

Carl Langenbuch and the First Cholecystectomy

L. William Traverso, MD, Los Angeles, California

Cholecystectomy is the most common operative procedure performed on the biliary tract and the second most common major operation performed today [1]. This technic was developed almost a century ago by a German who has received little recognition. The familiar names of Billroth, Kocher, Czerny, Courvoisier, and Mikulicz reflect the contributions of German surgery. The name Langenbuch seems foreign among them, yet the genesis of surgery of the biliary tract may be traced to the conception and execution of the first gallbladder extirpation by Carl Langenbuch.

Antonio Benivieni, a Florentine pathologist, gave the first account of gallstones in man in 1420. The case involved a woman who had died of abdominal pain. Centuries followed and brought with them the ever-increasing recognition of biliary colic [2]. Francis Glisson in 1658 described not only the liver capsule that bears his name but also his own biliary colic attacks, "from which there is no release except by death" [3]. The first interaction of the gallstone and surgery was accidental. In 1687, Stalpert von der Wiel opened a purulent upper abdominal abscess in a patient with a long history of abdominal pain and found gallstones [4]. Acknowledgment must be given, however, to Jean-Louis Petit as the founder of gallbladder surgery. In 1733, this Parisian surgeon noted gallstone abscesses and suggested that when a reddening of the abdominal skin occurred in association with biliary colic, the surgeon should lance the area, remove the gallstones, and leave a gall fistula. In 1743, he successfully carried out such an operation [4]. Other suggestions followed. Skin stimulants were thought to provoke adhesions of the gallbladder to the abdominal wall. Drainage was then facilitated

and met Petit's rigid criteria for surgical intervention. The introduction of an indwelling trocar in the adhered gallbladder was another idea to remove stones and permit formation of a biliary fistula without accompanying peritonitis.

The advent of the elective cholecystostomy occurred in 1859 when J. L. W. Thudichum proposed a two-stage cholecystostomy [5]. The gallbladder was sewed to the abdominal wall through a small incision. Several days later the adherent gallbladder would allow removal of stones without contaminating the peritoneal cavity. Thus, the surgeon was removed from the position of an opportunistic invader. The whims of nature were no longer needed to permit him to enlarge fistulas and deliver stones through them. The pioneer in this suggestion was John Stough Bobbs who inadvertently performed the first cholecystotomy (incision), not a cholecystostomy (stoma) [6]. On July 15, 1867, in Indianapolis, Indiana, Bobbs was searching for an ovarian cyst in a thirty year old woman with a four year history of biliary colic. He found an inflamed adhered sac that contained, much to his surprise, "several solid bodies about the size of ordinary rifle bullets." He then closed the cholecystotomy incision and placed the gallbladder near the undersurface of the abdominal incision. The patient recovered and outlived Doctor Bobbs.

Marion Sims must be given the credit for designing, perfecting, and performing the first cholecystostomy [3]. He coined the term "cholecystotomy" for this procedure, although actually he constructed a stoma (cholecystostomy). The case involved a forty-five year old American woman living in Paris who had a one year history of pain "high up under the false ribs on the right" [7]. She subsequently became deeply jaundiced, and severe itching followed. Her doctors discovered an "unnatural swelling about the lower border of the liver." Sims was consulted. He aspirated the mass and obtained 32 ounces of a dark brown fluid. Immediate relief was produced. Nine-

From the Department of Surgery, UCLA School of Medicine, Los Angeles, California.

Reprint requests should be addressed to L. William Traverso, MD, Department of Surgery, UCLA School of Medicine, Los Angeles, California 90024.

teen days after the puncture, April 18, 1878, Sims performed the first cholecystostomy in one stage under the carbolic spray of Lister. He removed multiple stones and bile and sewed the open gallbladder to the corner of the abdominal incision. Eight days postoperatively, the patient died of massive internal hemorrhage. At autopsy examination, sixteen gallstones were found, ranging in size from a pea to a pigeon egg. Only two months had passed when Theodor Kocher performed the first successful cholecystostomy in June 1878 [8].

While others were pursuing the construction of gallbladder fistulas and direct removal of gallstones, one man observed these measures as only temporary relief. Since stones were known to recur, Langenbuch stated, "they have busied themselves with the product of the disease, not the disease itself" [9].

At twenty-seven years of age, Carl Johann August Langenbuch was appointed Director of the Lazarus Hospital in Berlin. There he was in the unique position of being confronted with both surgical and medical problems. Since biliary colic was solely a medical symptom, the ordinary surgeon was not exposed to this disease as often as was Langenbuch in Berlin. Two thoughts kept occurring to him: previous animal experiments by Zambecarri in 1630 and Teckoff in 1667 had shown that the gallbladder was not essential to life [4]; and his medical colleagues believed that the gallbladder itself gave rise to the stones. Langenbuch developed the technic for the cholecystectomy through several years of cadaver dissection. Using a subcostal incision extended into a T by a longitudinal lateral rectus incision, he performed the operation much as it is performed today. On July 15, 1882, Langenbuch successfully removed the gallbladder of a forty-three year old man who had suffered from biliary colic for sixteen years. The patient had lost 80 pounds and was hopelessly addicted to morphine. After five days of preoperative enemas and severe daily biliary colic attacks, the procedure was performed without incident. The gallbladder was first drained, and one venous bleeder was tied with a catgut suture. Langenbuch found two cholesterol stones and a chronically inflamed and thickened gallbladder. The next day the patient was afebrile, pain-free, and smoking a cigar. On the twelfth post-operative day, the patient was ambulatory. He left the hospital six weeks later, gaining weight and without pain.

The report of this case appeared in 1882 [9] and was ignored. Controversy arose over the cholecystostomy as championed by Lawson Tait versus this new cholecystectomy. In 1886 [10] a tabulation showed that thirty-three cholecystostomy and cho-

lecystostomy operations had been performed with a mortality of 27 per cent. Eight cholecystectomies had been performed (5 by Langenbuch) with one death recorded, a mortality of 12 per cent. By 1890, forty-seven cholecystectomies had been accomplished by twenty-seven surgeons, and in 1897 the number had risen to nearly a hundred operations with a mortality of less than 20 per cent [11]. By the turn of the century, Langenbuch's "radical surgery" was being used more and more, with cure defined as the permanent relief of pain. The cholecystostomy, however, could only guarantee a permanent fistula and not a pain-free state. Langenbuch died on June 9, 1901, from neglected appendicitis, another saga in the history of surgery, which is a story in itself.

Summary

Cholecystectomy is the second most common operation performed today, but its founder, Carl Langenbuch, has received little recognition. The evolution of biliary surgery to the first cholecystectomy is traced. Contributions of von der Wiel, Petit, and Thudicum are reviewed. The cases of the first cholecystostomy by John Stough Bobbs, the first cholecystostomy by Marion Sims, and the first cholecystectomy of Carl Langenbuch are described.

Acknowledgment: The author wishes to thank Madora Reynolds, Chris Hoch, and Lina Harrer for translation of Doctor Langenbuch's original articles.

References

1. Leading Surgical Procedures. *Stat Bull Metropol Life Ins Co* 54: 10, 1973.
2. Weir JF: Gallstones. *Veterans Administration Technical Bulletin TB 10-92: 1*, 1953.
3. Wilkie DPD: Gallstones, p 146. *Short History of Some Common Diseases* (Betts A, ed). London, Oxford University Press, 1934.
4. Langenbuch C: Ein Rückblick auf die Entwicklung der Chirurgie des Gallensystems. *Verhandlungen der Deutschen Gesellschaft für Chirurgie*, 1896, p 68.
5. Thudicum JLW: On the pathology and treatment of gallstones: review. *Lancet* 2: 420, 1859.
6. Bobbs JS: Case of lithotomy of the gallbladder. *Trans Indiana Med Soc* 18: 68, 1868.
7. Sims JM: Remarks on cholecystotomy in dropsy of the gallbladder. *Br Med J* 1: 811, 1878.
8. Kocher J: Manuskopfgrosses empyem der gallenblase, Heilung durch incision. *Cor-Bil f Schweiz Basel Aerzte* 8: 577, 1878.
9. Langenbuch CJA: Ein Fall von Extirpation der Gallenblase wegen Chronischer Cholelithiasis. *Heilung. Berliner Klin Wochenschr* 19: 725, 1882.
10. Gaston JM: Cholecystectomy, cholecystotomy, p 112. *Reference Handbook of the Medical Sciences*, Vol. II. New York, William Wood, 1886.
11. Gaston JM: Surgery of gall bladder and ducts, p 343. *Reference Handbook of Medical Sciences*, Vol IX. New York, William Wood, 1897.