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Original Article

Radiological & clinical findings in sporadic cases hospitalized for H1N1 pneumonia

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ABSTRACT

Purpose: To evaluate the CT and clinical findings in patients with H1N1 pneumonia and to discuss any differences between our results and previously reported articles.
Patients and methods: Screening for cases was started in April 2015. First case was diagnosed in October 2015. The number of cases increased with Peak in December. We reviewed and analyzed the primary CT patterns and the clinical presentation.
Results: Our patients were more prevalence in the age ranges from 30 to 60 years, equally distributed in both sex. Cough & fever (94%) were the most frequent clinical presentation .The commonest CT finding was the patchy Ground-glass appearance (either alone or associated with other findings) found in 11 cases (69%) followed by Consolidation in 10 patients (63%). The lung affection was bilateral in 14 patients (88%), multifocal in 13 patients (81%), Peripheral location was in 10 patients (62%). Out of the 16 positive cases in CT scan, the X-ray showed positive findings in only 12 cases (75%).
Conclusions: The most common lung pattern in H1N1 was GGO and consolidation, with bilateral and multifocal involvement in the majority of cases showing peripheral tendency. X-ray missed about 25% of cases.

1. Introduction

The first two cases of the 2009 pandemic influenza A (H1N1) virus was diagnosed by the Centers for Disease Control and Prevention (CDC) in the United States, Which was newly discovered swine origin influenza A virus (S-OIV). Then it was identified in Mexico, Canada and elsewhere. This was followed by spread of H1N1 throughout the world [1]. And the World Health Organization (WHO) declared in July 2009 that H1N1 reached pandemic level [2].

However the decrease in number of patients infected by H1N1 after 2009, It was reported by many studies that the virus was circulating with other seasonal viruses [3]. In 2015 there was a resurgence of H1 N1 infection in Saudi Arabia.

The clinical presentations were variable (flu-like symptoms as fever, cough, sore throat, body aches, headache, chills, and fatigue) as well as nausea, vomiting, and/or diarrhea had been frequently reported [4]. Diagnostic imaging based on chest radiography and computed tomography (CT) was very useful in the study of disease because it allowed to assess the extent of lung parenchymal damage [5].

The purpose of this study was To describe and analyze the primary CT findings as well as the clinical presentation of confirmed cases of H1N1 pneumonia.

2. Patients and methods

This was retrospective study included 16 hospitalized patients, 8 female and 8 male with their age ranged from 10 months to 86 years. All the patients were confirmed to have H1N1 pneumonia at our hospital in Saudi Arabia from October 2015 to March 2016. Our work had ethical approval from the hospital ethical committee.

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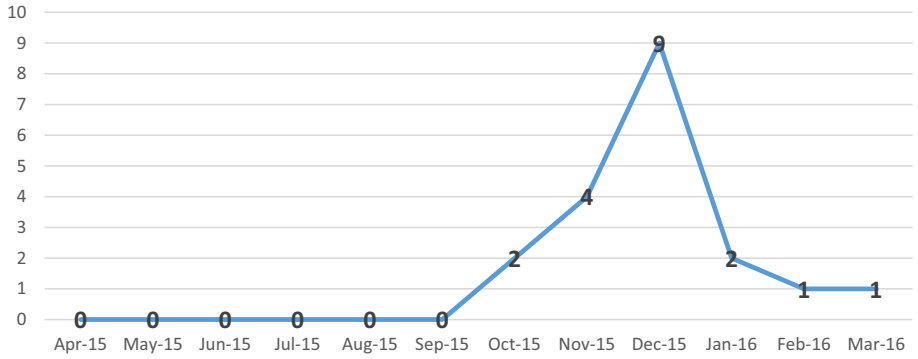

Fig. 1. Time distribution of the cases.

Table 1
Age distribution of H1N1 pneumonia patients.

Age group	Number of cases	Percentage of cases (%)
0–15	1	6
16–30	2	12.5
31–45	4	25
46–60	5	31
61–75	3	19
76–90	1	6
Total	16	100

The records of patients with confirmed H1N1 who presented with influenza like symptoms such as fever >38C, headache, running nose, cough, sore throat, breathlessness, hemoptysis, myalgia, diarrhea and vomiting were reviewed.

Nasal and pharyngeal swabs from suspected cases were tested for H1N1 by RT PCR (Roche, Germany) at the Ministry of health regional laboratory in the eastern province, Saudi Arabia. Nasal swabs were tested for influenza antigen at our hospital using rapid immunofluorescence technique.

A confirmed patient with H1N1pneumonia was considered if the patient had influenza-like symptoms and the respiratory sample positive for H1N1 influenza A virus by RT-PCR.

During the study period, the clinical profile of our patients were analyzed with reference to sex, age, and time distribution, clinical presentation, risk factors, possible complications and laboratory findings.

Chest X-ray and CT were done to all cases to identify new pulmonary infiltrates.

2.1. Radiographic evaluation

All the CT chest were done using 128 multislice CT machine (SOMATOM Perspective, SIEMENS Technology). 14 patients did non-contrast CT chest, only two patients did contrast study for the suspicion of pulmonary embolism. All the CT examinations were done within 2 days of patient admission. Two patients only did follow up CT during their period of admission. All the patients did X-ray examination (PA view) at time of admission with different number of follow up X-rays during the period of admission.

2.2. CT chest protocol

2.2.1. Adult patients

CT chest was done with the following parameters kV 130, M.A 80, FOV 395 & slice thickness 5 mm for mediastinum window, followed by reconstruction for lung window with slice thickness 3 mm. Scan time was 4.7 s.

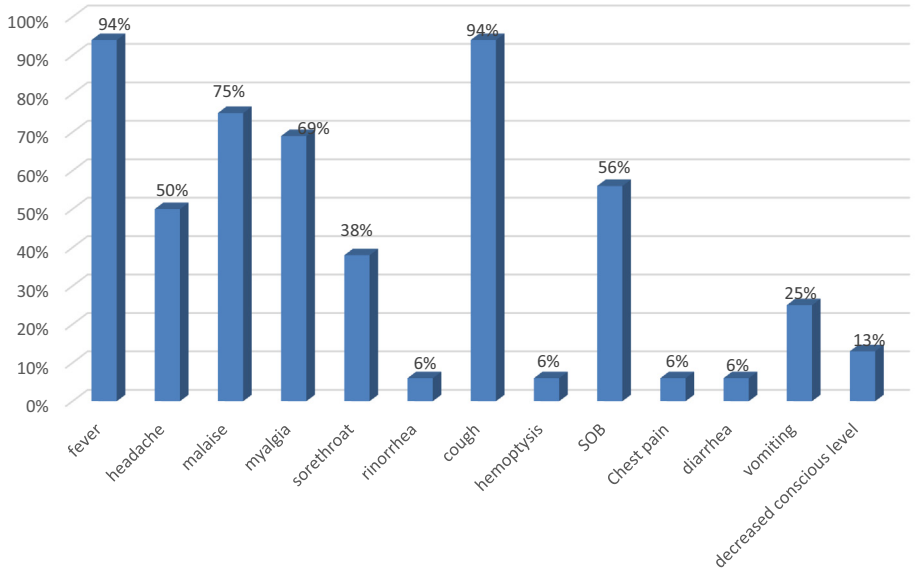

Fig. 2. Clinical presentation of the studied patients.