中文題目：術中超音波在切除下之肺組織的小結節偵測之應用

英文題目：The Application of Intraoperative ultrasound for pulmonary small nodules detection in resected lungs

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Introduction

Video-assisted thoracic surgery (VATS) which was found to be a safe operation for early lung cancer, with the same survival as expected for a lobectomy done by thoracotomy has played an important role in the resection of pulmonary nodules in recent years. However, the limitation of VATS in resection of pulmonary nodules was the localization of nodule, especially in small nodular lesion or nodular ground glass opacity (GGO). Therefore, multiple localization methods such as methylene blue staining and hook wire techniques have been advocated for this purpose. The intraoperative ultrasound may be a useful tool for localizing lung nodules. But, there was few studies about intraoperative ultrasound for pulmonary nodule. The purpose of this study was to evaluate the effectiveness of intraoperative ultrasound for small pulmonary nodules detection.

Materials and Methods

One hundred and thirty-six patients harboring 153 pulmonary nodules were enrolled from September 2009 to October 2012 retrospectively. The intraoperative Electronic Linear Probe (UST-5536. 7.5Hz. Aloka) was used to detect pulmonary nodules and GGO in the resected lung tissue which from wedge resection or lobectomy.

Results

There were 136 patients with 153 nodules whom were enrolled. The mean age of these patients were 54.7 years old. The female patient was predominant (n=98, 64.1%). Of these patient, 102 pulmonary nodule were diagnosed as malignancy diseases, whereas 51 were benign nodules. The lung nodules were palpable by finger in 133 nodules (86.9%), and 125 (81.7%) nodules were detected by ultrasound in resected lung tissue. The proportion of visible by intraoperative ultrasound for different size was <1cm: 32 (80.0%), 1-2cm: 38 (86.4%), 2-3cm: 16 (94.1%), and >3cm: 1(100%). The proportion of visible by intraoperative ultrasound for different CT appearance was GGO: 68 (74.7%), semi-GGO: 24 (85.7%), and solid: 33 (97.1%).

Conclusions

Non-subpleural and impalpable pulmonary nodules would be the bottleneck of the thoracic surgery. Intraoperative ultrasound could provide a real-time, safe and effective technique for localization of pulmonary nodule. However, the intraoperative ultrasound was operator's experience dependent. Therefore, real-time intraoperative ultrasound needed further study and practice. The intraoperative could be used as the first-instance technique during VATS.