

Medicine in Stamps

Ephraim McDowell (1771-1830): pioneer of ovariectomy

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In the early 1800s, surgery was a crude and bloody spectacle, a procedure of final resort. In the absence of anaesthesia, patients faced excruciating pain, and without any knowledge of bacteria or antisepsis, surgeons made no concessions for hygiene. Surgeries were often held in large amphitheatres where people could come in from the dusty streets to watch. Medical students and the general public would crowd around the operating table, and several people would be required to restrain the writhing and screaming patient. Inciting both fear and respect, surgeons took great pride in their status and power. Many wore operating coats covered in crusted blood and pus from previous patients in order to reinforce their revered position. Some were even known to use their coats to wipe off a bloodied blade before operating on the patient. Understandably, these circumstances resulted in infection and an exceedingly high mortality rate. Abdominal surgeries were especially dangerous, and usually resulted in death from peritonitis.

Ephraim McDowell was an American doctor who lived in the quiet frontier town of Danville, Kentucky, USA. In 1795, at the age of 24 years, McDowell began his career as a general practitioner. Riding on horseback, he sometimes travelled up to a hundred miles through rough backwoods to reach his patients. On Christmas Day in 1809, Ephraim McDowell courageously and successfully removed a large ovarian tumour from his patient Jane Todd Crawford. In so doing, he pioneered abdominal surgery and became the first doctor to bring distinction to the field of gynaecology.

Brief Background: Ephraim McDowell was born in 1771 in Rockbridge County, Virginia. He was the ninth of twelve children. In 1784, he moved with his

family to the small rural town of Danville, Kentucky. McDowell decided on a career in medicine early on in life, and he served as an apprentice to Dr. Alexander Humphreys in Staunton, Virginia. Although his father was not an extremely wealthy man, he made the commitment to send his son abroad to Europe for medical training. In 1793, at the age of 22 years, McDowell enrolled as a first-year medical student at the University of Edinburgh in Scotland. Wanting to make the most of his opportunity abroad, he also attended anatomy lectures given by Alexander Munro, and surgery lectures given by John Bell. Through his dedication, McDowell learned the basics of surgery which included the removal of tumours, amputations, and general wound treatment. In 1795, probably due to financial reasons, McDowell returned home to Danville without earning a medical degree.

A tall, broad-shouldered, and serious man, McDowell had no trouble finding patients. Even without a formal degree, the prestige of his foreign education greatly impressed those in his hometown. Renowned for his amputations, treatment of hernias, and vesicolithotomies, McDowell typically operated in the homes of his patients with family members gathered around to hold

the patient down. He came to be regarded as “the best doctor west of Philadelphia”. One of his patients was a 17-year-old boy named James Polk who had several bladder stones removed. Polk later became President of the United States.

At the age of 31 years, McDowell married the Governor’s daughter, Sarah Shelby. They had six children. McDowell ran a disciplined household and was extremely religious. He never swore, and others did not do so in his presence. McDowell’s religious beliefs also carried over to his work as a surgeon. He preferred to operate on Sundays, believing that



prayers of the congregation would bless the surgery. He would write a short prayer before each surgery, and kept it in his pocket as he operated.

The Famous Ovariectomy: In December 1809, McDowell was summoned to the remote log cabin of Jane Todd Crawford. The two physicians caring for her believed that she was struggling to deliver overdue twins, and they requested McDowell's assistance. After a vaginal examination, McDowell discovered that Mrs. Crawford was not pregnant, and concluded that her distended belly was the result of "an enlarged ovarium". The only thing that could save her was the removal of the large mass and to McDowell's knowledge, such an operation had never been attempted. Mrs. Crawford's condition was desperate. He offered to operate after she fully understood the risks, and was willing to come to his home for the operation.

At the time of McDowell's offer, abdominal surgery was still taboo. In medical school, surgeons were emphatic in warning students not to operate on the abdomen. Attempts at caesarean sections had always been fatal. Knowing this, what could possibly have motivated McDowell to make the offer to operate? Whether it was confidence in his skills or sheer curiosity, no one can be certain. However, the fact that McDowell lived in a small rural town probably had much to do with his decision. Well away from the city and criticisms of other doctors, McDowell was not directly exposed to the pressures of adhering to the accepted medical beliefs and practices of the time.

Resting her distended stomach on the pommel of her saddle, Jane Todd Crawford dutifully rode the 60 mile journey to McDowell's home in the middle of winter. After allowing her to rest for a few days to regain her strength, McDowell chose Christmas Day to perform the surgery. As was his custom, he wrote out a prayer: "*Direct me, Oh! God in performing this operation for I am but an instrument in Thy hands . . . Oh! Spare this afflicted woman*".

Accompanied by his nephew James McDowell and colleague Dr. Alban Smith, McDowell set to work. Unsedated, Mrs. Crawford endured the operation by reciting psalms and singing hymns. McDowell first used a pen to mark the path of his incision. Knife in hand, he then made a nine-inch cut into the abdominal cavity. As the large tumour was exposed, Mrs. Crawford's intestines fell onto the wooden table beside her. The tumour was so large it could not be removed in one piece. McDowell reported: "*We put a strong ligature around the fallopian tube near the uterus; we then cut open the tumore . . . We then cut into the tumore and took out fifteen pounds of a dirty, gelatinous looking substance. After which we extracted the sack, which weighed seven pounds and one half*". Before returning her intestines

to the abdominal cavity, McDowell rinsed them in warm water to clean them and to keep them moist. After replacing the intestines, he turned her onto her side to allow the blood to drain from the abdominal cavity. Finally, he carefully sutured the edges of his incision together and apposed the edges with adhesives. The operation was completed in 25 minutes.

This was the world's first ovariectomy. The success of the surgery had much to do with McDowell's cleanliness and meticulous habits. These qualities are apparent from details like bathing the intestines in water and draining blood from the abdominal cavity. Furthermore, by operating in his home, Mrs. Crawford was removed from the risk of being exposed to the bacteria which were abundant in large hospitals. After 25 days Mrs. Crawford returned home in good health.

Gaining Recognition: McDowell waited seven years before submitting his work for publication. By that time, he had successfully operated on two other women. Like most innovators, his work was criticised, and the majority of physicians simply did not believe him. The editor of the London Medico-Chirurgical Review, Dr. Johnson, was especially skeptical: "*In spite of all that has been written in respect to this cruel operation, we entirely disbelieve that it has ever been performed with success, nor do we think it ever will*". Even the most prominent American surgeon of the time, Dr. Physick, ignored McDowell's work.

Over the course of his career, McDowell performed a total of thirteen ovariectomies. Eight of these patients were cured. In 1824, the Edinburgh Medical and Surgical Journal published a letter that McDowell had written in 1817 to his former mentor, Dr. John Bell. This brought recognition but there were many who still doubted the possibility of a successful abdominal surgery, and it was a long time before anyone had the courage to attempt the same operation. McDowell remained in Danville and continued treating patients until his death in June 1830. Twenty-one years after the historic operation, the man who conquered abdominal surgery ironically died of "an acute attack of inflammation of the stomach", which was probably the result of a ruptured appendix. And Jane Todd Crawford, his famous patient, outlived him to die at the then ripe old age of 78 years.

BIBLIOGRAPHY

1. Duffy J. The Healers: A History of American Medicine. Urbana: University of Illinois Press, 1976.
2. Massengill SE. A Sketch of Medicine and Pharmacy. Bristol: SE Massengill Company, 1943.
3. Othersen Jr. HB. Ephraim McDowell: the qualities of a good surgeon. *Ann Surg* 2004; 239:648-50.
4. Rutkow IM. Ephraim McDowell and the world's first ovariectomy. *Arch Surg* 1999; 134:902.
5. Young A. Scalpel: Men Who Made Surgery. New York: Random House, 1956.