Projects for Postgraduate Students

Research Topic 1
Immediate and Early Outcomes following Conventional versus Single Port VATS

The Chinese University of Hong Kong has been at the forefront of VATS development from the first VATS major lung resection performed in 1994 at the Prince of Wales Hospital. Since 2012, a significant proportion of our VATS major lung resections are performed through single-port VATS. The centre has become a pioneer and leader of this technique in the region, and have subsequently founded the “Asian Single-Port VATS Symposium & Live Surgery” series in 2013 (http://www.surgery.cuhk.edu.hk/vats2015/); hosted Single Port VATS Centre of Excellence to train regional surgeons several times per year; and the Asia-Pacific Advanced & Novel Approaches to VATS Animal Workshop to promote the approach. Although there are many publications reporting feasibility and safety of the single port approach, there has been a paucity of evidence on other potential benefits of the single port approach. Based on our previous experience and studies comparing open and conventional (3-port) VATS approaches, we are conducting similar studies to compare conventional and single port approaches. Parameters that may be of interest include, inflammatory & immune response, pulmonary function, pain & paraesthesia, shoulder function, QOL, survival etc. It is hoped that well conducted prospective studies will provide the answers.

Interested candidates please send your CV and a brief research interest statement to postgrad@surgery.cuhk.edu.hk for consideration. Applications are open year round.

Selected Publications (relating to research topic 1):
1. Li WWL, Lee TW, Lam SSY, Ng CS et al. QOL following lung CA resection: VATS v. thoracotomy. Chest 2002;122:584
3. Ng CS et al. Thoracotomy is associated with significantly more profound suppression in Lymphocytes and NK cells than VATS following major lung resections for CA. J Invest Surg 2005;18:81-8
5. Ng CS et al. VATS lobectomy lung CA associated with less immunochemokine disturbances than thoracotomy. EJCTS 2007;31:83-7
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Research Topic 2
Magnetic Platform for Remote and Wireless Instrumentation during VATS

Summary: Minimally invasive thoracic surgery continues to seek new ways to reduce the number of ports, and size of incision required to perform intra-thoracic procedures, especially lung resections. By making the access incision number and size less, inevitably there will be increase instrument fencing and interference. Furthermore, the demands on the instruments to operate through a narrow incision and more acute angles have led to a new niche in biomedical engineering that tries to address these problems. We are currently developing instruments that have increased degrees of freedom that are more ergonomic, as well as the magnetic platform for remote and wireless instrumentation during VATS procedures. These include high definition multi-site cameras, and retracting devices which can facilitate these ultra-minimally invasive procedures. Recently, our university has gained US patent for this technology which have significantly speeded up the development and enthusiasm for this technology. There is planned research collaboration with Kyoto University for development of the magnetic technology in conjunction with image projection onto surgical glasses and similar interface.

Selected Publications (relating to research topic 2):
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Research Topic 3
Optimizing use of hybrid operating theatre for thoracic surgery

Summary: The availability of real-time high quality imaging in the operating room has opened new opportunities for thoracic surgeons to perform more precise, and personalized surgery for our patients. Its use include pulmonary nodule localization, image overlay for real-time guided surgery, local therapies in conjunction with electromagnetic navigational bronchoscopy (ENB) technologies, chest wall reconstruction, just to mention a few. At The Chinese University of Hong Kong, we are leading authority on hybrid OR use with world 1st publications of hybrid OR image guided single port lung resection, and hybrid OR ENB biopsy. We have also produced workflow booklets with Siemens, necessary for success in these procedures. The current study interests are related to new ways to utilize the hybrid OR, and refining current practises and protocols.

Selected Publications (relating to research topic 3):

Interested candidates please send your CV and a brief research interest statement to postgrad@surgery.cuhk.edu.hk for consideration. Applications are open year round.