Charles McBurney: pioneer in the diagnosis and treatment of appendicitis

This year marks a double 100-year anniversary in the history of acute appendicitis for Reginald Fitz and Charles McBurney. Fitz, pathologist at Harvard University, first documented the natural history of appendicular inflammation and introduced the term 'appendicitis'. He was the subject of the Anniversary article last month (Ellis, 2013). McBurney, by his example and writings, did much to educate surgeons in the diagnostic features of the disease and in its surgical management.

Charles McBurney was born in 1845 in Roxbury, which is now a suburb of Boston. He entered Harvard University at the age of 17 years, and proceeded to the College of Physicians and Surgeons, Columbia University, New York, receiving his MD degree in 1870. This was followed by 18 months as surgical intern at the Bellevue Hospital, New York, then a repository of surgical pathology. McBurney then embarked on 2 years of surgical training in Europe, visiting centres in London, Vienna, Berlin and Paris (what a pity this type of experience has all but disappeared today).

In 1873, at the age of 28 years, McBurney commenced surgical private practice in New York while demonstrating anatomy at the College of Physicians and Surgeons. Two years later, he became attending surgeon at St. Luke's Hospital and then, in 1880, assistant surgeon back at Bellevue. In 1888, at the age of 43 years, McBurney was allocated the entire surgical service at the Roosevelt Hospital, a post he held for 12 years, carrying out his major work. At the Roosevelt, McBurney was one of the first surgeons in the USA to adopt the techniques of aseptic surgery. He wrote the chapter 'The technic of aseptic surgery' in Gould and Warren's *International Textbook of Surgery* published in 1900.

McBurney's demonstrations in the amphitheatre at the Roosevelt became a mecca for surgeons from all over the world. During his tenure there, he also taught as Professor of Surgery at the College of Physicians and Surgeons as well as served as consultant to the Presbyterian, Orthopaedic, St. Mark's, St. Luke's and the Ruptured and Crippled Hospitals.

McBurney retired from practice in 1908 because of poor health and died on 7 November 1913 of heart failure.

McBurney's place in the story of the modern treatment of acute appendicitis follows the publication of Reginald Fitz's classic paper entitled 'Perforating inflammation of the vermiform appendix; with special reference to its early diagnosis and treatment', in the *Transactions of the Association of American Physicians* in 1886. In this, Fitz, then Professor of Pathological Anatomy at Harvard, strongly advises his surgical colleagues to remove the offending organ.

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McBurney's first contribution appeared 2 years after this in a paper titled 'Septic peritonitis following perforation of the vermiform appendix' and published in the *New York Medical Journal* of 1888. Every year thereafter over the following decade, McBurney published at least one article on the diagnosis and treatment of appendicitis.

In his 1888 article, McBurney wrote: 'I believe that in every case the seat of the greatest pain, determined by the pressure of one finger, has been very exactly between one inch and a half and two inches from the anterior spinous process of the ilium, on a straight line from that process to the umbilicus.'

This may appear to be an affectation of accuracy but, so far as my experience goes, the observation is often correct.

This point, 'McBurney's point' as it has become to be known, is true as the site of maximum tenderness in the majority of patients with acute appendicitis, but it is by no means invariable. The site of maximum tenderness, in fact, corresponds to the anatomical position of the appendix. Thus, an inflamed high retrocaecal or retrocolic appendix will cause maximal tenderness in the right flank; a gangrenous pelvic appendix causes exquisite pain on rectal or vaginal examination. A patient of mine with a long appendix, stretching right over to the sigmoid colon and gangrenous at its tip, produced maximal tenderness in the left iliac fossa as did that of a child with dextrocardia and situs inversus.

Interestingly, in this first article on the subject, McBurney reported the first case he had seen in which he removed an inflamed, but not yet gangrenous and perforated, appendix. McBurney's teaching did much to assist in the earlier diagnosis of this emergency.

Here it must be mentioned that it was another pioneer of early surgery in appendicitis, John B Murphy (1857–1916) of Chicago, who described the very useful 'Murphy's sequence' – central abdominal pain, followed by vomiting, then a shift of the pain to the right iliac fossa – in the early diagnosis of this condition.

In 1894 in a paper in the *Annals of Surgery*, McBurney recommended a new incision to give direct access to the appendix. Up to that time, the approach was made by an incision parallel with and near the right side of the right rectus abdominis muscle. His incision was centred at McBurney's point, mentioned above, at right angles to the line joining the anterior superior iliac spine and the umbilicus. The aponeurosis of the external oblique muscle is split and not divided. The internal oblique and transversus muscles, again, are split and not divided. This muscle split, or 'McBurney incision', remains the standard approach today for open appendicectomy. Since the muscles remain intact, incisional hernia following this operation is all but unknown. BJHM

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