Case Report รายงานผู้ป่วย

ความผิดปกติของภาพถ่ายรังสีทรวงอก (Chest X-ray) ของผู้ป่วยติดเชื้อ Covid-19 ในโรงพยาบาลนครพิงค์

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บทคัดย่อ

โรคติดเชื้อไวรัสโคโรนา (COVID-19) มีการรายงานครั้งแรกในประเทศจีน เมื่อวันที่ 30 เมยายน 2653 มีการยืนยันผู้ติดเชื้อไวรัสโคโรนา COVID-19 ทั่วโลกมากกว่า 3ล้าน 5แสนคนและมีการระบาดของ COVID-19 ไปใน 185 ประเทศทั่วโลก จำนวนยืนยันผู้ติดเชื้อ COVID-19 ที่รับรักษาไว้ในโรงพยาบาลนครพิงค์จำนวน 16 ราย

วัตถุประสงค์: เพื่อศึกษาลักษณะความผิดปกติของภาพถ่ายรังสีทรวงอก (Chest X-ray) ของคนไข้ติดเชื้อ Covid-19 ในโรงพยาบาลนครพิงค์

รูปแบบการศึกษา: Descriptive study เก็บข้อมูลภาพถ่ายทางรังสีทรวงอก (Chest X-ray) ของผู้ป่วยติดเชื่อไวรัส Covid-19 ยืนยันผลด้วยวิธี Real-time polymerase chain reaction (RT-PCR)

ผลการศึกษา: จำนวนผู้ป่วยที่ติดเชื้อ COVID-19 จำนวน 16 ราย มีความผิดปกติของภาพถ่ายทางรังสีทรวงอกจำนวน 8 ราย อีก 8ราย ไม่พบความผิดปกติขณะรักษาตัวในโรงพยาบาล ลักษณะความผิดปกติทางรังสีที่พบได้แก่ชนิดหนาทึบที่ปอดข้าง (bilateral consolidation), ความผิดปกติชนิดเห็นเป็นปื้นๆ หรือร่างแห ขอบเขตไม่ชัดเจน กระจายในปอดทั้ง 2 ข้าง (patchy, reticular and ground-glass opacity) ร่วมกับมีน้ำให้ช่องเยื่อหุ้มปอด (pleural effusion)

คำสำคัญ: COVID-19, Chest X-ray

Abstract: CHEST X-RAY OF COVID-19 INFECTION IN NAKORNPING HOSPITAL

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COVID-19, previously known as novel coronavirus 2019-nCoV, first reported in China. On 30 April 2020, the number of cases of confirmed COVID-19 globally is over 3.5 million cases. COVID-19 has now been diagnosed in 185 territories. There are 16 confirmed cases of COVID-19 infection admission in Nakornping hospital.

Purpose: To describe chest radiograph (CXR) features of 16 confirmed cases of COVID-19 infection in Nakornping hospital

Materials and Methods: Descriptive study of chest radiograph (CXR) findings of 16 Patients with COVID-19 infections admitted in Nakornping hospital during 13 March-8 April 2020.

Results: There are 8 of the 16 patients (50%) had parenchymal abnormalities detected by chest radiography. Chest radiograph abnormality included patchy opacity in RLL, bilateral reticular and ground-glass opacities, bilateral consolidation and pleural effusion

Conclusion: Half of confirmed COVID-19 cases had abnormal chest radiograph. The evidences of lobar pneumonia, bilateral lung consolidations, ARDS and pleural effusion were found in this case series.

Keywords: COVID-19, Chest X-ray

INTRODUCTION

COVID-19, previously known as novel coronavirus 2019-nCoV, first reported in China[1] which is spreading worldwide and labeled as new pandemic disease. On 30 April 2020, the number of cases of confirmed COVID-19 globally is over 3.5 million cases. COVID-19 has now been diagnosed in 185 territories.

Real-time polymerase chain reaction (RT-PCR) is the current standard diagnostic method to detect viral nucleotides from specimens obtained by nasopharyngeal swab, oropharyngeal swab, bronchoalveolar lavage, or tracheal aspirate[2,3].

Portable chest radiography (CXR) is the most commonly utilized modality for identification and follow up of lung abnormalities.

The purpose of this study is to describe the most common manifestations and patterns of lung abnormality on CXR in patient with COVID-19 infection.

Material and methods

All patients with confirmed COVID-19 infection by RT-PCR test, admitted to Nakornping hospital during 13 March to 8 April 2020 were included. Standard digital portable chest radiograph technique was done; SIEMENS POLYMOBIL Plus®, 250 mAs 125 kV. Radiographic findings and records were interpreted by authorized radiologists. The final findings had an agreement between at least two radiologists.

Results

There were 16 confirmed cases of COVID-19 infection in Nakornping hospital. Patients' age range were 22-66 years old, 56% were men. Eight cases (50%) showed normal chest radiograph. These patients had age range: 23-65 years old and 63% were men.

Eight (50%) out of 16 total confirmed cases had abnormal chest radiograph. Of these patients, age range were 22-66 years old and 50% were men. Radiographic findings were 5 cases of patchy or alveolar opacity in right lower lung field(RLL) on admission (62.5%), 1 case of bilateral lung consolidations and pleural effusion (12.5%) whose CXR later progress to a finding of an adult respiratory distress syndrome(ARDS), 2 cases of bilateral reticular and ground-glass opacity predominant in lower lung field(25%).

The most frequent findings are airspace opacities, whether described as consolidation or, less commonly, ground glass opacity (GGO) . The distribution is most often bilateral, peripheral, and lower zone. ARDS and pleural effusion were seen on severe case.

Figure 1.1-1.4 were the series of CXR of a 65-year-old woman admitted with fever and dyspnea with history of contact to confirmed COVID-19 people. She was diagnosed COVID-19 by RT_PCR.

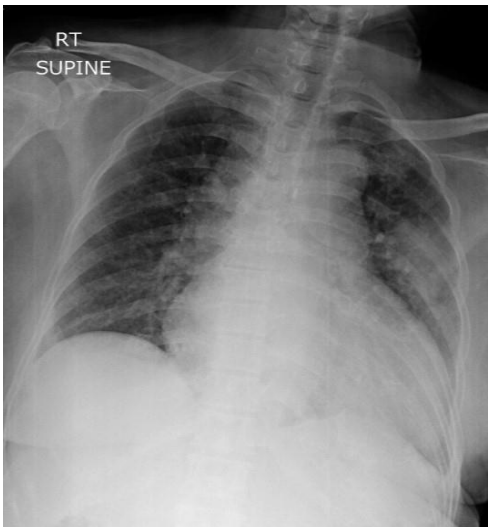

Fig. 1.1 Day 1

Fig. 1.2 Day 3

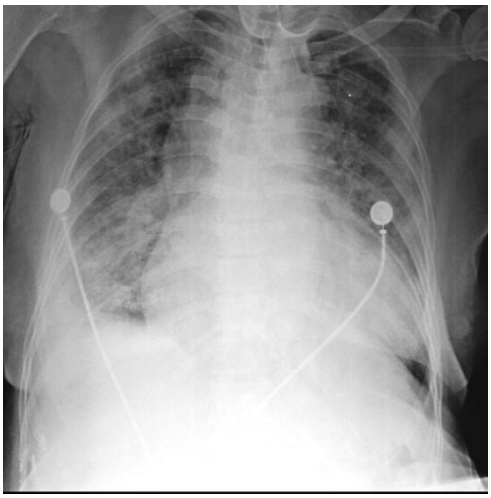

Fig. 1.3 Day 7

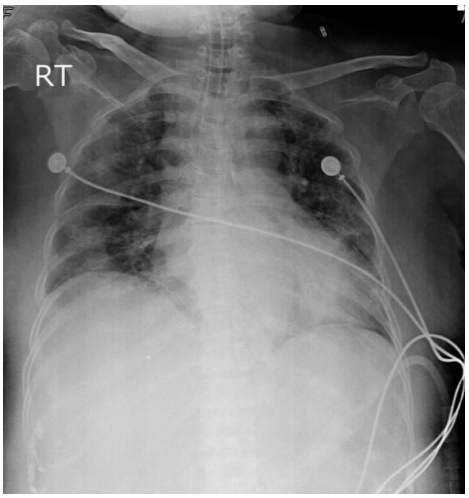

Fig. 1.4 Day 14

Imaging findings: At admission, day 1 (fig. 1.1): an alveolar consolidation left middle lung field, day 2 (fig.1.2): bilateral alveolar consolildations in middle lung fields, day 3 (fig. 1.3): radiological worsening with affectation of lower lobes with right pleural effusion and day 4 (fig.1.4): progression of consolidation in both lungs with endotracheal tube with ARDS finding. This patient was death on day 14.

The following radiographic images were findings of 4 confirmed COVID-19 cases as fig. 2-fig. fig.5.

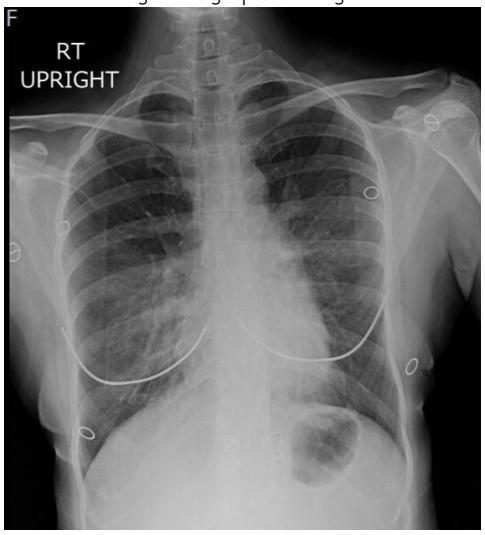

Fig. 2 CXR of a 65-year-old woman

Fig. 2: Chest film of a 65-year-old woman admitted with fever and dyspnea: Chest xray showed patchy opacity in RLL.

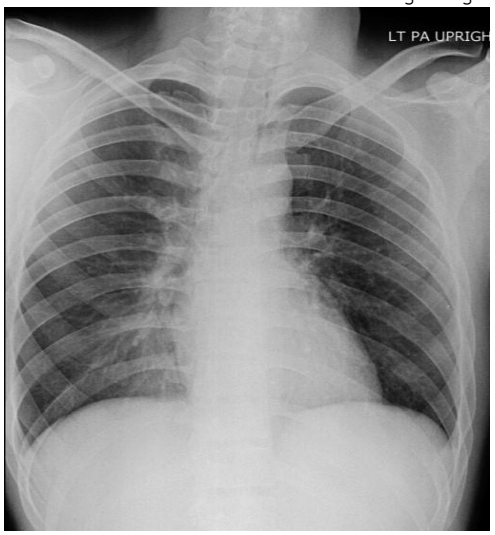

Fig. 3 CXR of a 23-year-old man

Fig. 3: Chest film of a 23-year-old man: Alveolar infiltration in right lower medial lung

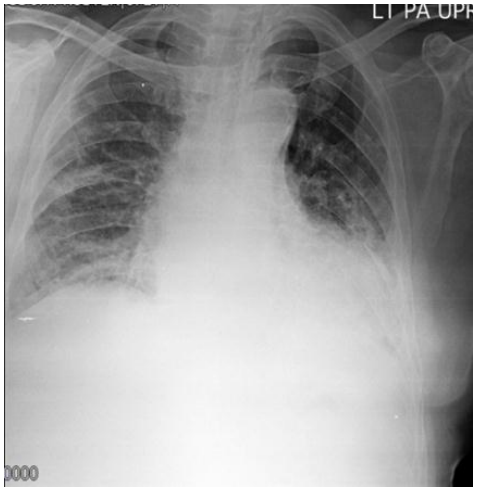

Fig.4 CXR of a 72-year old man

Fig. 4: CXR of a 72-year old man: Diffuse reticular infiltration in both lungs and haziness in both lower lung fields

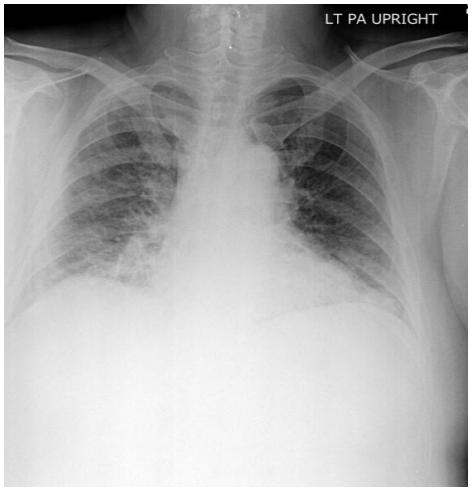

Fig.5 CXR of a 52- year old man

Fig: 5: CXR of a 52- year old man: Bilateral reticular and ground-glass opacity in both lungs

Conclusions

Chest radiographic findings of COVID-19 infection in Nakornping hospital. 50% of cases had normal CXR and 50 % of cases had abnormal CXR. Abnormal CXR demonstrated pattern of lobar pneumonia, bilateral lung consolidations, ARDS and pleural effusion. The most frequent findings were airspace opacities, whether described as consolidation or, less commonly, GGO. The distribution is most often bilateral, peripheral, and lower zone. ARDS and pleural effusion were seen on severe case.

Reference:

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