>4 5</sup> On 13 February 1843 he presented his findings, based on a study of the literature, to the Society, giving special credit to earlier British authors such as Charles White, Alexander Gordon, James Blundell, Edward Rigby, and Thomas Watson. The following extracts of his talk, published later the same year, illustrates the force, passion, and logic of his argument.<sup>6</sup>

### The contagiousness of puerperal fever

"The recurrence of long series of cases like those I have cited, reported by the most interested to disbelieve in contagion, scattered



Figure 1 Oliver Wendell Holmes (1809–1894).

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Accepted 19 May 2005

along through an interval of half a century, might have been thought sufficient to satisfy the minds of all inquirers that there was something more than a singular coincidence. But if on a more extended observation, it should be found that the same ominous groups of cases, clustering about individual practitioners, were observed in a remote country, at different times, and in widely separated regions, it would seem incredible that any should be found too prejudiced or indolent to accept the solemn truth knelled into their ears by the funeral bells from both sides of the ocean – the plain conclusion that the physician and the disease entered hand in hand into the chamber of the unsuspecting patient ... out of this train of cumulative evidence the multiplied groups of cases clustering about individuals, the deadly results of autopsies, the inoculation by fluids from the living patient, the murderous poison of hospitals, does there not result a conclusion that laughs all sophistry to scorn and renders all argument an insult?"

"The woman about to become a mother, or with her newborn infant upon her bosom, should be the object of trembling care and sympathy wherever she bears her tender burden, or stretches her aching limbs ... God forbid that any member of the profession to which she trusts her life, doubly precious at that eventful period, should hazard it negligently, unadvisedly, or selfishly!"

Holmes ended his presentation with notes for the guidance of physicians in obstetric practice.

### The prevention of puerperal fever

"1. A physician holding himself in readiness to attend cases of midwifery, should never take any active part in the post-mortem examination of cases of puerperal fever.

2. If a physician is present at such autopsies, he should use thorough ablution, change every article of dress, and allow twenty-four hours or more to elapse before attending to any case of midwifery. It may be well to extend the same caution to cases of simple peritonitis.

3. Similar precautions should be taken after the autopsy or surgical treatment of cases of erysipelas, if the physician is obliged to unite such offices with his obstetrical duties, which is in the highest degree inexpedient.

4. On the occurrence of a single case of puerperal fever in his practice, the physician is bound to consider the next female he attends in labor, unless some weeks, at least, have elapsed, as in danger of being infected by him, and it is his duty to take every precaution to diminish her risk of disease and death.

5. If within a short period two cases of puerperal fever happen close to each other, in the practice of the same physician, the disease not existing or prevailing in the neighborhood, he would do wisely to relinquish his obstetrical practice for at least one month, and endeavor to free himself by every available means from any noxious influence he may carry about with him.

6. The occurrence of three or more closely connected cases, in the practice of one individual, no others existing in the neighborhood, and no other sufficient cause being alleged for the coincidence, is *prima facie* evidence that he is the vehicle of contagion.

7. It is the duty of the physician to take every precaution that the disease shall not be introduced by nurses or other assistants, by making proper inquiries concerning them, and giving timely warning of every suspected source of danger.

8. Whatever indulgence may be granted to those who have heretofore been the ignorant causes of so much misery, the time has come when the existence of a *private pestilence* in the sphere of a single physician should be looked upon not as a misfortune but a crime; and in the knowledge of such occurrences, the duties of the practitioner to his profession, should give way to his paramount obligations to society."

It should not be forgotten that Holmes' essay was published six years before Semmelweis undertook his remarkable studies in 1849. Unfortunately the essay appeared in a new and little known journal which "failed" shortly afterwards. Probably Holmes' message would have been overlooked had it not been vigorously attacked and ridiculed a few years later by two leading Philadelphian obstetricians, Charles Meigs<sup>7</sup> and Hugh Hodge.<sup>8</sup> Holmes responded in 1855 by republishing his essay unaltered under the title "*Puerperal fever as a private pestilence*".<sup>9</sup> Of his critics he wrote: "I take no offence and attempt no retort. No man makes a quarrel with me over the counterpane that covers a mother, with her newborn infant at her breast! There is no epithet in the vocabulary of slight and sarcasm that can reach my personal sensibilities in such a controversy." And he added: "Let the men who mould opinions look to it; if there is any voluntary blindness, any interested oversight, any culpable negligence, even in such a matter, and the facts shall reach the public ear; the pestilence carrier of the lying-in chamber must look to God for pardon, for man will never forgive him." This second publication of his essay attracted attention on both sides of the Atlantic, although it was not until the subsequent publications of Semmelweis, Lister, and Pasteur in the 1860s and 1870s that the battle to convince the profession was finally won. Later Holmes' account was again republished in 1883 as part of his collection of *Medical essays*.<sup>10</sup> Undoubtedly though, this early essay on puerperal fever, made at the age of 34, was as he himself acknowledged, the most important contribution of his life.

In 1846 Holmes was appointed physician to the Massachusetts General Hospital, and the following year was elected first Parkman professor of anatomy and physiology at Harvard, a position he held for the next 35 years, although physiology was separated from his chair in 1871. He also became dean of the Harvard medical faculty between 1847 and 1853. A popular lecturer, accurate, punctual, precise, and enthusiastic, he was also always accessible for advice. Self reliant, hard working, and with high ideals, he was a dynamo of energy. He was also a vigorous and independent thinker who was well informed on the medical literature. In addition, he possessed unusual mechanical skill. Photography was one of his interests, and he actually invented an excellent stereoscope.

Holmes was a brilliant conversationalist and became a member of the Saturday Club which included among its select membership Emerson, Hawthorne, Whittier, Longfellow, Lowell, and Motley. In 1857 he helped to found the *Atlantic Monthly* and instigated and wrote a series of articles under the title *The autocrat of the breakfast table*. Holmes also had a great interest in psychiatry and in the influence of heredity on moral responsibility. This was reflected in his three published novels. He possessed great wit, convivial charm, and a gift for rhyming, of which the following is an example:

"So the stout foetus, kicking and alive,  
Leaps from the fundus for his final dive.  
Tired of the prison where his legs were curled,  
He pants, like Rasselas, for a wider world.  
No more to him their wonted joys afford  
The fringed placenta and the knotted cord."

Holmes taught his medical students that he had learnt in Paris: “not to take authority when he could take facts, not to guess when he could know and not to think that a man must take physic because he is sick”. Another of his sayings was: “From the time of Hippocrates ... there has been an apostolic succession of wise and good practitioners who place before all remedies the proper conduct of the patient.” When controversy arose in the 1850s as to the wisdom of admitting women medical students to Harvard he stated: “I have always felt that this (nursing) was rather the vocation of women than general and especially surgical practice.” He added that he was willing to teach women anatomy but not in the same classes or dissecting rooms as men! In 1846, the Boston dentist, Dr William Morton, undertook dental extractions under the influence of ether gas. Holmes wrote to him suggesting the use of the name “anaesthesia”, adding prophetically that the term “will be repeated by the tongues of every civilized race of mankind”.

Holmes retired from active teaching in 1882. Harvard awarded him the degree of LLD and made him professor emeritus. Four years later he revisited Europe for the first time since 1830, calling on Pasteur in Paris and receiving honorary degrees from the Universities of Oxford, Cambridge, and Edinburgh. After his wife died in 1888, he went to live first with his widowed daughter, and when she in turn died in 1889, then with his son Mr Justice Holmes. It was at this time that he presented his personal collection of 1000 volumes to the Boston Medical Library, of which he had been president for 13 years.

He wrote: “These books were very dear to me as they stood on my shelves. A twig from some one of my nerves ran to every one of them”. Meanwhile summers were spent at his cottage, Beverley Farm, on the north shore of Massachusetts’ Bay. On 7 October 1894 he died at the age of 85. Earlier he had remarked: “I hope they (his medical friends) are not ashamed of me and do not reproach me for choosing to tread the flowery path of very light literature rather than chain myself forever to the heavy tasks of medical practice.” He need not have worried. His name was recognised world wide and he remains a great honour to his country and his profession.

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