

# A GREAT HISTORY

Charles University in Prague's Professor Miroslav Červinka, introduces two of the Faculty of Medicine in Hradec Králové's successful departments; Gastroenterology and Ophthalmology

**H**radec Králové is a university city with a long-lasting medical history and current dynamic progress. Out of the depths of history, for instance, we can highlight Professor K. Rokitansky, the founder of modern clinical pathology, who was born in Hradec Králové in 1804.

## Gastroenterology

In the more recent past, gastroenterology has always been of the highest quality, across all clinical, research and educational sectors. In the late 1960s, Dr Lomský et al. were the first to publish on the production of gastrin by delta cells of the pancreas, for example. Several other outstanding gastroenterologists are associated with the great medical history of Charles University Faculty of Medicine and University Teaching Hospital in Hradec Králové, such as Professors M. Hradsky, V. Bartoš, B. Fixa and many others.

The current phase of the university's history of gastroenterology began in the mid-1990s when a new modern department was founded by Professor Jan Bureš and Professor Stanislav Rejchrt. Today the Second Department of Internal Medicine (head Professor M Kopáčová, MD, PhD) is a leading Central European gastroenterology centre.

The department provides complex gastroenterology care in all aspects. A large-volume endoscopy unit (with 8,000 procedures per year) performs all methods of digestive endoscopy (gastroscopy, enteroscopy, colonoscopy, ERCP and linear and radial endoscopic ultrasound) and all therapeutic procedures (bleeding control, polypectomy, endoscopic mucosal resection, drainage procedures, dilations, stent insertions and others).

It also provides abdominal ultrasound (including ultrasound-guided biopsies of the liver and biopsies of focal abdominal masses). The endoscopy unit provides complex therapy for choledocholithiasis (mechanical and electrohydraulic lithotripsy; extra-corporal shock-wave lithotripsy) and percutaneous endoscopic gastrostomy. Complex diagnostics and therapy of small intestinal diseases is one of the main programmes. All endoscopic examinations of the small bowel are available: push-enteroscopy, intra-operative endoscopy, wireless capsule endoscopy and double balloon endoscopy (the first in the Czech Republic). The functional laboratory provides metabolic studies, hydrogen and methane breath tests, <sup>13</sup>C-based breath tests, oesophageal pH metry and impedance, and oesophageal manometry, electrogastrography, anal and ano-rectal manometry and biofeedback training.

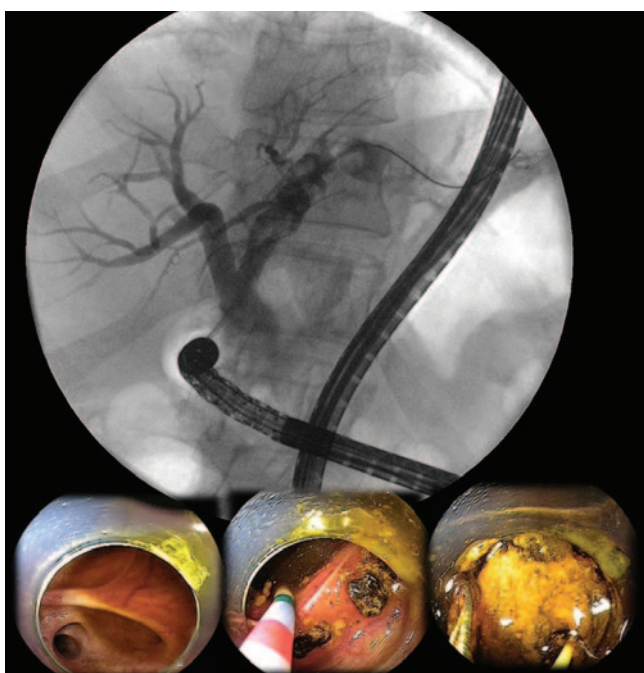


Fig. 1 Litotripsy of common bile duct stones at ERCP (endoscopic retrograde cholangio-pancreatography)

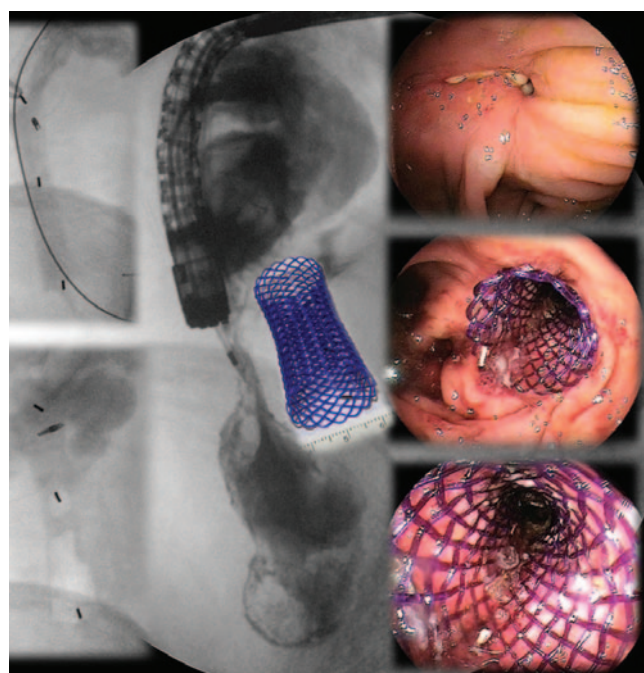


Fig. 2 Introduction of intestinal biodegradable stent (made of polydioxanone)



Fig. 3 Posterior segment operation theatre

Portal hypertension is the main clinical and scientific programme of hepatology. TIPS (transjugular intrahepatic portosystemic shunt) and complex subsequent care is provided in co-operation with the Department of Radiology. This programme is unique in the Czech Republic not only in terms of its duration (the first TIPS in the Czech Republic was inserted by Professor Krajina and Professor Hůlek as far back as 1992) but also in terms of the most extensive experiences (more than 900 procedures so far).

Several methods were introduced by the department, becoming firsts in Central Europe. It is important to mention 13C-based breath tests (1997), double balloon enteroscopy (2006), confocal laser endomicroscopy (2007) or computer-based endoscopy simulator for training of digestive endoscopy (2011).

The first prospective Central European studies on the prevalence of *Helicobacter pylori* and dyspepsia were carried out in Hradec Králové. The first prospective clinical trial on possible association of double balloon enteroscopy and acute pancreatitis and the first use of bio-degradable stents in the small intestine were accomplished in Hradec Králové, too.

A lot of research work was done, both in the clinical and experimental setting. The group developed and worked up methods of experimental endoscopic mucosal resection, wireless capsule endoscopy, impact of probiotics, experimental electrogastrography and many others.

The department used to organise several national and international congresses of gastroenterology, hepatology and digestive endoscopy. Several outstanding experts took part in international endoscopy workshops held in Hradec Králové, including Professor C.J. Mulder (Amsterdam), Professor H. Yamamoto (Tochigi), Professor S.E. Kudo (Tsuzuki), Professor A.J. Morris (Glasgow) and Professor L. Aabakken (Oslo).

The Second Department of Internal Medicine is open to broad national and international co-operation in clinical practice, medical education, and clinical and experimental research.

### Ophthalmology

The Department of Ophthalmology was founded within the School of Medicine in Hradec Králové as part of Charles University, Prague in 1945. Several outstanding clinicians in ophthalmology belong to its staff, including professors J. Vanýsek (first IOL implantation in Czech Republic 1954), M. Klíma, S. Řehák, J. Peregrin, J. Svěrák, N. Jirásková and H. Langrová. Professor Dr Pavel Rozsival, CSc. FEBO has been the department's head since 1993.

Ophthalmology is one of the most rapidly developing fields of medicine, embracing all technological advances used for diagnosis and treatment of eye diseases, constantly advancing the possibilities for patient care.

The ophthalmology department participates in both undergraduate and postgraduate education. Modernisation of education facilities is financed by grants. We have a long tradition



Fig. 4 Wavefront excimer laser

in PhD studies, and currently there are 27 postgraduate students and 33 who have already successfully completed their PhD. Several of them are now prominent Czech ophthalmologists. We participate in the further education of physicians, organise congresses and educational meetings.

Research is concentrated in the following fields of ophthalmology: 1. cataract surgery; 2. refractive procedures; 3. acquired retinal diseases 4. care of premature infants 5. neuro-ophthalmology and 6. electrophysiology of vision.

In the last three years we have published 67 papers. One of which we are most proud is Jiráskova N. et al. 'AlphaCor artificial cornea: clinical outcome' in *Eye* 2011, 25, 1138-1146, where our experience with this synthetic cornea in 15 patients with severe corneal condition was present. We conclude that, as with all Kpros, on-going vigilance in follow-up is essential, and care of these patients is challenging and time consuming.

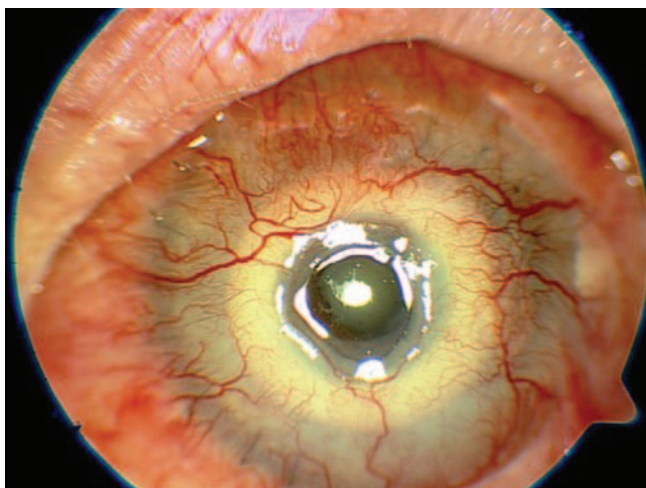


Fig. 5 AlphaCor implant

Cataract surgery is the most frequent operation, done on over 3,500 patients per year. Up-to-date surgical techniques and a wide variety of intraocular lens implants are used. Refractive errors of patients of all age groups are corrected using wave front excimer laser and several intraocular procedures. In the treatment of corneal diseases, the artificial cornea AlphaCor was first transplanted at our department. Complex conservative and surgical care is offered to children and adults with glaucoma, and various retinal diseases – especially age-related macular degeneration, as our department is one of the super specialised centres in Czech Republic – choroid and vitreous diseases and patients with eye complications as part of systemic diseases. We



Fig. 6 Anterior segment operation theatre



Fig. 7 Electrophysiological laboratory

have the latest equipment for 1m recently. We are also on the verge of femtosecond laser surgery installation.

The functional state of the visual system is examined at the electrophysiology laboratory which has had a long tradition since the first half of 20th Century. It was reconstructed with

#### Research grants – Department of Ophthalmology

- GAUK no. 7248/2007/C “Intravitreal application of triamcinolone acetonide in macular oedema of various etiologies” (J. Dusová);
- GAUK no. 7360/2007/C “Quality of vision of premature infants” (D. Liáková);
- MR CR NR 9118-3 “Rheopheresis as a method of systemic treatment of dry form of age related macular degeneration” (E. Rencová);
- MR CR NS 9738-4 “Rheopheresis as a treatment method of dry form of age related macular degeneration” (H. Langrová);
- MZO 00179906 “Diagnosis and treatment of idiopathic intracranial hypertension” (N. Jirásková);
- International multicentre randomised double-blind studies to verify the effect of various drugs applied to the vitreous body in diseases of the central area of the retina among others: VIVID BAY 86-5321/91745 (P. Rozsival); FOV23404, RETAIN CRFB002D2304, ORAYA CLH002 (J. Studnička);
- International multicentre randomised studies to verify effect of glaucoma surgery with tissue healing modification and conservative antiglaucoma medication (P. Rozsival, J. Kadlecova).

multifunctional equipment for over €100,000. The patients with retinal and optic nerve abnormalities or with unclear visual loss from the whole Czech Republic are examined here.

Our department co-operates with the Department of Ophthalmology, Alicante, Spain (Professor J. Alió), the Department of Pathophysiology of Vision and Neuro-ophthalmology, Tübingen, Germany (Professor E. Zrenner), the Department of Ophthalmology, Zurich, Switzerland (Professor K. Landau) and Dr. I. Lipshitz (Israel) – Orilens implant for AMD patients.

Our most significant results and achievements include participation in international multi-centric studies, publication of results on international congresses and in international journals.

The Department of Ophthalmology is open to broad national and international co-operation in clinical practice, medical education, and clinical and experimental research.



**Professor Miroslav Červinka**  
**Dean**  
**Faculty of Medicine in Hradec Králové**  
**Charles University in Prague**

tel: +420 495816240

cervinka@lfhk.cuni.cz  
 www.lfhk.cuni.cz