Service Priorities and Programmes

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Pre-operative hook-wire localization of pulmonary GGOs in managing early carcinoma of the lung or its precursors - new service for patients in NTWC.

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Introduction

Pulmonary ground glass opacities(GGOs) are commonly detected on CT. The nature of GGOs is diverse, ranging from benign to malignant. Some GGOs are known to be precursors to lung adenocarcinoma, i.e. atypical adenomatous hyperplasia and adenocarcinoma in situ(AIS). On follow up, when the GGO becomes suspicious for malignancy, a biopsy/resection is advocated by Fleishner Society. CT guided biopsy of GGOs may have a lower diagnostic accuracy than solid nodules. Also, with the new pathological classification of lung carcinoma in 2011 by (IASLC/ATS/ERS), diagnosis of AIS and minimal invasive adenocarcinoma require the entire lesion to be assessed. Therefore we favor an excisional biopsy in our institution. A wedge resection of the lesion is performed with VATS. There is also a trend towards surgical access with only a single port which makes it challenging to locate the lesion intra-operatively by manual palpation. If the lesion cannot be palpated, the patient would require a lobectomy. Thus we perform pre-op CT-guided hookwire localization of suspicious GGOs to assist our surgeons so that they can perform a wedge resection for diagnostic purposes and perform a lobectomy only if it is an adenocarcinoma. This can help shorten operative time, reduce operative blood loss and improve post operative recovery. Furthermore, wedge resection can also be performed in patients with limited lung function who would otherwise not be fit for a lobectomy. We illustrate with 2 cases our technique in performing this in the management of early lung carcinoma and its precursor AIS.

Objectives

n/a

Methodology

n/a

Result

Patient 1-72y-M In 2008, a CT for cough showed 2 GGOs in right upper lobe. They were considered non-specific and the patient was lost to follow up. In 2013, the 2 lesions showed an increase in size and solid component together with new GGOs. An excisional biopsy of the larger lesion was decided. Pre-op localization was needed to assist VATS resection. Under CT guidance, a lung marking guide wire with a spiral end was inserted into the lesion through a 18G introducer needle. The external portion of the guide wire was secured to the chest wall. The patient was sent to the operation theatre on the same day. The final diagnosis was AIS and granulomatous cryptococcal pneumonitis. Patient 2- 61y–M During workup of a renal mass, a GGO at right middle lobe was detected. The nature of the GGO needed clarification before management of the renal mass. A similar localization procedure was performed before surgery and revealed a well-differentiated lung adenocarcinoma, stage T2NOMO.