Preceyes enables world first robot-assisted eye surgery

Eindhoven, 12 September 2016 – The world first robot-assisted operation inside the eye has been performed by surgeons at Oxford's John Radcliffe Hospital using the PRECEYES Surgical System.

Robert MacLaren, Professor of Ophthalmology, used the PRECEYES Surgical System to initiate a membrane peel, a standard procedure that is performed over 0,5 million times annually. Preceyes' high-precision robot assisted in lifting the membrane of micrometer thickness, a task that demands the highest level of skill and experience from the surgeon. This is the first patient ever to undergo this procedure with robotic assistance.

Robot-assisted surgery have become commonplace over the last decade. However, never before has a robot been used to operate inside the eye for which even higher levels of control and precision are required. The PRECEYES Surgical System enables to execute the most delicate surgical tasks with an unprecedented level of control and precision. The technology promises to improve the safety and performance of existing ocular surgery as well as to enable new treatments, for example high-precision drug delivery.

Preceyes and the team at the University of Oxford's Nuffield Laboratory of Ophthalmology have worked together to enable this landmark clinical trial. The trial is funded by the NIHR Oxford Biomedical Research Centre with support from Oxford University Hospitals NHS Foundation Trust, which runs the hospital. The clinical trial sponsored by the University of Oxford is assessing the robotic system to perform new gene therapy operations, which are currently under development and require ultra-precise surgery under the fovea. This has resulted in the world first robotic surgery inside the human eye.

Marc de Smet, MD, Chief Medical Officer of Preceyes said: "This is the culmination of 10 years of work. Our initial aim is to push the limits of eye surgery and facilitate current procedures. The ease with which Professor MacLaren carried out the operation is a major step and a clear validation of our technology and the benefits of robotic assistance."

Robert MacLaren said: "There is no doubt in my mind that we have just witnessed a vision of eye surgery in the future. We can certainly improve on the current operations, but I very much hope that we can also do new operations that currently we can't do with the human hand. With a robotic system, we open up a whole new chapter of eye operations that currently cannot be performed. We can now do them with the robot."

Further information

BBC News
Robot operates inside eye in world first
Article: http://www.bbc.com/news/health-37246995
Broadcast: https://www.youtube.com/watch?v=3oPoQgyaVN8

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PRECEYES Surgical System

The PRECEYES Surgical System manipulates the instrument that enters the eye and is controlled using the motion controller on the left - Copyright and courtesy of BBC.

About Preceyes B.V.

Preceyes B.V. is a medical robotics company focussed on ocular surgery in the eye care market. The company's first target is to support vitreoretinal surgeons in performing high precision procedures. Preceyes is also active in supporting the development of new procedures, such as high-precision drug delivery. Preceyes is a spin-out of the Eindhoven University of Technology and is located at the Science Park in Eindhoven, the Netherlands. Preceyes leverages the mechatronics capability of the Dutch Brainport region. www.preceyes.nl

About the Oxford University Hospitals NHS Foundation Trust (OUH)

The OUH is one of the largest acute teaching trusts in the UK, with a national and international reputation for the excellence of its services and its role in patient care, teaching and research. The Trust supports world-leading research programmes in cardiovascular diseases, musculoskeletal disorders, neurological disorders such as Parkinson's and Alzheimer's through its designation as one of the UK's five comprehensive biomedical centres and units. It works in close partnership with the University of Oxford and is a leading centre for cancer, neurosciences, diabetes, genetics and many other fields. Research themes of particular strength are: cancer, cardiovascular science, diabetes, endocrinology & metabolism, infection and immunology, musculoskeletal science, neuroscience and reproduction and development. As of October 1 2015, the Trust was awarded Foundation Trust status. This decision comes after the Care Quality Commission gave OUH an overall rating of 'Good' in May 2014, and after scrutiny of the Trust's quality, finances, service delivery and governance arrangements by the NHS Trust Development Authority and Monitor. The Trust has been designated as a major trauma centre and is one of four UK centres for craniofacial surgery and The Trust employs over 12,000 staff and consists of four hospitals: the Churchill Hospital, John Radcliffe Hospital and Nuffield Orthopaedic Centre in Oxford and the Horton General Hospital in Banbury. www.ouh.nhs.uk

About the University of Oxford's Medical Sciences Division

The University of Oxford's Medical Sciences Division is one of the largest biomedical research centres in Europe, with over 2,500 people involved in research and more than 2,800 students. The University is rated the best in the world for medicine, and it is home to the UK's top-ranked medical school. From the genetic and molecular basis of disease to the latest advances in neuroscience, Oxford is at the forefront of medical research. It has one of the largest clinical trial portfolios in the UK and great expertise in taking discoveries from the lab into the clinic. Partnerships with the local NHS Trusts enable patients to benefit from close links between medical research and healthcare delivery. A great strength of Oxford medicine is its long-standing network of clinical research units in Asia and Africa, enabling world-leading research on the most pressing global health challenges such as malaria, TB, HIV/AIDS and flu. Oxford is also renowned for its large-scale studies which examine the role of factors such as smoking, alcohol and diet on cancer, heart disease and other conditions.

About the NIHR Oxford Biomedical Research Centre

The NIHR Oxford Biomedical Research Centre is funded by the National Institute for Health Research, and is a partnership between the Oxford University Hospitals NHS Foundation Trust and the University of Oxford. The NIHR provides the NHS with the support and infrastructure it needs to conduct first-class research funded by the Government and its partners alongside high-quality patient care, education and training. Its aim is to support outstanding individuals (both leaders and collaborators), working in world class facilities (both NHS and university), and conducting leading edge research focused on the needs of patients.

About the National Institute for Health Research (NIHR)

The NIHR is funded by the Department of Health to improve the health and wealth of the nation through research. The NIHR is the research arm of the NHS. Since its establishment in April 2006, the NIHR has transformed research in the NHS. It has increased the volume of applied health research for the benefit

of patients and the public, driven faster translation of basic science discoveries into tangible benefits for patients and the economy, and developed and supported the people who conduct and contribute to applied health research. The NIHR plays a key role in the Government's strategy for economic growth, attracting investment by the life-sciences industries through its world-class infrastructure for health research. Together, the NIHR people, programmes, centres of excellence and systems represent the most integrated health research system in the world. For further information, visit the NIHR website (www.nihr.ac.uk).