

Case Report

Pure Ground Glass Opacity -Potential for Overdiagnosis?

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Case Presentation

An active and healthy non-smoking 75 year old woman was referred to a regular chest x-ray because of unintentional weight loss over time. Chest x ray (Figure 1) showed diffuse consolidation in the right lower lobe, and the patient was referred to a Computerized Tomography (CT) scan of thorax (Figure 2) within the next month. CT scan showed a 15 x 13 mm indeterminate ground glass opacity lesion in the right lower lobe. Because of possible malignant outcome, the patient was referred to CT guided lung biopsy (Figure 3). During the biopsy, the patient development a right sided pneumothorax which regressed after treatment with surgical tube.

Histopathological diagnosis

Resected lower lobe (right) with adenocarcinoma in situ, non-mucinous.

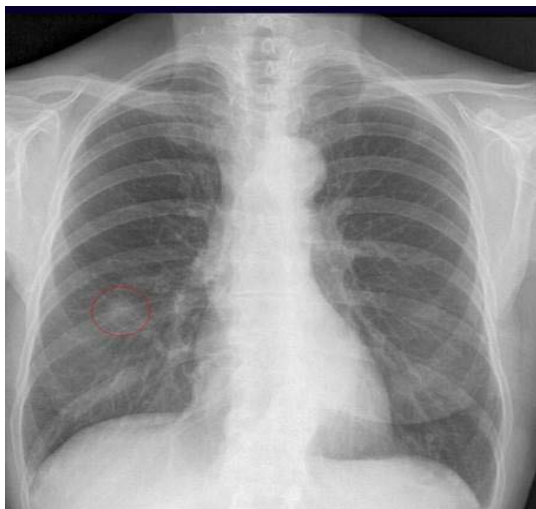


Figure 1: Initial chest x-ray showing diffuse consolidation (red ring).



Figure 2: CT scan showing ground glass nodule in the right lower lobe.



Figure 3: CT guided biopsy of right lower lobe nodule.

Centrally located lesion, 14 mm. Free resection margins. AJCC¹/UICC² pathological stage: pTis. (in situ) (Figure 4 and Figure 5).

Treatment

The patient received surgical treatment with right sided lower lobe thoracoscopic lobectomy. The patient was hereafter follow-up with annual CT thorax scan.

Discussion

Ground glass opacity lesions often represent slow growing indeterminate lesions with malignant potential [1]. Some literature suggests that ground glass opacity lesions are associated with female

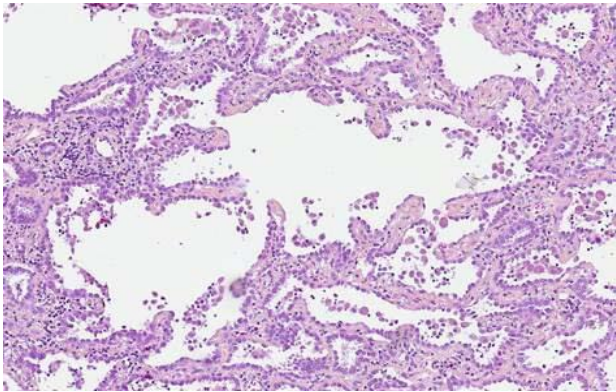


Figure 4: Histology from the peripheral part of the tumor. Low grade neoplastic cells growing along pre-existing alveolar structures. (Haematoxylin/Eosin/Safran x20).

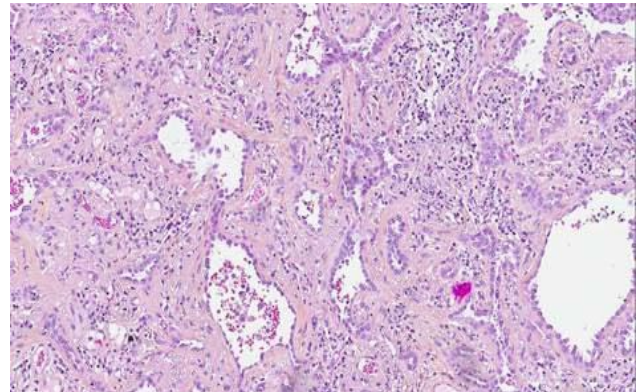


Figure 5: Histology from the central part of tumor. Neoplastic cells lining alveoli with sclerosis and collaps of alveolar walls. No convincing invasive growth. (Haematoxylin/Eosin/Safran x20)

sex [2]. The pathological classification of these lesions is still under debate[3]. We here refer to the new classification not yet incorporated in the WHO classification [4].

Ground glass opacity lesions have been described as a histological continuum from atypical adenomatous hyperplasia via adenocarcinoma in situ (bronchioloalveolar carcinoma) to adenocarcinoma with predominantly lepidic growth [5]. It is often difficult for the pathologist to differentiate between these diagnoses from a needle biopsy sample. Even from the resection specimen from this case there was still some uncertainty as to whether or not the lesion was invasive carcinoma. Longer follow-up of pure ground glass opacity lesions is recommended before conducting invasive diagnostic treatment [6]. Pure ground glass opacity < 5 mm require no follow-up; persisting ground glass nodule >5 mm are recommended annual follow for at least 3 years [7]. Positron emission tomography scan of pure ground glass opacity has limited value and may be misleading is therefore not recommended [7]. Solid transformation or rapid growth of pure ground glass opacity lesions are indicators of malignancy [8], in these cases biopsy or surgical resection should be considered.

Conclusions

The malignant potential of pure ground glass opacity lesions is still not well understood. Not all may ground glass nodules may develop into clinical significant malignant disease, and may therefore potentially represent overdiagnosis [9].

¹American Joint Committee on Cancer

²Union for International Cancer Control

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