



For Immediate Release

## **The New Robotic Navigation Spine Surgery Service at HKSH Higher Precision, Enhanced Safety**

(24 August 2018, Hong Kong) Low back pain is common in Hong Kong and is a warning sign for degenerative disc disease which can lead to problems such as intervertebral disc displacement, degenerative spondylolisthesis and spinal stenosis. When the disease becomes serious, it may require surgical treatment. However, many patients would not go for surgery in view of the potential complications like nerve damage.

To address patients' concerns, Hong Kong Sanatorium & Hospital (HKSH) has devoted resources to further enhance its minimally invasive spine surgery service with the introduction of a high-end intelligent robotic 3D X-ray navigation imaging system called Artis Q Zeego.

This imaging system can obtain the spine images of a patient in just five seconds. The quality of the images is comparable to that of a CT scan with a spatial resolution precision of up to 0.1mm. Accuracy is also ensured despite possible minor body movement of patients.

The robotic arm of the Zeego system can always go to the designated point precisely every time. The operation time of the imaging process is much reduced. The overall running of the operation will be much smoother.

The Artis Q Zeego 3D X-ray imaging system is also equipped with special sensors that enable it to work with the navigation system and the specially designed operation theatre table. The overall set up will instantly provide information to the surgeon about the position, angle and depth of the instruments and implants inserted into the patient's spine. This will avoid possible damage to the nerves and the important tissues nearby. These features will much enhance the precision and safety of minimally invasive spine surgery. Patients will have less blood loss during operation and the recovery is much faster. In some cases, patients can leave bed on the same day of the operation.

**Dr. Stephen WU Wing Cheung**, Head of the Department of Orthopaedics and Traumatology of HKSH said, "The Hospital provided resources in the past two years with a view to introducing a new robotic navigation spine surgery service to patients in Hong Kong. The Hospital is the first private hospital in Hong Kong to have set up a hybrid operation room equipped with an advanced imaging system and an automatic matching surgical bed for orthopaedic cases. So far 20 orthopaedic patients have been treated with this set up and the clinical outcomes have been satisfactory. We trust that this service will benefit more and more patients in the coming future."

**Dr. Joshua KO**, Specialist in Orthopaedics & Traumatology of HKSH, noted that the current first-line treatment for low back pain will include medications treatment and physiotherapy. Surgeries like spinal decompression and spinal fusion may become an option when the symptoms persist or deteriorate.

To carry out the spinal fusion operation, one of the most critical steps that would affect the outcome of the operation is the insertion of pedicle screw into the vertebra. The pedicle screw, even if positioned mistakably by a few millimetres, may touch the spinal nerves and adversely affects the outcome of the surgery

"The intelligent robotic navigation imaging system can assist the doctor to insert the pedicle screws



through tiny wounds. This helps to improve the accuracy by 10-20% and minimise the risk of nerve damage, especially in complicated cases,” Dr. Ko noted.

“With this set up, minimal invasive spine surgery becomes more precise and safe. Minimally invasive surgery is more preferred by patients due to less blood loss and shorter recovery time.”

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## **Case Sharing**

### **Case 1: Lumbar spondylolisthesis**

Mr. WONG is over 40 years old. He suffered back injury this April. Since then he could not walk for more than 10 minutes. The diagnosis was compression of spinal nerve due to spinal disc herniation and spinal instability. Mr. WONG did not improve with conservative treatment and surgical treatment was thus required. The surgeon removed the damaged intervertebral disc, inserted the pedicle screws into his lumbar vertebrae, readjusted the lumbar vertebrae back into the proper position and conducted the spinal fusion. Mr. WONG’s back pain ceased after surgery and he was able to walk with aid the next day. He was discharged from the hospital 6 days later. Mr. WONG regained his leg muscle strength 2-3 weeks after surgery and he could walk freely subsequently .

### **Case 2: Lumbar spondylolisthesis**

Mr. HA is about 60 years old. He is a sports lover. One day in May he felt sharp pain in his low back and left leg after doing sit-ups. The pain was too much to him that he could not lift his leg off the ground. The diagnosis was the spinal nerves were compressed by the displaced vertebrae. Mr. HA showed no response to conservative treatments. Minimally invasive surgery was thus conducted to reduce the vertebrae back to its normal position and to decompress the nerve. It relieved his pain, and he could walk inside the ward soon after surgery. He was discharged 2 days later. Now he is back to swimming and cycling on an exercise bike.

## **Hong Kong Sanatorium & Hospital**

Hong Kong Sanatorium & Hospital is one of the leading private hospitals in Hong Kong. With the motto “Quality in Service . Excellence in Care”, the Hospital is committed to serving the public as well as promoting medical education and researches.

## **Orthopaedic & Sports Medicine Centre**

The Orthopaedic and Sports Medicine Centre was established in March 2004 in Hong Kong Sanatorium & Hospital. It was the first and the only facility of its kind in Hong Kong’s private hospitals at the time. It aims to provide comprehensive orthopaedic services to the public.

The Centre has orthopaedic specialists who are leading experts in fields like spine surgery, tumour management, joint replacement, sports medicine, hand, upper limb and microsurgery. The Centre also works with other departments of the Hospital to bring the best possible medical care to patients. We are committed to upgrading the quality of life of patients by helping them to restore or to maximize their physical potential.

Tel: 2835 7890

Email: [osmc@hksh-hospital.com](mailto:osmc@hksh-hospital.com)



**Photo:**

- 1) Dr. Stephen WU Wing Cheung, Head of the Department of Orthopaedics and Traumatology of HKSH (left) and Dr. Joshua KO, Specialist in Orthopaedics & Traumatology of HKSH (right) demonstrate the use of the intelligent robotic 3D X-ray navigation imaging system.



- 2) Dr. Joshua KO (left) and Dr. Stephen WU Wing Cheung (right) picture with two patients who underwent spine surgery recently.



For media enquiries, please contact:

Ms. Mandy SO                      Tel: 3156 8077

Ms. Tracy CHUNG                Tel: 3156 8079

Email: [media@cad.hksh.com](mailto:media@cad.hksh.com)