ROLE OF CHEST HIGH RESOLUTION COMPUTED TOMOGRAPHY IN CHARACTERIZATION OF ATYPICAL LUNG INFECTIONS IN INTENSIVE CARE UNIT PATIENTS

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Introduction

Chest infection is the second most common nosocomial infection in intensive care units. It is associated with the greatest mortality among nosocomial infections.

Atypical pneumonia is applied to the clinical and radiographic appearance of lung infection not behaving or looking like that caused by Streptococcus pneumonia.

Atypical chest infection usually presents with atypical chest symptoms and the etiologic pathogen could be either a bacterial, viral or fungal infection

Diagnostic imaging plays an important role in the initial diagnosis of atypical pneumonia. It has an advantage in the assessment of lesions type, and cross-sectional distribution of pneumonia in ICU patients

Aim of the work

The aim of this study is to characterize the spectrum of chest HRCT findings seen in ICU patients with atypical lung infection rather than streptococcus pneumonia.

Patients

This study will be conducted on 30 ICU or immuno-compromised patients, with atypical lung infection, referred to Multi-detector computed tomography unit in the Radio-diagnosis department or ICU unit at Alexandria main University Hospitals.

4 cases (13.3%) showed Lower Lobar consolidation while axial consolidation (either peribronchial or peripheral) was found in 4 cases (13.3%), and Consolidation with cavitation found in 2cases (6.7%). . Ground glass opacity was either Diffuse in 4 cases (13.3%) or patchy in 6 cases (20%), mixed in 7 cases (23.3%) in addition, only one case (3.3%) showed Ground glass opacity with air trapping. .Regarding Nodular pattern was either centrilobular in 9 cases (30%) or perilymphatic in one case (3.3%). In addition, a nodular pattern with cavitation was found in 2 cases (6.7%) while a nodular pattern with a halo in one case (3.3%).

Moreover, Reticular pattern septal thickening was found in 19 cases (63%), while reticular pattern crazy paving was found in 2 cases (6.7%), reticular pattern with cavitation found in 2 cases (6.7%), and Reticular pattern with traction bronchiectasis in one case (3.3%). . Pleural effusion found in 10 cases (33.3%); Nodal affection found in 10 cases (33.3%)

most common presenting symptoms were Dyspnea in 22 cases (73.3%) followed by Low-grade fever in 18 cases (60%), chest pain in 16 cases (53.3%), and Fatigue in 16 cases (53.3%). Regarding cough (50%) of cases presented with dry cough while the other (50%) of cases presented with expectorated cough.

Methods

All patients were subjected to the following scheme after admission to intensive care unit department:

A focused history and physical examination. Laboratory studies: BAL/Culture-sensitivity results, viral serology tests or other inflammatory markers such as CRP or pro-calcitonin and complete blood count. Imaging evaluation including: chest X ray Postero-anterior and lateral view whenever indicating and in good quality and High Resolution Computed Tomography (HRCT) without contrast , Contrast administration only when indicated

Results

The thirty patients were distributed according to the final diagnosis as: COVID 19 infection was diagnosed in 12 cases (40%), klebsiella infection in 4 cases (13.3%), Acintobacter infection in 2 cases (6.7%), H1N1 in 2 cases (6.7%), mycetoma in 2 cases (6.7%), 1 case (3.3%) was diagnosed as Active TB, 1 case (3.3%) was diagnosed as Enterobacter infection, 1 case (3.3%) was diagnosed as invasive aspergillosis infection, 1 case (3.3%) was diagnosed as was diagnosed mixed acintobacter infection, 1 case (3.3%) was diagnosed as pseudomonas infection, 1 case (3.3%) was diagnosed as mixed klebsiella & pseudomonas infection, 1 case (3.3%) was diagnosed as pneumocystitis carinii and semi-invasive aspergillosis was diagnosed in one case (3.3%).

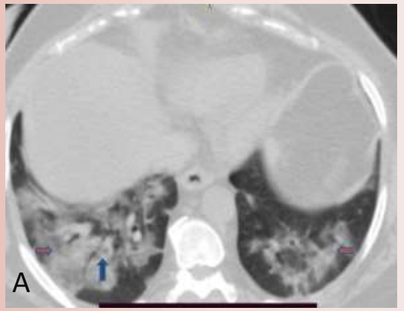

Figure (A) non contrast CT chest shows bilateral ground glass opacities with air bronchogram The lab result by nasopharyngeal and throat swab is positive with COVID 19 infection

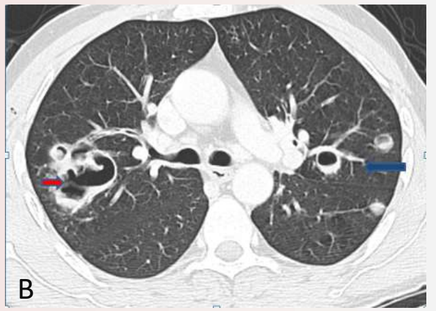

Figure (B) non contrast CT chest shows multiple cavitating nodules some of them showing air crescent sign. Lab result: mycetoma

Conclusion

The CT scan plays a key role in pulmonary infections Especially in immune-compromised and ICU patient.

The main role of CT lies in the detection or exclusion of the presence of pneumonia. Other roles include narrowing down of differential diagnoses of pneumonia regarding causative organisms involved.

The CT scan therefore plays a key role in assisting clinicians to make treatment decisions, especially in emergency and immunocompromised patients.

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