CT Findings of Pneumonic Adenocarcinoma : Comparison between Invasive Mucinous Adenocarcinoma and Nonmucinous Adenocarcinoma

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Abstract

The pneumonic adenocarcinoma (P-ADC) is defined as primary lung ADC with a radiological pneumonic presentation, usually referred to histologically as ADC with a mixedinvasive and BAC (bronchioloalveolar carcinoma) predominant subtype in the 2004 WHO classification. Invasive mucinous adenocarcinoma (IMA) formerly classified as mucinous BAC usually presents consolidative opacities mimicking pneumonia on CT, on the contrary such pneumonic type adenocarcinoma may occur in nonmucinous adenocarcinoma (NMA) formerly classified as nonmucinous BAC. These tumors should be separated into different categories, because they have clinical, pathologic and genetic differences1)2)3).We compare the CT findings of the pneumonic type adenocarcinoma between IMA and NMA in 20 patients. CT findings of IMA and NMA were compared based on the characteristics of consolidation and accessory opacities.

Index terms—

1 Introduction

he purpose of this study was to compare the CT findings of pneumonic type adenocarcinoma between IMA and NMA.

2 II.

3 Materials and Methods

Author: Nagasaki Kawatana Medical Center. e-mail: snakamura662@gmail.com or 10mm collimation. IV contrast material was administered to 2 patients with NMA, and 9 with IMA.

CT findings of IMA and NMA were compared based on the characteristics of consolidation: peripheral distribution, lower lung predominance, multifocal distribution, air bronchogram, cavitation or cyst, heterogeneity, surrounding ground-glass opacity (GGO), bulging fissure, and CT angiogram sign. Accessory opacities (centrilobular nodules, cavities, GGO), pleural effusion, and lymphadenopathy were also analyzed.

We compared CT findings and pathological findings such as IMA and NMA by Fisher's exact test (extended).

4 III.

5 Results

CT showed cavitation or cyst (12/14), bulging fissure (9/14), peripheral distribution (6/14), and CT angiogram sign4) (5/9), in IMA, while, those findings were not seen in NMA type (Table **??**1). The former two findings were statistically significantly different between them. Lower lung predominance, multifocal distribution, air bronchogram5), heterogeneity, surrounding GGO, and centrilobular nodules were seen in both type with no

significant difference. Lymphnode swelling was seen in one patient with both IMA and NMA. Pleural effusion was seen in five patients with only IMA.

We present some cases with pneumonic adenocarcinoma. Figure **??** showed NMA type pneumonic adenocarcinoma. The consolidation with air bronchogram sign is seen in right lower lobe, and centrilobular nodules in right middle lobe. Figure 2 showed the IMA type pneumonic adenocarcinoma. The bulging fissure and consolidation with cavity or cyst are seen in right lower lobe.

IV.

6 Discussion

Diagnosis of the pneumonic type adenocarcinoma of the lung is usually delayed, because of mimicking infectious pneumonia on CT. Aquino et al reported that CT finding of peripheral consolidative pneumonia with surrounded nodules is more specific for BAC than infectious pneumonia6). Jung et.al reported that CT finding of air-filled bronchus with stretching, Comparison between Invasive Mucinous Adenocarcinoma and Nonmucinous Adenocarcinoma

We retrospectively studied twenty patients at four institutions in Nagasaki, Japan from 1999 to 2012. They consist of 11 females and 9 males with ages ranging from 40 to 87 years old (mean 71 years). They were pathologically proven pneumonic type adenocarcinoma by TBLB, cytology, operation for fourteen, two, four patients, respectively.

The pathological diagnosis was made by observing non-destructive growth of tumor along the alveolar wall with or without partly stromal invasion.

CT scans were obtained using Asteon multi, (Toshiba medical systems, Tochigi, Japan) or High Speed/FXI (General Electric, Milwaukee, USA) at 7.5mm squeezing, widening of the branching angle or bulging of the interlobar fissure, favor the diagnosis of BAC in differenciating from infectious pneumonia7).

Operation is favorable when the pneumonic adenocarcinoma is limited8), however, in almost all patients of pneumonic type adenocarcinoma have a multilobar and bilateral involvemet, so they are sometimes applied to chemotherapy.

Guillermo Paez et. al founded that EGFR mutation in non-small cell carcinoma (NSCLC) patient, and treatment with the EGFR kinase inhibitor causes tumor regression in some patients9). Garfields et.al reported the two main cytologic types of BAC, ie, nonmucinous and mucinous, have some differing characteristics. Nonmucinous type of BAC frequently harbors epidermal growth factor receptor (EGFR) polysomy/mutation. On the other hand, mucinous BAC, presents more frequentry as a pneumoinic-type infiltrate, much more frequently harbors K-ras mutation. These might be more differences than similarities, suggesting 2 distinct phenotypes that might need to be treated differently in order to optimize management of the range of clinical disease10).

We compared the CT findings between IMA and NMA, and CT findings with bulging fissure and cyst or cavity were found to be seen in IMA, and not in NMA with statistically significant. Bulging fissure is one of the characteristic findings of BAC and can be caused by mucin production in the tumor, resulting in swelling of the lobe11). Our data showed cavitation or cyst are found in only mucinous type. Central necrosis within nodules, emphysematous changes due to check-valves of carcinomatous infiltrates at the terminal bronchioles, and circulatory disturbances are considerable to be responsible for the cyst formation12).

The number of cases are a few, however, it might be helpful differentiating between IMA and NMA on CT, and contribute to the therapy strategy.

V.

Figure 1: T

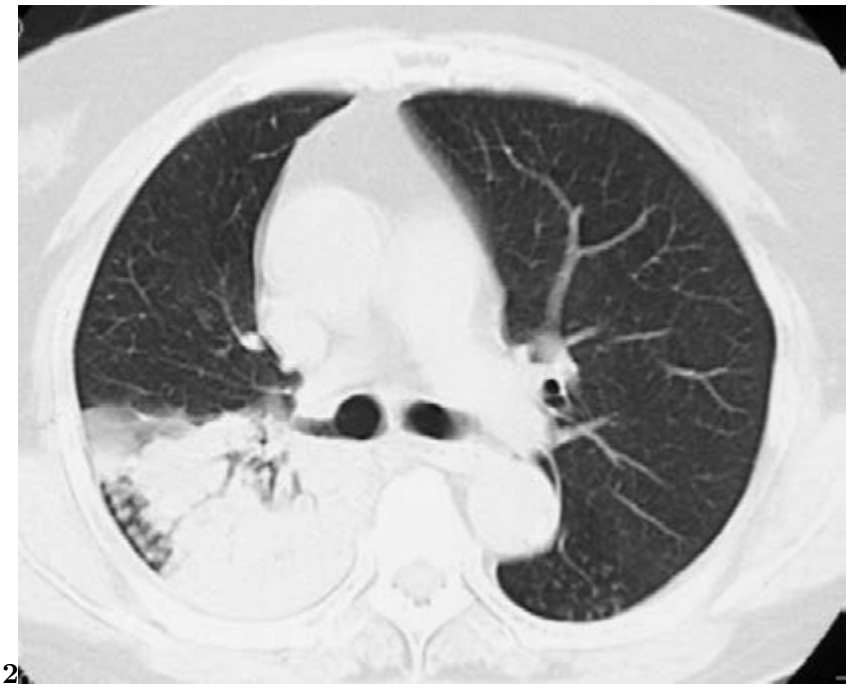

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Figure 2: Fig. 2 :

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Figure 3: Table : 1

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