



## Milestones

# Howard Atwood Kelly: much beyond the stitch

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There are few individuals in the history of a medical specialty who can lay credit to the breadth of academic, surgical, therapeutic, administrative and practical innovations as Howard Atwood Kelly. He can be considered as a founding father of operative gynecology, especially in the English speaking world. He is most widely remembered amongst gynecologists as the inventor of the surgical repair for stress urinary incontinence. Ironically, it is also one which has fallen out of favor with modern guidelines.<sup>1</sup> The Kelly's stitch was only a small part of his contributions. Today, Kelly is best known for his leadership in three areas: as a physician who established gynecology as a surgical specialty, as a founding faculty member of Johns Hopkins University Medical School, and as one of the first clinicians to see the medical potential of radium.

Howard Atwood Kelly was born in Camden, New Jersey on February 20, 1858, the son of Henry Kuhl Kelly, a prosperous sugar broker, and Louisa W. Hard. As a matriculant, he was awarded the Latin Prize from the University of Pennsylvania in 1877. He was keen to pursue a career as a naturalist, but his father directed him to medicine in the quest for a financially stable livelihood. Kelly enrolled in Penn's Medical School as a member of the Medical Class of 1879. Kelly had numerous other interests including studying nature, the Bible and college politics. His outside activities over stimulated his mind and deprived him of sleep. He became more of an insomniac and eventually had to leave medical

school to recuperate a month before he was due to graduate. He went to Colorado and worked on a ranch as a cowboy for two years. He returned to medical school and received his degree in 1882.

Following his graduation, Kelly served as a resident at the Episcopal Hospital in the Kensington section of Philadelphia. As early as his days of residency, Kelly was known for his ingenuity in gynecological surgery. A woman had died of nephritis on the ward. He was very keen to examine the kidneys but doubted he would be permitted to conduct a postmortem. He managed to examine them by removing them through the vagina!<sup>2</sup> Following his residency, Kelly founded the Kensington Hospital for Women. He gained renown for performing abdominal surgeries widely thought to be impossible by the national medical community. He benefitted from his training in Europe during this period and from accounts of American surgeons such as James Marion Sims, Ephraim McDowell and the Atlee brothers. In April 1888, Kelly performed a cesarean section, the first one in Philadelphia for half a century where the mother survived. In 1888, Kelly was named Assistant Professor of Obstetrics at the University of Pennsylvania's Medical School. He did not, however, remain at his alma mater for long.

The following year William Osler offered Kelly the position of Professor of Obstetrics and Gynecology at Johns Hopkins. The "Kensington colt", as Kelly



Figure 1. John A Sampson

was known, moved to Baltimore in 1889. He was one of the “Big Four” founding members of the medical faculty of the John Hopkins University. The other three were William Osler, William Welch and William Stewart Halstead. In 1892, only three years after moving to Baltimore, Kelly founded the Howard A. Kelly Hospital at Eutlaw Place, which remained an active hospital until 1938. He practiced with a charitable heart at the University and would often forgo his surgical fees. He would even operate in a patient’s house, carrying a copper boiler to autoclave instruments. On the other hand, in his private practice, he was known to command unheard of fees.

During his early years at John Hopkins, Kelly was greatly interested in urogynecology. He was inventive in his approach to disease. He studied the

bladder and taught himself to catheterize the ureters by using air cystoscopy. This was perhaps one of the earliest clinical applications of endoscopy in gynecology. He devised the Kelly’s stitch during this period. Besides incontinence repair, he described techniques for repair of complete perineal tears, repair of a vesicovaginal fistula and bisecting a fibroid uterus during difficult vaginal hysterectomies. His other notable contributions are the Kelly’s surgical clamp, Kelly’s speculum and drainage pads for use during surgery. He encouraged greater surgical safety by promoting the use of nitrous oxide in anesthesia, electrical lights for better illumination and the use of electrocautery.

Towards the end of the 1890’s he turned his attention to gynecological cancers. During surgeries for cervical and endometrial cancer, he reduced bleeding by ligating the internal iliac artery. This would later be used to save innumerable lives as an intervention in atonic postpartum hemorrhage. In 1904, he acquired a small amount of radium from Madame Marie Curie and used it on external lesions. His first radium patient was his own aunt. He set about defining the principles of brachytherapy and was the first to establish a practically usable radiation apparatus in his clinic. By 1917, his clinic had 5.5 gram of radium, the largest amount available at any clinic in the world.

Howard Kelly was a remarkable teacher and academic scholar. He had over 500 works by the end of his career. One of his greatest contributions was to bring German-born Max Broedel to Baltimore in 1894 to illustrate his texts. Broedel was a superb artist and outstanding anatomist. When Kelly published the two-volume *Operative gynecology*, with Broedel’s illustrations, in 1898, he became recognized as the leader in American gynecology at the young age of 40. (Figure 1.) This also marked the birth of medical illustration as a specialty. Kelly was honored by a number of universities and scores of medical societies with honorary degrees and memberships.

His other interests remained alive during his career. He was staunchly religious and would often preach about his faith. He was a staunch prohibitionist and opposed to birth control. He also published and lectured on botany, natural history, anthropology and politics. He was widely respected as a philanthropist and it is estimated that he contributed about a million dollars to charity over his working years.<sup>3</sup>

Kelly retired from the University in 1919 as department head but remained a part of the university as an emeritus professor and advisor. He had a prolific private practice and he operated till he was eighty years old. Kelly died at the age of 84 in Baltimore on January 12, 1943. His wife of fifty-three years, the former Laetitia Bredon, died in the room next door at Union Memorial Hospital some six hours later. They were survived by their nine children, several of whom had become doctors themselves.

## **References**

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