The history of hernias

Astley Paston Cooper (1768-1841)
I.M. Rutkow

Distinguished by his handsome face, personal charm, and winsome personality, Astley Cooper was the surgeon's surgeon, everywhere surrounded by esteem and popularity. He was the sixth of ten children of a well-to-do country parson from Brooke in Norfolk. It was a family of intellectual distinction, including Cooper's mother who wrote several novels and children's stories and was a lineal descendant of the renowned Isaac Newton (1642-1727). Cooper's paternal grandfather was a surgeon in Norwich while his father's brother William was senior surgeon to Guy's Hospital in London.

Despite Cooper's family background, as an adolescent he was a mediocre student and could not attend Cambridge like his brothers. Displaying no particular aptitude for any one subject area, it came as a surprise to his parents when the sixteen year old Cooper himself suggested that he be apprenticed to his uncle. When he reached London restrictions on living space made it inconvenient for Cooper to live with his relatives. As serendipity would have it, he was instead placed with Henry Cline (1750-1827), surgeon to St. Thomas' Hospital and a younger and far more talented individual than William Cooper. Not unexpectedly, Astley Cooper found himself drawn to Cline's genial manner, liberal political views, and stimulating personality. In 1785, Cooper asked to be apprenticed to Cline rather than to his uncle and the matter was so arranged.

The zeal with which Cooper threw himself into his studies, particularly anatomy, brought him early recognition. There is little doubt that this was partially motivated by Cline's introducing Cooper to his own mentor, the famous John Hunter (1728-1793). Cooper attended two anatomical lecture sessions of Hunter and spent 1787 studying anatomy in Edinburgh with Alexander Monro, secundus (1733-1817). By the end of his second year of study Cooper had become an unofficial demonstrator in the dissecting room, and, three years later (1789) was formally appointed demonstrator in anatomy at St. Thomas'. Just prior to completing his apprenticeship (1791), Cooper was invited by Cline to share the lectureship in anatomy and surgery with him. In 1793, Cooper
was also chosen to give the lectures on anatomy for London's Company of Surgeons. He spent the years 1795-1799 in private practice only to do so poorly that after 6 months his income totalled just £610.

The major change in Cooper's personal and professional fortunes occurred in 1800 when he was chosen to succeed his uncle at Guy's Hospital. A bit of politics entered into this decision because during his apprenticeship Cooper, like Cline, embraced the democratic ideals of the French Revolution. The excesses of terror and brutality brought upon the monarchist victims were all looked upon quite unfavorably by the British establishment. To secure his life-time position at Guy's, Cooper had to convince the authorities that he would withdraw from any future political action and devote his time solely to surgery. No less important was his marriage that same year to Miss Cock, the daughter of a wealthy London merchant. Her dowry included a furnished house in addition to a personal fortune of £14,000. As bright as Cooper's professional life would become his domestic life was marred in tragedy. His wife fell victim to a lengthy depression after the death of her only child and a later passing at childbirth red in tragedy. His wife was a victim of a femoral aneurysm. Two decades later he reported a ligature around the abdominal aorta for aneurysm. Three years of her life.

Among Cooper's numerous written works his two-volume Surgical essays, cowritten with Benjamin Travers (1783-1848), appeared in 1818-1819. In the early 1820s, his lectures were printed serially in the Lancet. Although Cooper had not initially been consulted, he soon gave permission to the venture, provided his name was omitted. This was an unprecedented enterprise in medical journalism, evoking a storm of protest from other lecturers, who considered it a form of unethical advertising. The lecture notes were subsequently published as the three volume, Lectures on the principles and practice of surgery (1824-1827), becoming one of the standard surgical works of the period. Cooper's four well known "nonhernia" monographs included A treatise on dislocations and on fractures of the joints (1822), Illustrations of the diseases of the breast (1829) in which he first described suspensory ligaments of the breast as well as cystic disease of the gland, Observations on the structure and diseases of the testis (1830), and The anatomy of the thymus gland (1832). In 1840, the breast treatise was fully revised and expanded into a text with separate atlas, On the anatomy of the breast. That same year, Cooper began to suffer from dyspnea on exertion, and by early 1841 was in frank congestive heart failure. He died in February and was buried in the crypt beneath the chapel at Guy's Hospital.

Cooper's research on hernia is considered one of his greatest legacies. Among the well known eponyms still associated with his name are a: 1) fascia [transversalis fascia]; 2) hernia [a femoral hernia with two sacs, the second passing through a defect in the superficial fascia and appearing immediately beneath the skin, the first being in the femoral canal]; 3) herniotome [a slender bistoury with short cutting edge for dividing the constricting tissues at the neck of a hernia sac]; 4) ligament [pectineal ligament]; and 5) reflected tendon [a thin, semilunar expansion of the anterior aponeurosis of the transversus abdominis muscle sometimes prolonged beyond the conjoined tendon to be attached to the deep crural arch].

The result of an extraordinary amount of clinical work on patients and tedious cadaver dissections, Cooper's two hernia monographs (The anatomy and surgical treatment of inguinal and congenital hernia, London: T Cox, 1804; and The anatomy and surgical treatment of crural and umbilical hernia, London: Longman, Hurst, Rees & E Cox, 1807) were immediately regarded as seminal contributions. With 17 chapters and 12 plates in Part I and 20 plates in Part II, the publication was a lavish production; an imperial folio said to have cost Cooper £5,000 for the artistic work alone. Within two years of their publication, they had been translated into German (1809). In 1827, a second edition of Cooper's combined texts, edited by Charles Aston Key (1793-1849), a nephew by marriage, was published. This second edition was similarly translated into German (1833). The international travels of Cooper's hernia work apparently ended when the second edition was reprinted in the United States (1844).

In the 1804 monograph's preface, Cooper wrote, "No disease of the human body belonging to the province of the surgeon, requires in its treatment a greater combination of accurate anatomical knowledge, with surgical skill, than hernia in all its varieties." Among his anatomical observations was what is regarded as the most detailed description of "Poupart's ligament or the crural arch" ever written by a surgeon/anatomist up to his day. Cooper defined the transversalis fascia and distinguished this layer from the peritoneum and demonstrated that it was the main barrier to herniation. He carefully delineated the extension of the transversalis fascia behind the inguinal ligament into the thigh as the femoral sheath and the pectineal part of the inguinal ligament - Cooper's ligament. Although Cooper briefly described what was the transversalis fascia in his 1804 work, it was not until 1827 that he actually named it (page 6).

"When the lower portions of the internal oblique and transversalis muscles are raised from their subjacent attachments, a layer of fascia is found to be interposed between them and the peritoneum, through which spermatic vessels emerge from the abdomen. This fascia, which I have ventured to name fascia transversa-