

Gastroenterology with the BV Pulsera at Charles University Teaching Hospital

The Teaching Hospital in Hradec Králové is a Medical Faculty of the Univerzita Karlova (Charles University) in Prague. As one of the leading medical institutions in the Czech Republic, it is an important training center for physicians and nursing staff.

WHO/WHERE

Charles University Teaching Hospital,
Hradec Kralove, Czech Republic
General Hospital, 1,500 beds



CHALLENGE

ERCP procedures demand the utmost
simplicity of operation and control
and high quality images

SOLUTION

BV Pulsera mobile C-arm system

The hospital has 21 clinical departments with a total of about 1,500 beds, staffed by more than 2,700 medical personnel. It serves the population of the Hradec Králové region, and many of the departments are also referral centers for patients from all over the Czech Republic and even from abroad. Some 41,000 inpatients and about 600,000 outpatients are treated or examined each year.

Many of the hospital's physicians hold leading positions in various medical societies in the Czech Republic, and several of them are on the boards of international medical organizations. The hospital has also made some significant contributions to medical research.

The leading position of the Teaching Hospital was established in the 1930's, following the completion of the new regional hospital complex and the foundation of the educational department under the chairmanship of Professor Fingerland in 1928.

In effect, the training department became a postgraduate training center for physicians and, until the end of the WW II, the hospital created a team of highly skilled experts.

After the end of the war this body of expertise made a major contribution to establishing the University Hospital as a teaching hospital of a new medical faculty of the Charles University.

The Division of Gastroenterology

The Division of Gastroenterology of the 2nd Internal Medicine Department of the Charles University Teaching Hospital at Hradec Králové is among the best equipped departments in the Czech Republic, and has recently moved to a new, well-designed building. The Division is staffed by 23 physicians, and offers a comprehensive range of diagnostics and treatment, together with undergraduate and postgraduate training, and research facilities.

The Division of Gastroenterology is equipped and licensed for all gastroenterological procedures. It has its own ambulatory outpatient care center, endoscopy unit, nursing ward and a functional laboratory providing breath tests using natural isotopes (a first for the Czech Republic), functional digestive tests, electrogastrography, esophageal pH-monitoring and manometry, anal manometry, and biofeedback training

PHILIPS



The endoscopic team

methods. In addition to gastroenterology, hepatology and digestive endoscopy, the Division also provides expertise in clinical nutrition, including nutritional assistance at home, and has pioneered safety principles in digestive endoscopy, with special attention to disinfection and sterilization.

In recent years, many physicians from the Czech Republic and other countries have been interns in the Division, with particular interest in the use of self-expanding stents.

New Endoscopy Unit

The new endoscopy unit, which has recently opened in the new building, has a total of nine examination rooms, comprising three parallel rooms for upper GI endoscopy, two for colonoscopy, two for ERCP, one for invasive endoscopy methods and one for abdominal ultrasonography. The unit offers all current diagnostic and therapeutic techniques, including enteroscopy (as the first in the country), endoscopic ultrasonography, capsule endoscopy and methods for control of bleeding using all modern modalities.

Image quality

Image quality is of paramount importance in the Division of Gastroenterology, not only for diagnosis and treatment, but also for training

purposes. Since 1994 the Division of Gastroenterology has been using electronic archive methods for all endoscopy, ultrasonography and X-ray images. Many of these have been used in educational publications, including a bilingual (Czech and English) Atlas of Enteroscopy, published in 2000, comprising 480 pages and two audiovisual CD-ROMs). More information on the Division's publications is available on the website: www.lfhk.cuni.cz/kcvl.

“It is important to have simple maneuvering and control of the C-arm.”

The BV Pulsera

In 2002 the Division took delivery of a new generation BV Pulsera C-arm system from Philips Medical Systems. The system is equipped with a 12” image intensifier, providing a large field of view for orientation, with zoom facilities for detail studies.



Image quality is of paramount importance in the Division of Gastroenterology

Dr Stanislav Rejchrt, Head of the Division, says: “The large field of view, high-quality digital imaging, cine loop and efficient transfer of images via the DICOM interface to the local area network more than fulfilled our

expectations. The majority of our fluoroscopy-assisted procedures are done by the endoscopist himself, so it is important to have simple maneuvering and control of the C-arm.”

In spite of the size of the 12” image intensifier, the BV Pulsera is very easy to maneuver, allowing the endoscopist to work single-handed.

The remote control, together with the pedals, enables all required functions to be accessed independently of the main control panel.

According to Dr Rejchrt: “The technical parameters of the BV Pulsera allow us to easily acquire high-quality images of the esophageal barium swallow, which can be recorded on a cine loop immediately prior to the introduction of an esophageal stent. We can easily assess the extent of the stenosis, allowing us to implant an expandable metal stent of exactly the right size.”

ERCP with the BV Pulsera

The high-quality fluoroscopy and cine-loop images also offer major advantages in therapeutic ERCP, for example when dealing with difficult choledocholithiasis, hilar stenosis of the biliary tree or internal drainage of pancreatic pseudocysts.

“A specialized partnership offering major benefits for both sides and, above all, for our patients.”

Customer-driven design

Dr Rejchrt is very impressed by the working relationship with Philips Medical Systems: “An important specialized partnership has been established between Philips Medical Systems and the Division of Gastroenterology

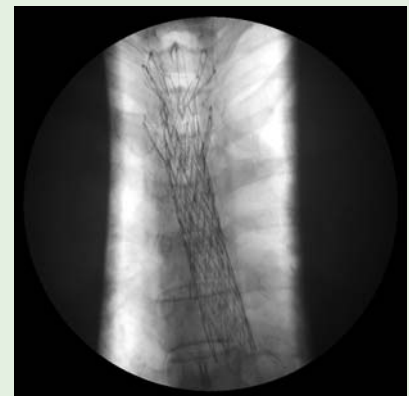
Endoscopic retrograde cholangio-pancreatography (ERCP) is combined endoscopic and radiologic procedure indicated for patients with suspected biliary and pancreatic disorders with presumable immediate therapeutic intervention (sphincterotomy, stone extraction, stenting).



ERCP cholangiogram after stone extraction shows dilated biliary tree without any filling defects



Normal cholangiogram via nasobiliary drain



Two self expandable metallic stents in the oesophagus. The second stent was inserted because of tumour overgrowth above the proximal end of the first one

of the Charles University Teaching Hospital at Hradec Králové, offering major benefits for both sides and, above all, for our patients.”

“Because our procedures demand the utmost simplicity of operation, we suggested to Philips that it would be useful to extend the functionality of the pedal control. The extended functionality would also contribute to reducing the radiation exposure of both patients and the physicians. The company understood and accepted our suggestion, and quickly made the necessary modifications.”

“Advanced technology to make operation as simple as possible is a major contribution to clinical efficiency”

“Philips soon convinced us that their slogan ‘Sense and Simplicity’ was more than an empty phrase. The use of advanced technology to make operation as simple as possible is a major contribution to clinical efficiency, while the company’s flexible and open attitude to suggestions from the users ensures on-going improvements to the equipment. Our ‘software beta-version’ will soon become an integral part of the BV Pulsera package.”

“The ability to perform the examination in a shorter time and with the minimum of

personnel enhances the reputation of the BV family as being the machines with the lowest radiation exposure.”

“Another example of a good teamwork between the customer and the Philips company was the desire to obtain sharp acquisitions of the fluoroscopic images during fast dynamic actions such as maneuvering the guidewire, variceal obliteration with Histoacryl and esophageal barium swallow. Although this was not strictly a clinical requirement, we wanted high-quality ‘frozen’ images for training and publication purposes. The team of specialists from Eindhoven solved this problem by creating and installing a new version of software, which completely eliminated any trace of movement blur.”

Subsequently, it appeared that the elimination of movement blur, together with the possibility of recording on the cine loop, represented a qualitative step forward, not only in ERCP, but also for all other forms of fluoroscopy-assisted diagnostic and therapeutic endoscopy.



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