



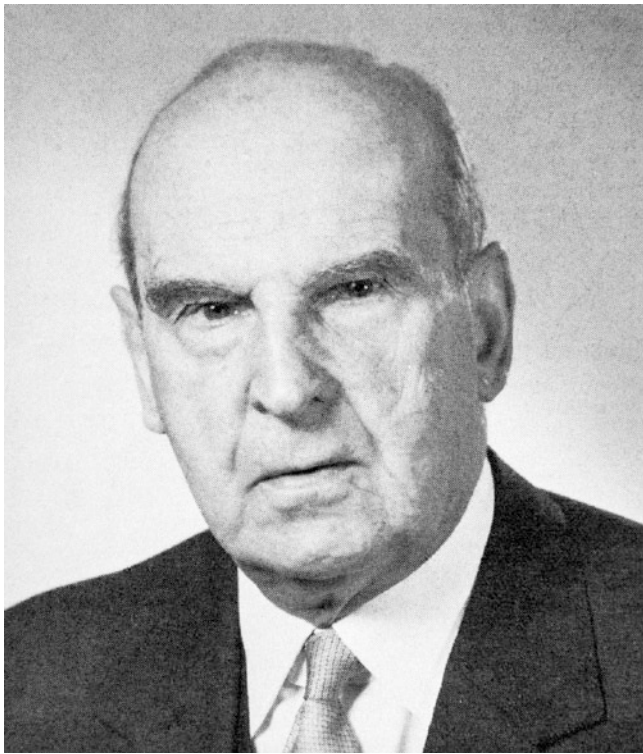
## Abstract

The persistent pioneering efforts of Rudolph Schindler with the semi-rigid gastroscope opened a new era of gastric pathology. The cannulation of the ampulla of Vater by McCune et al. in 1968 and Oi in 1970 added another technique for detailed radiologic examination of the biliary system (ERCP). The idea of a choledochoscope was suggested by Bakes, and such an instrument was developed by Melver of New York in 1941. These diagnostic procedures

have been of great assistance in the diagnosis of biliary tract disease and have helped to reduce, but sadly not to eliminate one of the most unfortunate events in biliary surgery—the retained common duct stone.

## Keywords

Endoscopic history · ERCP · Choledochoscope  
Stone extraction



**Hans Wildegans**



**Clarence Schein**

The persistent pioneering efforts of Rudolph Schindler (1888–1968) with the semi-rigid gastroscope opened a new era of gastric pathology [1]. The present era of flexible endoscopy began with a publication by Curtiss et al. in 1956 and the introduction of the fiber-optic gastroscope by Hirschowitz et al. in 1957. The development of the Olympus fiber-optic duodenoscope 1968 was a remarkable advance. The cannulation of the ampulla of Vater by McCune et al. in 1968 and Oi in 1970 added another technique for detailed radiologic examination of the biliary system (ERCP) [2]. These diagnostic procedures have been of great assistance in the diagnosis of biliary tract disease and have helped to reduce, but sadly not to eliminate, one of the most unfortunate events in biliary surgery—the retained common duct stone.

Finding one or more stones remaining in the common bile duct after what had been considered a careful and complete biliary exploration has encouraged surgeons to turn to other than reoperation to make stones disappear. The severe irritation and pain caused by volatile solutions such

as ether or chloroform limited their use, but the principle was reintroduced in 1972 by J. Way et al., who proposed a solution of cholic acid [3], and by Gardener who suggested a solution of heparin [4]. Later the compound mono-octanoin was found to be more effective and less toxic. Unfortunately, the percentage of retained stones that could be dissolved by such treatments remained small.

In the 1960s, Mazzariello, another Argentine surgeon, reported the successful extraction of stones through the mature T-tube sinus tract using specially designed stone forceps [5]. Burhenne reported over 600 cases of duct stones successfully extracted under fluoroscopic control [6].

The idea of a choledochoscope was suggested by Bakes, and such an instrument was developed by Melver of New York in 1941 [7].

Hans Wildegans (1888–1967), of Berlin, further developed the rigid choledochoscope in 1953 and reported an extensive experience in 1960 [8]. George Berci, in 1960, adapted the Hopkins lens system to the rigid scope and greatly improved the

visual image and the effectiveness of the instrument [9]. Video-choledochoscopy by either the rigid or flexible choledochoscope is another technique that can assist in minimizing the incidence of retained common duct stones particularly in cases of multiple stones. Successful extraction of stones using flexible choledochoscopy introduced through the T-tube sinus tract has also been reported, but not widely used.

Biliary tract disease, so commonly encountered, is so readily responsive to the local manual manipulations of the surgeon. This provided a field of surgery that developed quickly after general anesthesia lessened pain and Listerism reduced infection to a tolerable level. Writing in the early 1980s, William Longmire (1914–2003) envisioned that “the surgeon must be prepared, probably in the not-too-distant future, to abandon the most commonly performed intra-abdominal operation and move on to other fields of biliary tract lithiasis that respond to the innovations of dietary and/or medical management” [10].

In the early 1980s the revolution spawned by the laparoscopic approach to gallbladder disease had not been appreciated but was on the horizon [2]. Beginning in 1970, Clarence Schein and George Berci collaborated and corresponded for the next 50 years concerning biliary surgery and especially intraoperative cholangiography and choledochoscopy [11]. Biliary surgery was Schein’s major interest. He established a unique teaching system for surgical residents at Montefiore Hospital in New York, NY. He published his famous book on

acute cholecystitis [12] in 1972 with 629 references. Over 200 publications by Clarence Schein were accepted by periodic journals. Dr. Schein was interested in reading surgical authors in their original language, and therefore he started to learn German to be able to read the classical authors in their original tongue. His other major contribution was to music; he played the clarinet.

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