PAEDIATRIC LESSONS FROM THE PAST

Not just an appendix: Sir Frederick Treves

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The history of the anatomy and surgery of the appendix is a beautiful chapter in medical education, and we appreciate the role of Sir Frederick Treves in its development.

In my library of classic medical literature, I (JES) am lucky enough to possess the 1881 Applied anatomy by Frederick Treves, FRCS (1853–1923). I call it, with great affection, “the little red book”. It is a true “handbook”, fitting comfortably in my outstretched palm. This book is full of anatomical pearls, such as the following about the appendix:

“The tip of the vermiform appendix may adhere to a neighbouring peritoneal surface, and thus form a ‘band’ beneath which a piece of the small gut may be strangulated. It is favourably placed for the accumulation of intestinal concretions and in it foreign bodies are apt to lodge. For these and other reasons it happens that ulceration of the appendix is a frequent cause of perityphlitis.”

In 1888, Treves described the possible positions of the appendix in the form of a clock face. An appreciation of the illustrious life and great accomplishments of this master surgeon and anatomist is incomplete without a consideration of his role in the treatment of appendicitis. While Treves is a major figure in the history of surgery, he is not alone in the pantheon of medical genius. Proper perspective comes from further perusal of my bookshelf, which also contains a yellowing copy of the pathologic anatomist Reginald Heber Fitz illuminates the issues:

“Homans operated upon an 11 year old boy on the fifth day of his disease. A very early appendiceal abscess was found and drained. Recovery was gratifying. ‘Early operation’ was stressed (again for abscess drainage) but the concept of removing the appendix prior to perforation was not recognized at all. Homans reported the case before the Suffolk District Society on April 19, 1886, with both pride and charm, politely doffing his hat to the referring physician whose early diagnosis made it possible. One cannot help but wonder if Dr. Homans’ colleague Dr. Fitz was in the audience, and equally politely, holding his counsel and avoiding premature release of his concept that Dr. Homans’ little patient was truly operated on quite late in the disease.

Fitz’s report in 1886 in the American Journal of Medical Sciences constitutes a classic example of the pathologist pointing the way for the surgeon. He read his paper on June 18, 1886, before the American Association of Physicians, just two months after the Homans paper in Boston. He clearly visualized the difference between early operation on appendicitis and early drainage of an abscess. He stated “a simple catarrhal appendicitis is to be recognized anatomically but it is doubtful whether its clinical appreciation is possible. This appendicitis, in the absence of a concretion of foreign body, may progress towards ulceration and even to peritonitis which may terminate fatally.” Fitz then went on to point out the signs and symptoms of early appendiceal involvement. He decreed the habit, then becoming current, of waiting for a visible mass and fluctuance to appear before operation. He pointed out clearly that the second, third and fourth days were those in which peritonitis began. He analyzed the time of death from peritonitis and found over half the patients died in the first week. The homily ... that ‘if it is appendicitis, it is ruptured in four days’ finds its origin in Fitz’s original description.”
Incision and evacuation for cases of “typhlitis” and “peri-typhlitis,” conditions ascribed to inflammation of the caecum and surrounding areas, evolved over time to actual removal of the appendix. Shepherd gave an excellent overview of the shift in diagnostic focus from the caecum to the appendix.

The history of appendectomy (appendicectomy in Britain) is fascinating. Claudius Aymand removed an appendix containing a calcified mass surrounding a pin in 1735 or 1736. This is fascinating. Abraham Groves removed an inflamed appendix in 1880. He reported the following: “A large abscess which extended deeply downwards towards the brim of the pelvis and lying bare in the cavity was the vermiform appendix ... it was black and discolored and gangrenous. I therefore snipped it off, and inverted the stump into the cavity, stitching the inverted peritoneal surfaces together with fine silk, then fastened a drainage tube into the pelvis and closed the wound.” The report of this successful surgery was not published until 1890. Abraham Groves removed an inflamed appendix in 1883, but no report occurred until his 1934 autobiography. Charles McBurney, who published the results of an 1888 surgery in 1889, was thus not erring by stating, “This is, I believe, the first recorded case where an acutely inflamed unruptured appendix has been removed full of pus.”

In an address presented in 1884, Johannes von Mikulicz advocated surgery for non-traumatic perforations of the appendix. Ulrich Kronlein performed a coeliotomy with removal of the appendix that same year (report published in German in 1886). Treves operated on a chronically affected appendix on 16 February 1887 (report published in 1888). George Thomas Morton, whose brother and son both died of appendicitis, excised a partially perforated appendix on 27 April 1887 (report published in The Philadelphia Medical News in 1887).

Treves wrote the following letter, which was published in 5 November 1892 in the Philadelphia Medical News:

“I have just read with interest a leading article in the Medical News for August 6 on the matter of operative treatment of the vermiform appendix. The fact that I live in a remote island, and further that a holiday of two months has taken me away from the haunts of books, must explain this tardy allusion to that paper.

The article discusses the origin of the operation for removing the vermiform appendix, and it is stated that to Dr. Thomas G. Morton belongs the credit of first devising this procedure; the suggestion is also made that the operation should be called ‘Morton’s operation,’ and it is asserted that Morton’s operation embodies one of the most important and radical advances of modern surgery. Dr. Morton thus becomes the founder of what will, I suppose, be known as ‘Appendiceal Surgery,’ should the present love for plastic operation upon a limb and an amputation; therefore, in view of this fact alone, no conflicting claims as to priority can be raised.”

Treves was not one to seek glory. Steinke and Zellweger provided insight into his character in their thorough history of Richter’s hernia:

“Treves credited Richter with the distinction of having given the first scientific description of this particular lesion and suggested the term Richter’s hernia, (partly) because with Richter must rest the main credit of establishing the individuality of this lesion.”

Treves’ unparalleled scholarly contribution to the subject remains, after more than a century, the cornerstone of modern understanding. Not only did he provide a detailed clinical description based on his own surgical experience, but he also exhaustively treated the topic by citing 52 authors since 1606 in his analytic and historical review of the subject. He then modestly proposed Richter, not himself, as deserving eponymous recognition for this hernia. All of this exemplifies his honest and scientific approach to research and medicine.”
Sir Frederick Treves

Gibbs stated, “It was especially in the field of abdominal surgery that Treves excelled and made lasting contributions. It is unlikely that anybody, before or since, has prepared himself more thoroughly with knowledge of abdominal anatomy, both in comparative and human anatomy.” Treves performed the first curative operation for megaloclon in a 5 year old child. As Howard reported, “Although there was massive dilatation of the proximal colon, the lower sigmoid colon and rectum were narrow. He performed an abdominoperineal resection of the distal colon and rectum with anastomosis of the proximal colon to the anal margin. The patient was known to survive at least until 67 years of age.” Treves was the first to report caecal bascules.

Two inconstant folds of peritoneum have been called “Treves’ folds”. The ileocaecal fold is known by the eponym “Treves’ bloodless fold”. On several occasions, the senior author (JES) has seen minute blood vessels travelling in this fold. Therefore, we advise our residents to exercise extreme care in ligating both the ileocaecal and ileocolic folds to avoid postoperative haematoma. As Kelly and Hurdon point out, the ileocaecal fold is bloodless “in the sense that its origin was not determined by blood-vessels, as in the case of the ileocolic fold”.

A witty writer and lover of precision in language, Treves’ texts are still enjoyable reading. He wrote of the caecum, “In herbivorous animals it is of great size, and appears to serve as a reservoir for the elaboration and absorption of food, since its herbivorous animals it is of great size, and appears to serve as texts are still enjoyable reading. He wrote of the caecum, “In herbivorous animals it is of great size, and appears to serve as a reservoir for the elaboration and absorption of food, since its

Treves’ most famous surgery is undoubtedly his treatment of the appendical abscess of King Edward VII. Edward’s bouts of pain in the lower right abdomen began less than two weeks before his scheduled coronation on 26 June 1902. Treves examined the prince on 18 June and continued with daily visits. During this period of relative quiescence, Treves presented a major address on appendicul inflammation.” As his pain waxed and waned, Edward resisted all counsel for surgical intervention, attending a banquet on 23 June. By the next morning, he was gravely ill.

Ellis described the dramatic scene in Buckingham Palace:

“It fell to Lister to explain to the King that his medical advisers all agreed that an operation was urgently necessary. Edward, steeped in the tradition of service to his people, refused: ‘I must keep faith with my people and go to the [Westminster] Abbey for the coronation.’ This he repeated over and over again as his doctors did their best to persuade him. Treves realized that the time had come to speak frankly, and when the King reiterated, ‘I must go to the Abbey’, Treves finally said, ‘Then, Sire, you will go as a corpse.’ At this the King agreed to submit to surgery.”

After draining the appendical abscess in a hastily assembled operating theatre, Treves spent seven sleepless days and nights caring for the king. Edward was crowned on 9 August 1902. Williams’ summary is apt: “Appendicitis thus became well known in Edwardian London, and appendicectomy rapidly was accepted by English surgeons, even though the royal appendix remained in situ.”

Sir Frederick Treves was already a Companion of the Order of the Bath and a Knight Commander of the Royal Victorian Order in 1902. For his service, he gained a baronetcy, and appendicectomy was performed on the King. The description of the latter achievement:

“Augmentation is a special mark of honour usually from the Sovereign ... granted by royal warrant under the Hand of the Privy Seal for great service to the Sovereign or the state. Few medical practitioners have been so honoured ...”

The description of the renewed Treves family crest with its symbol of royalty (the rampant lion) is as rich in technical terminology and detail as the finest topographic anatomy:

“His arms were blazoned: Argent, a cross couped gules, thereon a lower tripled turreted Or, in the first and fourth quarters a dexter hand appaupe proper, and in the second and third quarters a tent proper; and for honourable augmentation, on a chief gules, a lion passant guarant Or, armed and langued azure [being one of the lions from His Majesty’s Royal Arms].”

Wangensteen and Wangensteen give us a final glimpse of Treves:

“Treves developed an enormous private surgical practice and abandoned his hospital appointment at the London [Hospital] at age forty-five. At age fifty-five he withdrew completely from surgery to devote himself to travel. He died from peritonitis at age seventy-two in a Lausanne nursing home. Unfortunately a postmortem examination prior to cremation was not performed. Could incomplete cecal descent, a clinical entity identified by Treves, attended by appendicale
obstruction have accounted for the peritonitis that took
his life? It has been suggested that the peritonitis was
biliary in origin. But certainly rupture of the appendix is
a far more frequent cause of peritonitis than is
cholecystitis."

Delightfully, there is an “appendix” to the story of Treves in
the case of contemporary patient EMG, published in 2000 by
Lavelle:

“Treves’ young patient

EMG will be 100 years old this month. She is both a
friend and a former patient. I first met her as a friend in
1984, and in 1993 I found myself operating on her for
gallstones. Laparoscopic surgery had arrived, and so I
performed a laparoscopic cholecystectomy. Preoperatively, she mentioned that she had had her
appendix removed as a child, and as a routine I asked
her the name of the surgeon. ‘Treves—Frederick
Treves’, she said.

It turned out that she had had her appendix removed
at home in Ealing at the age of 6 (in 1906). Her father
was well off and was able to command the services of
a surgeon in his home, rather than allowing his child to
be taken to the local hospital. At that time, the operation of appendicectomy was still not commonly
performed, but it had gained in popularity when Sir
Frederick Treves had operated on the Prince of Wales
in 1901, [sic] the night before his coronation, and
drained an appendix abscess that had been brewing
for several days. The coronation had to be postponed,
but the Prince of Wales survived to be crowned King
Edward VII. Treves is also remembered today for his
role in studying and looking after ‘the Elephant Man’.

EMG remembers waiting for Treves to arrive, and she
remembers a table being taken upstairs to one of
the bedrooms for the operation. She then remembers
that after the operation she was in bed for three weeks.
During that time, she had a day nurse and a night
nurse, and her mother was not allowed to see her at
all. In fact, her mother peeped through the keyhole one
day and when the nurse found out about this she
stopped up the hole. EMG remembers having regular
dressing changes, and this was a very painful business.
The local doctor supervised the dressings, and if EMG
behaved herself—that is, she didn’t scream the place
down—he left a penny on the mantlepiece. After three
weeks, she was allowed out in a push chair [wheelchair] and had to suffer the taunts of the local
children. At about the same time, EMG remembers that
another child of her age developed appendicitis and
went to the local hospital, but died in hospital.

When I performed EMG’s laparoscopic cholecystectomy in 1993, I was able to visualise the
caecum and thus see the results of Sir Frederick Treves’s
handiwork. She had a large incision in the right iliac
fossa, which would have been necessary in prerelaxant
days to gain access to the appendix.”

As Gibbs17 so aptly stated, “Sir Frederick Treves was a man of
many-sided genius and widely varied achievement ... There
is much evidence that Treves saw himself as a participant on
the stage of history ... He had lived through a remarkable
period of change in surgical practice ... When he started as a
student many aspects of surgery had scarcely changed since
medieval times.” The history of the anatomy and surgery of
the appendix is a beautiful chapter in medical education, and
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development.

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