Prepared by Drs. Anil T. Ahuja & Jeffrey K. T. Wong
Maintained by Drs. James F. Griffith & Gregory E. Antonio.

This webpage was first set up on the 21st March, 2003.

13th July 2004

A message to our visitors

A year has passed since the end of the SARS outbreak in Hong Kong and it appears that we (the world community in general) have been spared of a massive recurrence of this infection this year. Nonetheless, research on this disease is on-going and we would like to congratulate all who have contributed to furthering our knowledge of this disease.

The convalescent period of this disease has not been uneventful. Complications of the disease such as Lung fibrosis resulting in limitations to respiratory function, post-traumatic stress disorder like psychological trauma, side-effects of corticosteroid therapy (adrenal insufficiency and osteonecrosis) continue to surface. We have included some of the relevant images and references with this update.

With the help of many co-workers from Hong Kong and other countries, we are pleased to announce that we have compiled a book documenting our collective knowledge and experience on SARS. This book is titled "Imaging in SARS", published by Cambridge University Press (http://www.cambridge.org/uk/catalogue/catalogue.asp?isbn=1841102199). Despite its title, this book contains extensive information on the epidemiology, clinical diagnosis and treatment, emergency medicine, intensive care medicine and infection control related to SARS.

On another front, a different viral infection has re-surfaced this past winter, the Avian Influenza. We have created a webpage similar to this SARS webpage for sharing images of that infection with all. The address of the Avian Influenza webpage is: http://www.diir.cuhk.edu.hk/web/specials/avian_flu/avian_flu.htm

If you come across something interesting in your management of SARS or Avian Influenza patients and would like to share this with the rest of the medical community, we would be more than happy to post it on our website. Acknowledgement and copyright will obviously be granted to the contributor and institution.

Again we like to thank our support staff for the great work they have done and the personal sacrifices they have made to get both webpages up and running. We would also like to thank the numerous visitors who have given us very valuable feed back to help us improve our website.

With our sincere thanks,
The Department of Imaging and Interventional Radiology, The Chinese University of Hong Kong.

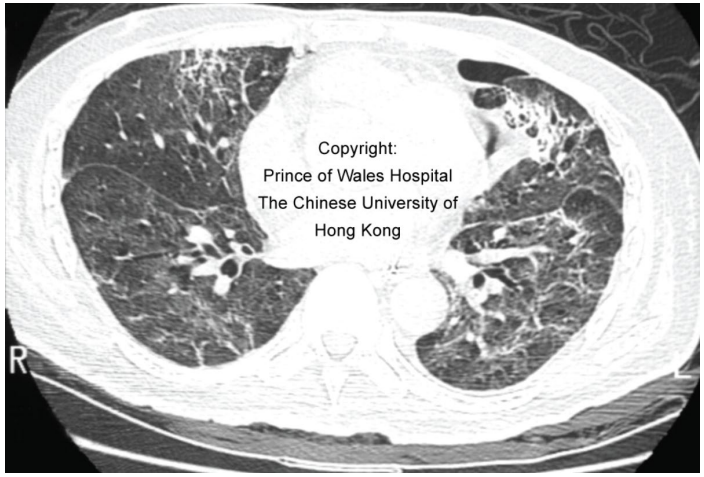
INTRODUCTION

The beginning of 2004 saw the confirmation of the first community acquired case of SARS since the end of the 2003 epidemic. We now know much more about this novo disease and the United States Centers of Disease Control and prevention has issued an updated case definition in December 2003. Radiology continues to be an integral part of the diagnosis and management of patients with SARS.

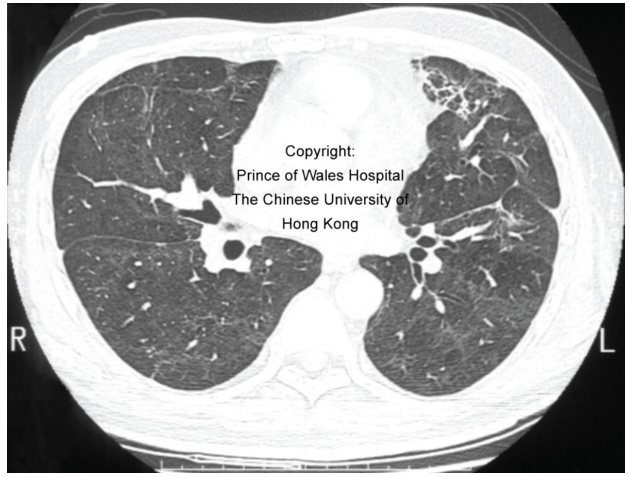
The following are the radiological and CT features of this disease based on our experience (336 patients imaged during after the epidemic) at the Department of Imaging and Interventional Radiology, The Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong.

These are presented here to facilitate early diagnosis and management should it be encountered in other centres.

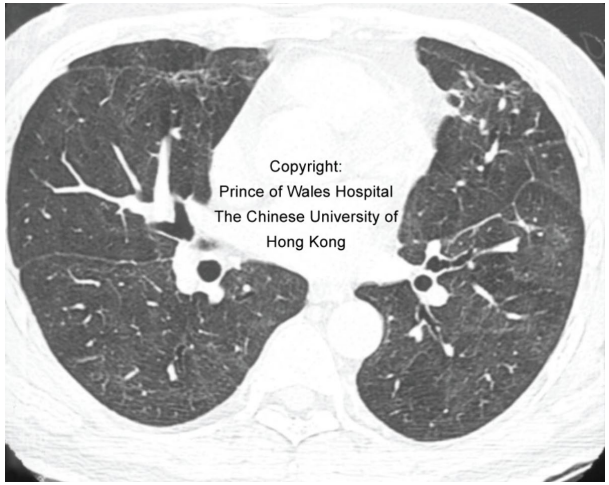
INTRODUCTION



9 May 2003



9 July 2003



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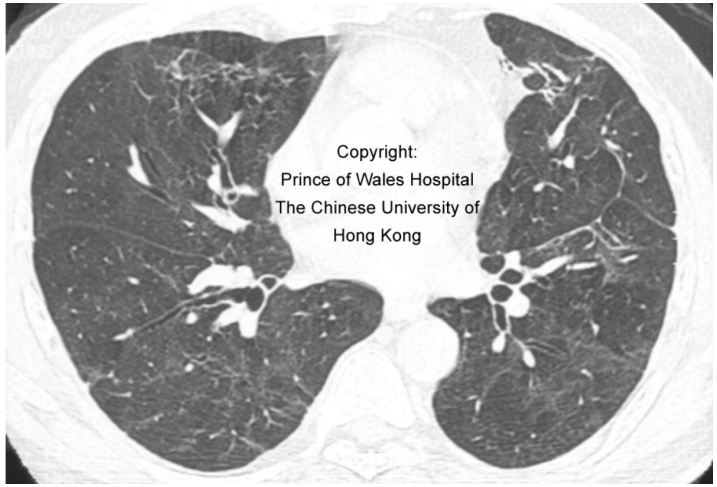
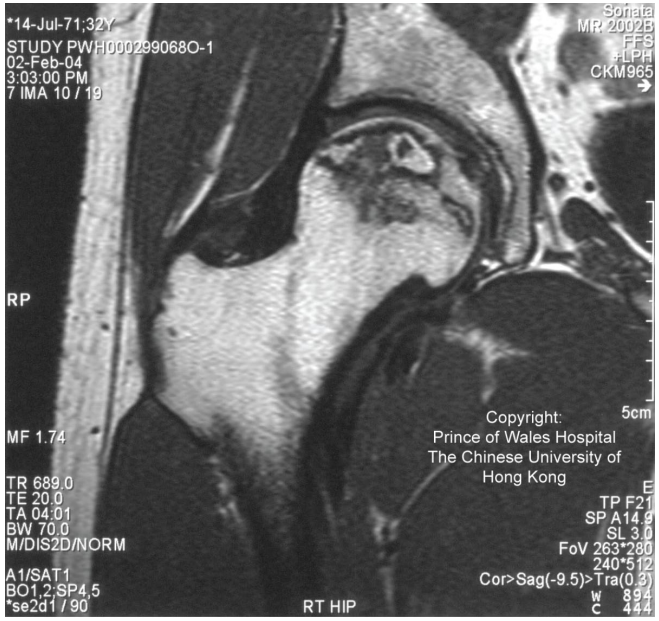


2 October 2003

Patient One

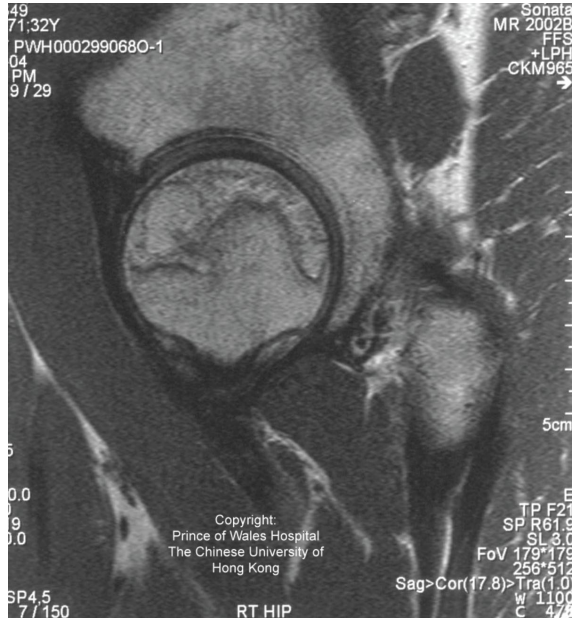
55 year old male admitted on 17th March 2003 with SARS Co-V infection.Serial follow up HRCT of the same level demonstrate evolution of lesions. There is significant clearing of most changes on 3rd and 6th month follow-up. Some residual abnormalities may represent fibrosis.

INTRODUCTION



(a) T1W coronal

(b) T2W fat-saturated coronal



(c) PD sagittal

Patient Two

32 year old male previous treated for SARS Co-V infection. MRI of the right hip shows abnormal subchondral areas bound by geographic borders in the femoral head: (a) T1W coronal (b) T2W fat-saturated coronal (c) PD sagittal. The appearances are consistent with avascular necrosis.

ACUTE IMAGING FINDINGS IN SARS

Radiographs:

In the early stage of the disease, a peripheral / pleural-based opacity may be the only abnormality. This may range from ground-glass to consolidation in appearance. A particular area to review is the paraspinal region behind the heart. In our experience, this is frequently where lung lesions are detected on HRCT in suspected SARS patients with normal radiographs.

In the more advanced cases, there is widespread opacification which may be ground-glass or consolidative affecting large areas. This tends to affect the lower zones first and is not uncommonly bilateral. Calcification, cavitation, pleural effusion or lymphadenopathy are not features of this disease.

HRCT:

Solitary or multiple patchy area(s) of

1. Ground-glass opacification with or without thickening of the intra-lobular interstitium or interlobular interstitium.

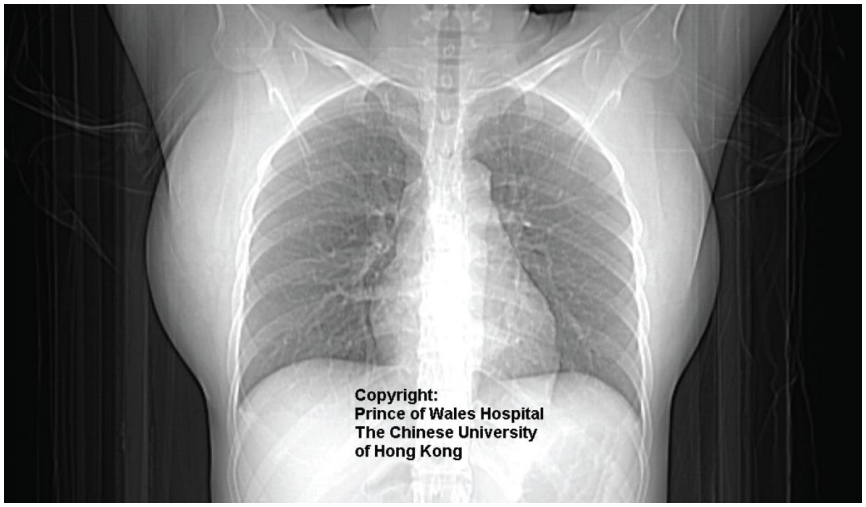
2. Consolidation

3. A combination of 1 & 2

These tend to occupy a sub-pleural position rather than axial. Again, calcification, cavitation, pleural effusion or lymphadenopathy are not features of this disease

CXR WITH CORRESPONDING HRCT

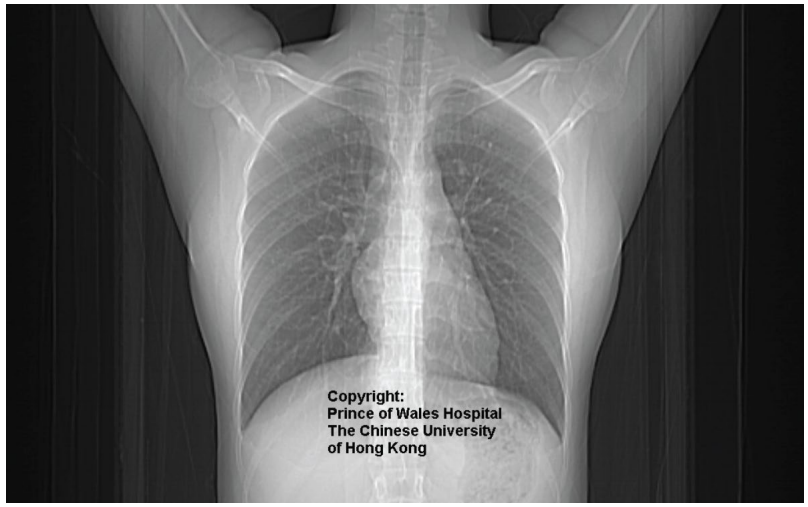
Patient Three
24 year old symptomatic female. Frontal view shows vague paraspinal opacity in the left lower zone



Frontal view shows vague paraspinal oacity in the left lower zone

Frontal view shows vague paraspinal oacity in the left lower zone

Patient Four
9 year old symptomatic female with normal radiographic appearance



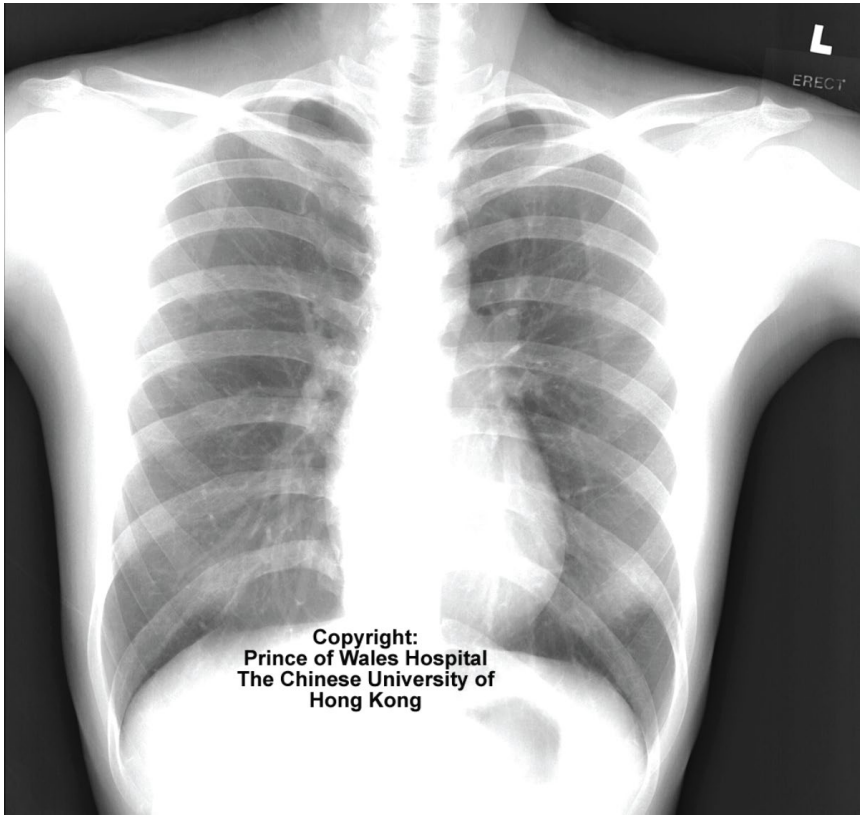
Normal appearance

Normal appearance (Lateral View)

Prepared on behalf of Faculty of Medicine, CUHK, PWH

CXR WITH CORRESPONDING HRCT

Patient One
27 year old symptomatic female with subtle left lower zone opacity



PROGRESS CXR

Case 1

A 31-year-old health-care worker presented with 2-day history of fever, chills and myalgia.

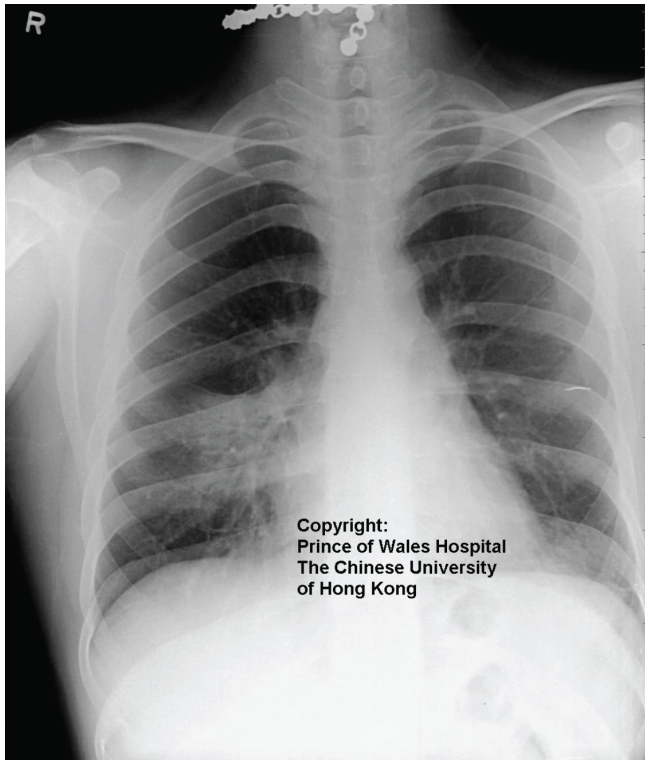


Figure 1
- CXR at the time of diagnosis showed ill-defined air space opacification in right lower zone

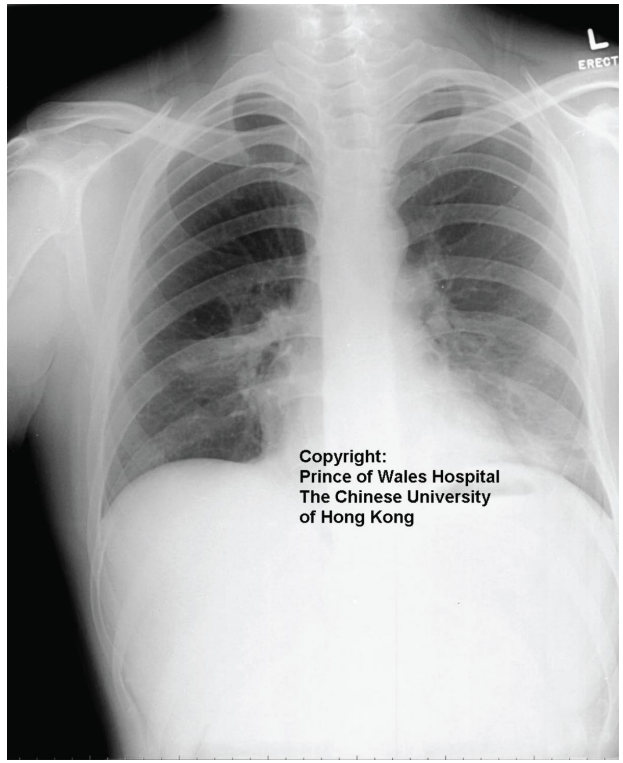


Figure 2
- CXR after 3 days showed partial resoulation of consolidatve changes in right lower zone. There is a new finding of ill-defined air space opacification in left lower zone

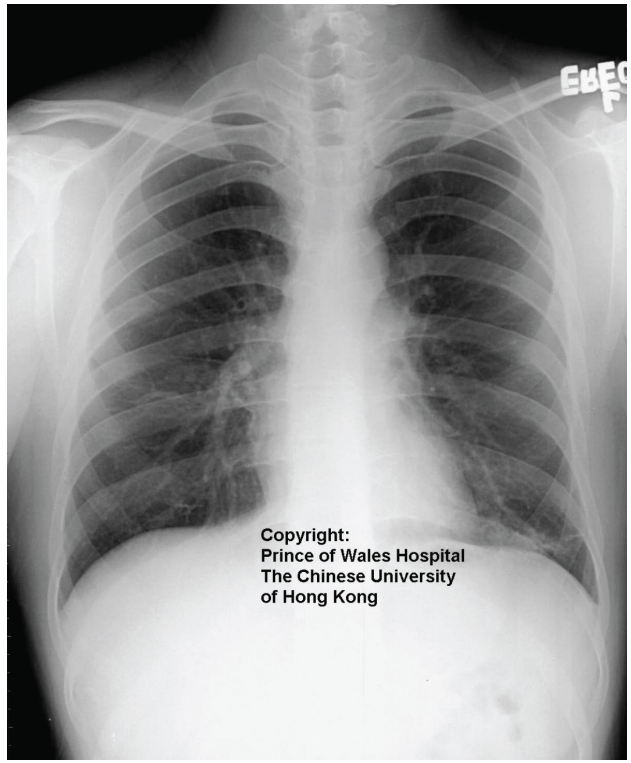


Figure 3
- CXR after another 4 days showed progressive resolution of the changes in both lower zones

PROGRESS CXR

Case 2
A 34-year-old presented with 3-day history of fever, chills and malaise.

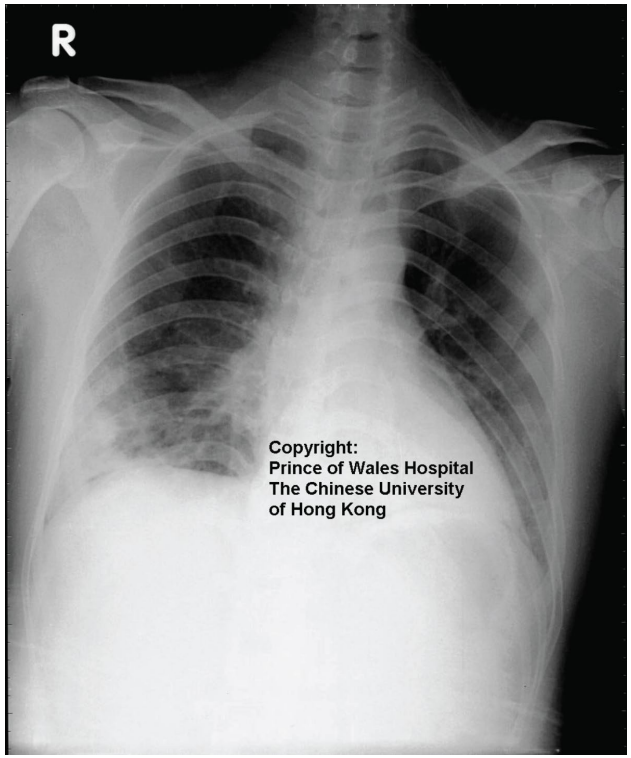


Figure 1
- CXR (7 days after admission) showed ill-defined air space opacification in periphery of right lower zone

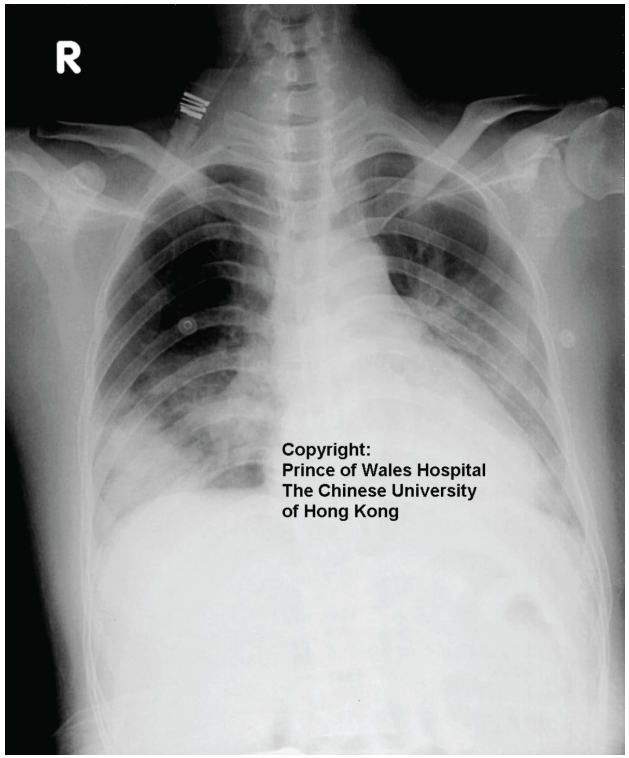


Figure 2
- CXR (2 days later) showed progression of air space opacification in right lower zone and a new finding of similar changes in left mid and lower zones after initial treatment

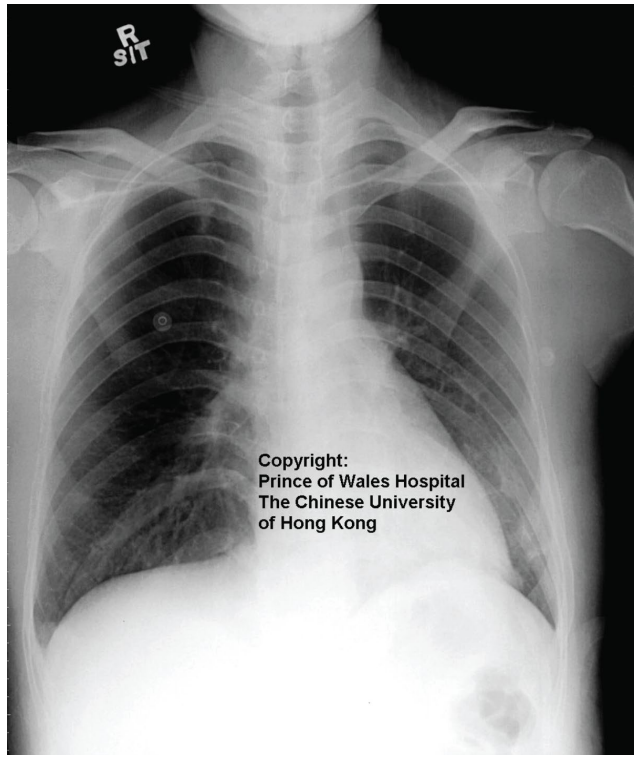


Figure 3
- CXR (after another 4 days) showed marked resolution of the consolidative changes in both lungs after treatment

PROGRESS CXR

Case 3

A 34-year-old health care worker presented with fever, chills and myalgia for 2 days.

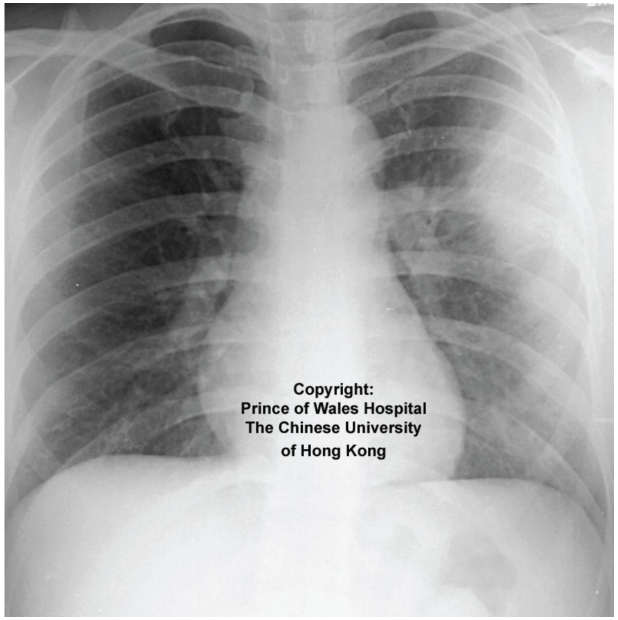


Figure 1
- CXR showed ill-defined air-space opacity in periphery of left upper and mid zones

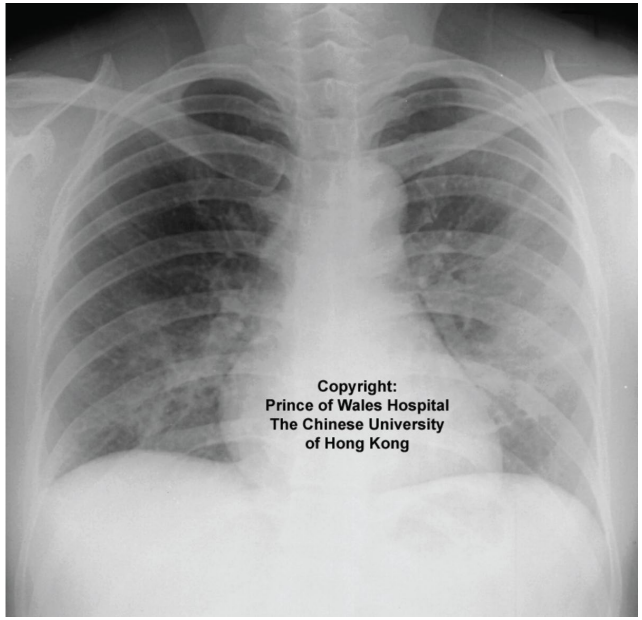


Figure 2
- CXR (after 5 days) showed progressive air-space opacities in both lungs

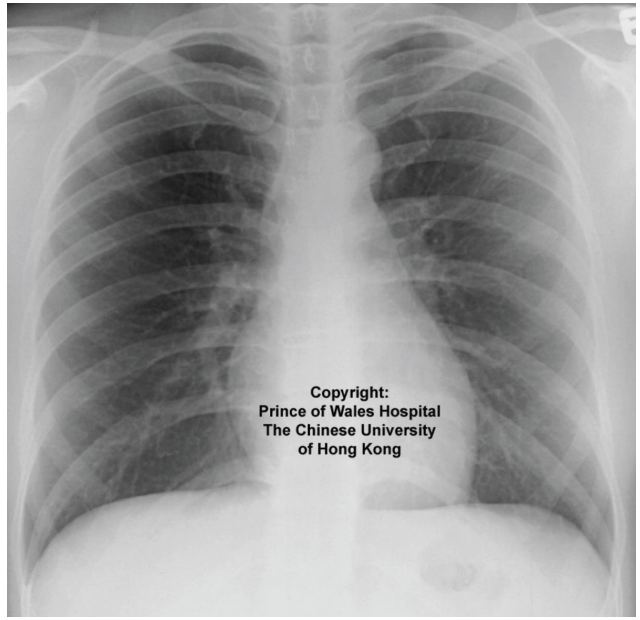
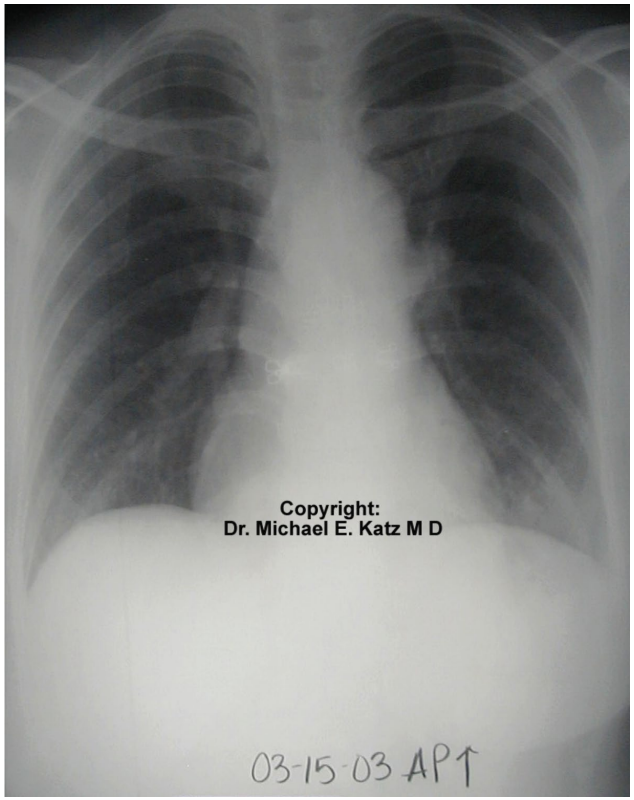


Figure 3
- CXR (after another 7 days) showed resolution of radiographic changes after successful treatment

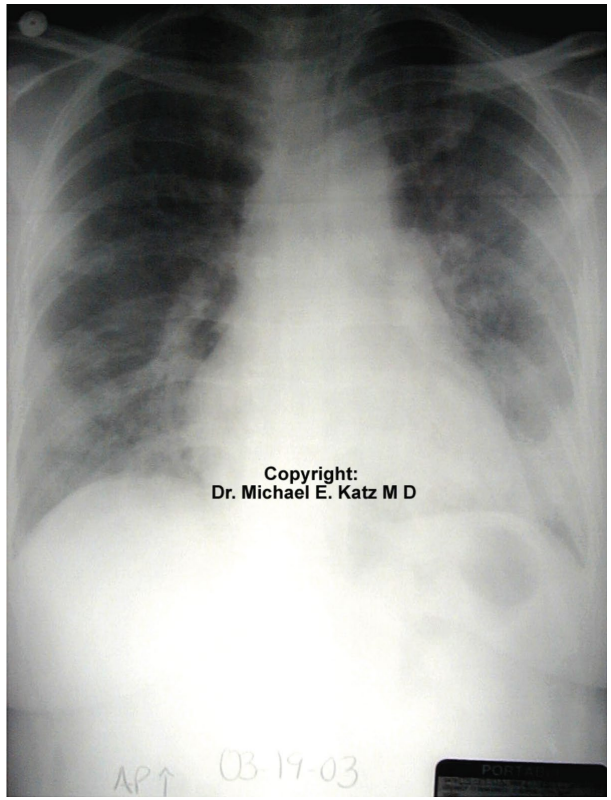
IMAGES FROM OTHER CENTERS

Boca Raton, Florida, USA
Courtesy of Dr. Michael E. Katz M D

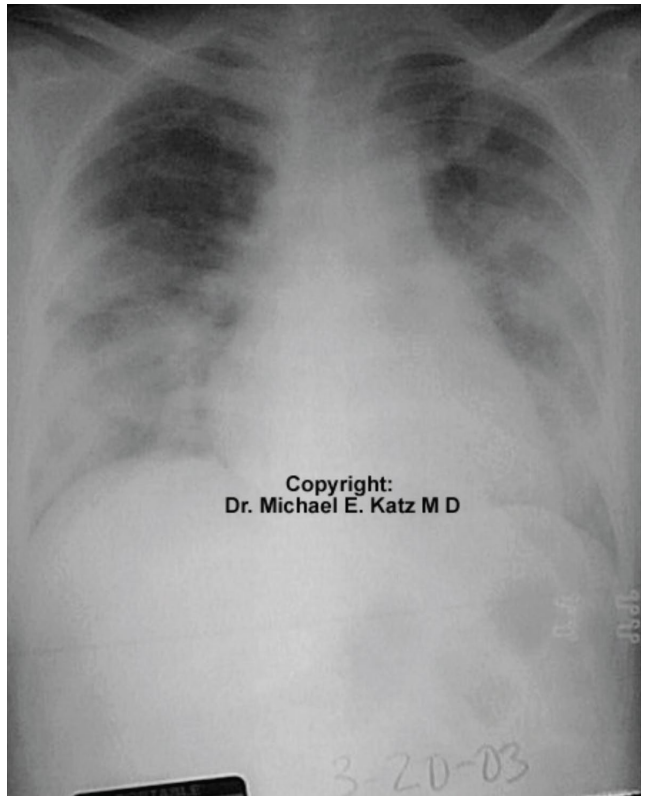
52-year-old symptomatic female from Virginia



15 MARCH 2003
(On presentation to A&E)



19 MARCH 2003

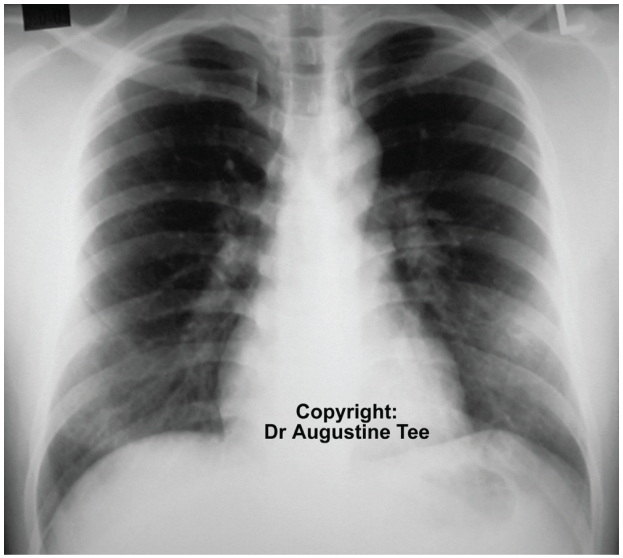


20 MARCH 2003

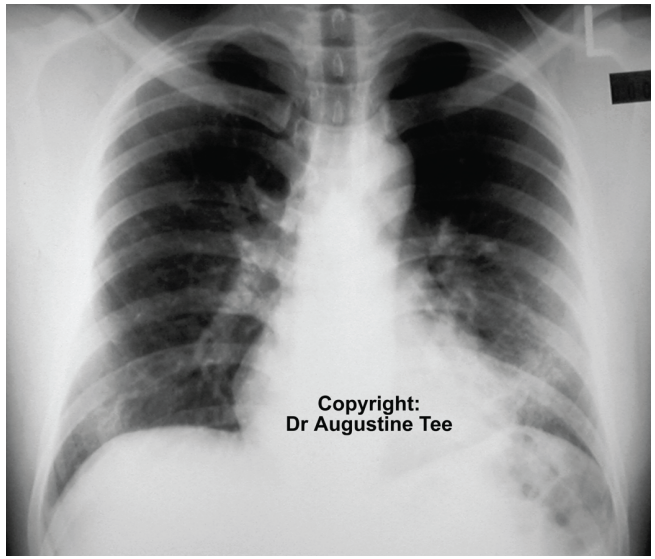
IMAGES FROM OTHER CENTERS

Changi General Hospital, Singapore
Courtesy of Dr Augustine Tee

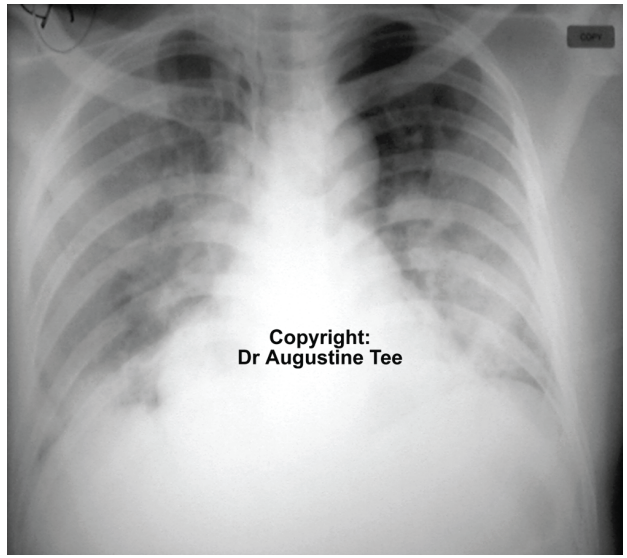
24-year-old Filipino nursing aid from nursing home with one week history of fever, dry cough and myalgia.



Day 1
- CXR showed subtle left lower zone airspace infiltrates.



Day 5
- CXR showed left lower zone consolidation became more obvious.

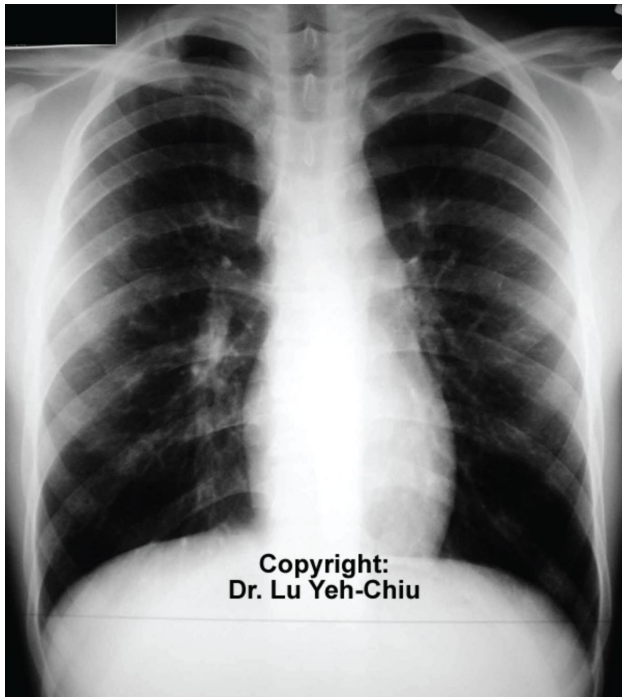


Day 7
- Patient became hypoxic & required subsequent intubation. CXR showed bilateral widespread airspace infiltrates.

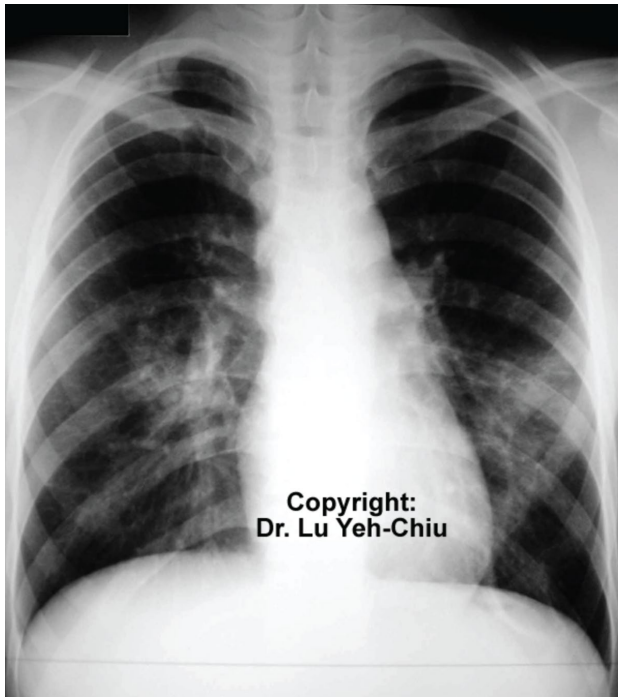
IMAGES FROM OTHER CENTERS

Li Shin Hospital, Taiwan
Courtesy of Dr Lu Yeh-Chiu

16 years old male c/o swinging but persisted fever above 38 degree Celius for a few days with dry cough CXR taken on the 10th day in our OPD department. No fever at that time.



CXR PA : bronchitis ?



Repeated CXR PA another 10 days later.

Repeated CXR PA on the 20th day.

IMAGE GALLERY

CHEST RADIOGRAPHS

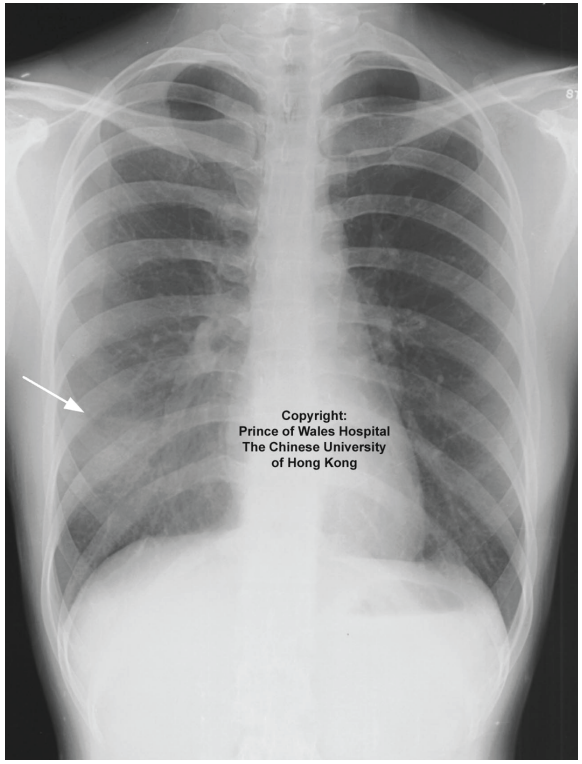


Fig 1: (day 3 after onset of symptoms)

Ill-defined air-space opacification
in right lower zone

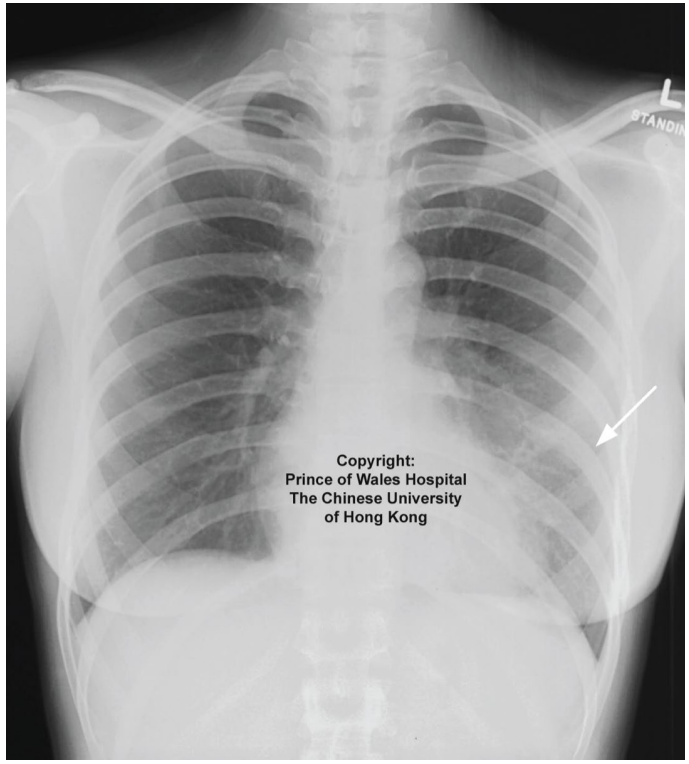


Fig 2: (day 4 after onset of symptoms)

Confluent air-space opacification
in left lower zone

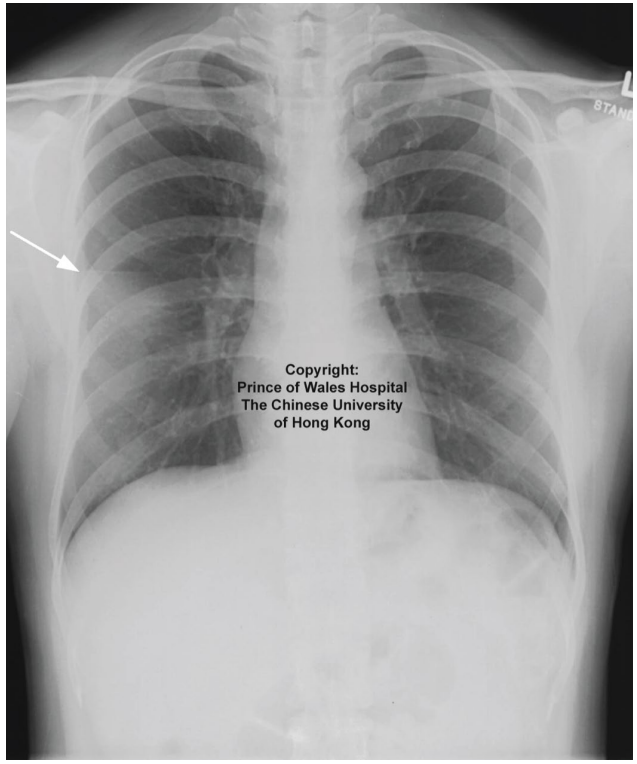


Fig 3: (day 5 after onset of symptoms)

Air-space opacification in the periphery of
middle lobe abutting the superior aspect
of the horizontal fissure

IMAGE GALLERY

CHEST RADIOGRAPHS

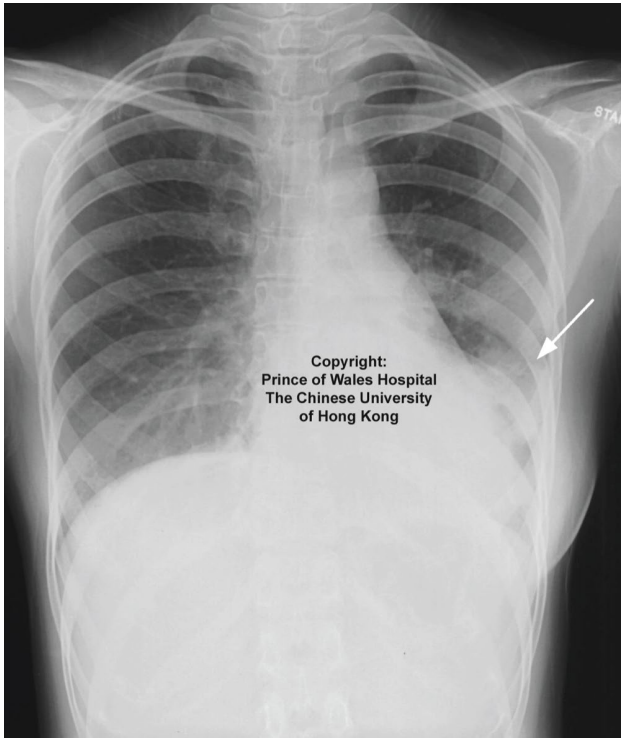


Fig 4: (day 3 after onset of symptoms)

Ill-defined opacity in left lower zone

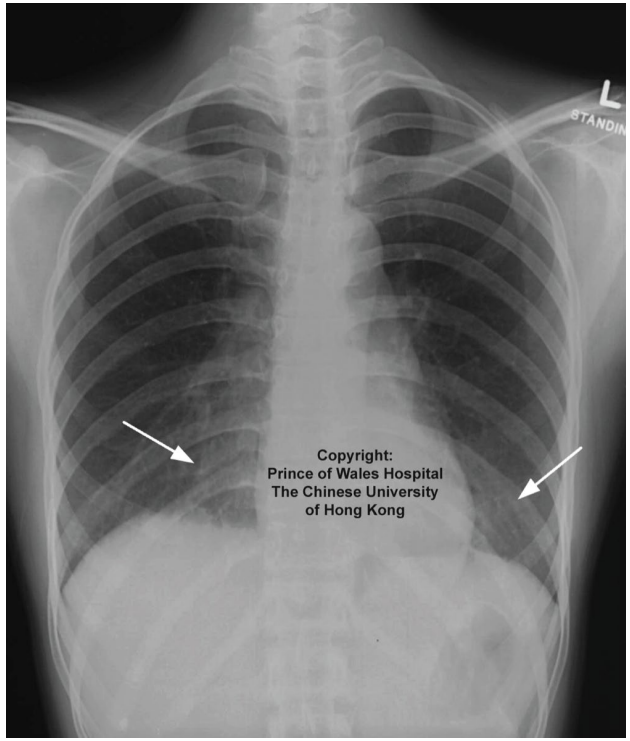


Fig 5: (day 4 after onset of symptoms)

Bilateral lower zones air-space opacities
in para-cardiac areas

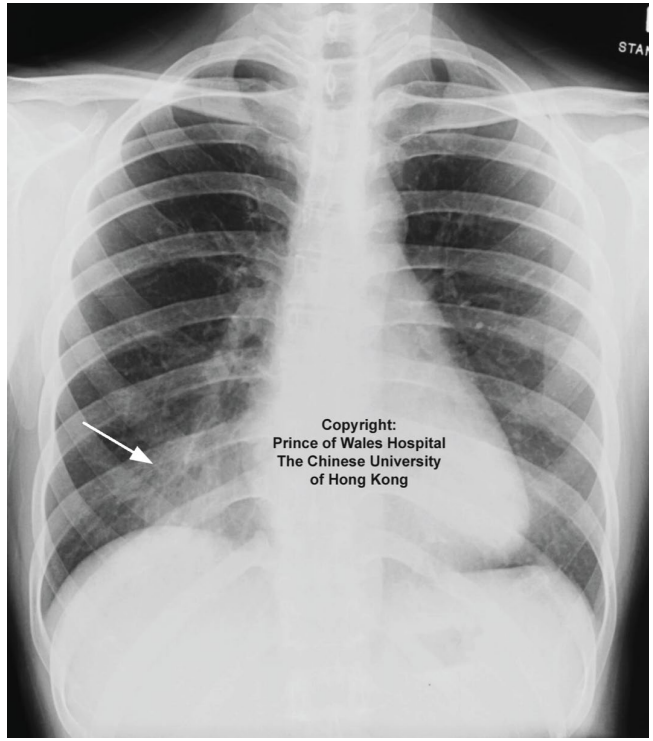


Fig 6: (day 2 after onset of symptoms)

Middle lobe air-space opacity obscuring
part of right heart border

IMAGE GALLERY

CHEST RADIOGRAPHS

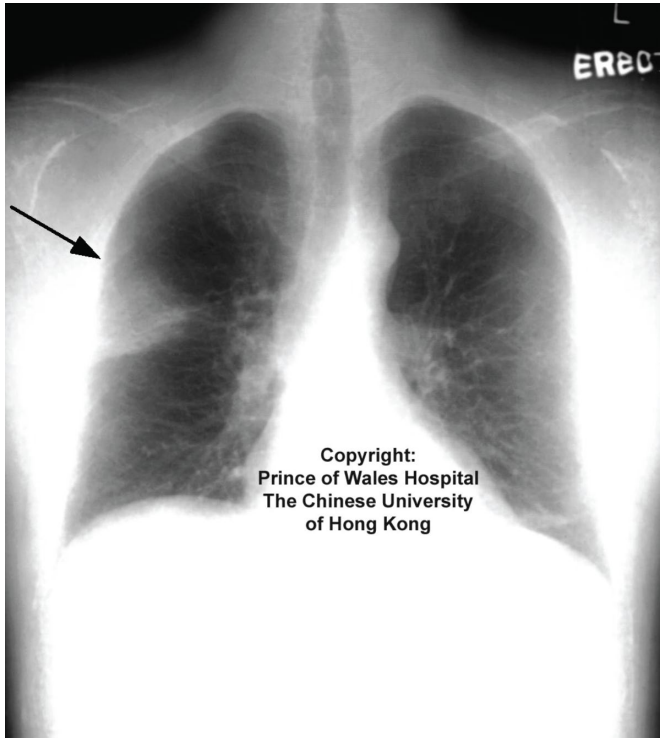


Fig 7: (day 4 after onset of symptoms)

Peripheral segmental air-space opacification in right upper lobe

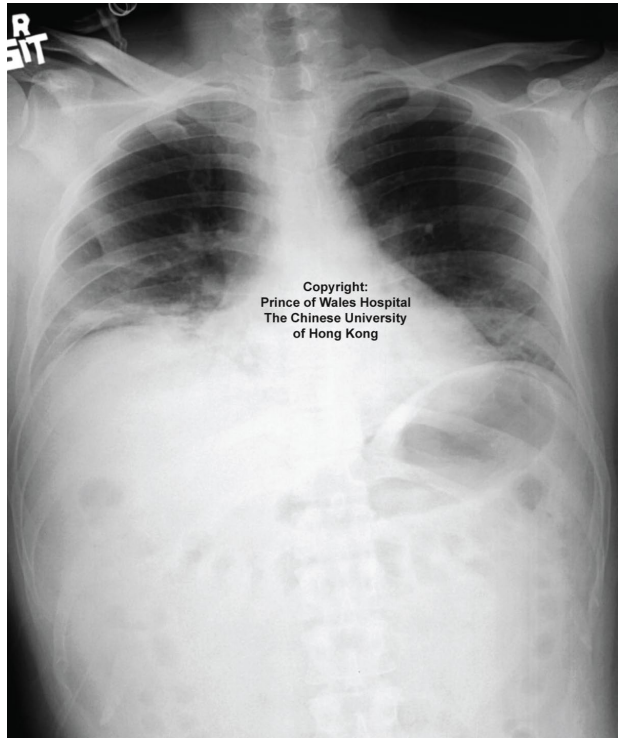


Fig 8: (day 5 after onset of symptoms)

Patchy peripheral opacities involving both lower lobes

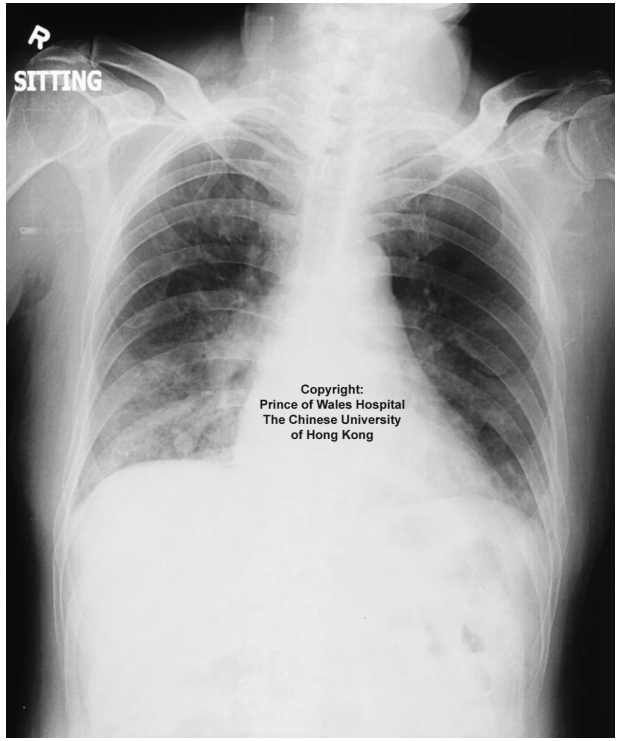


Fig 9: (day 6 after onset of symptoms)

Multi-focal ill-defined air-space opacities in both lower and right upper zones

IMAGE GALLERY

CHEST RADIOGRAPHS

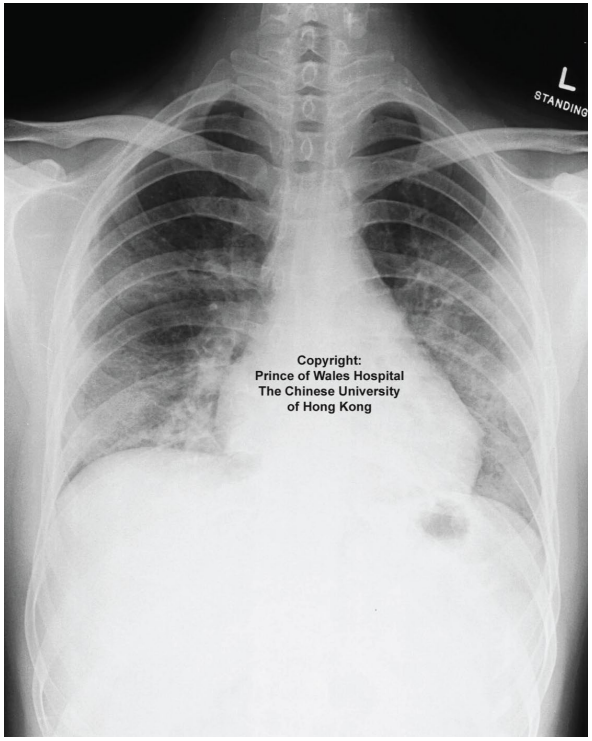


Fig 10: (day 5 after onset of symptoms)

Patchy air-space opacification in both mid and lower zones

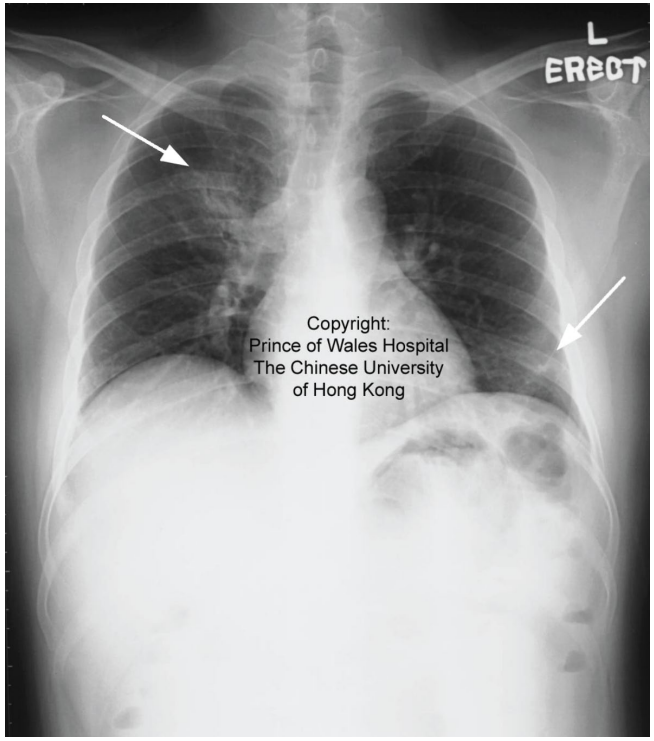


Fig 11: (day 4 after onset of symptoms)

Peripheral patchy opacification in right upper and left lower zones

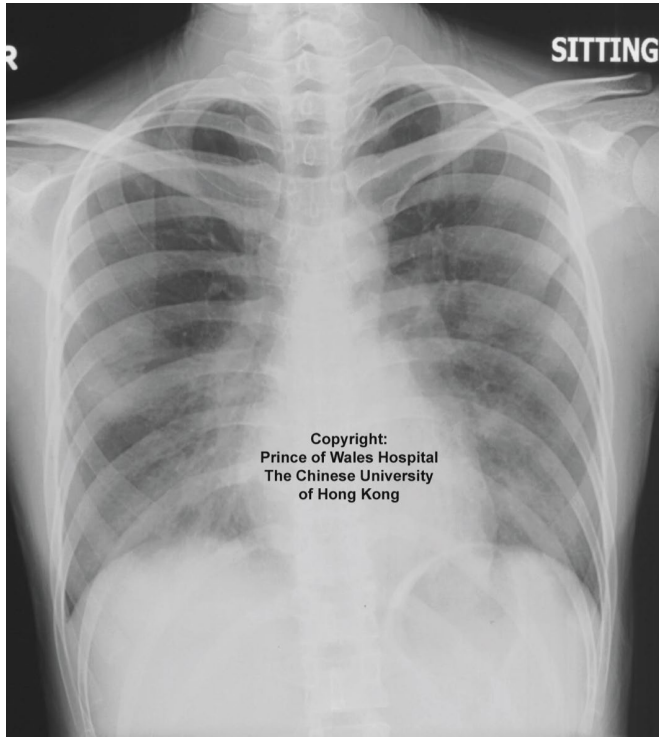


Fig 12: (day 7 after onset of symptoms)

Multi-focal diffuse air-space opacities in both lungs

IMAGE GALLERY

CHEST RADIOGRAPHS

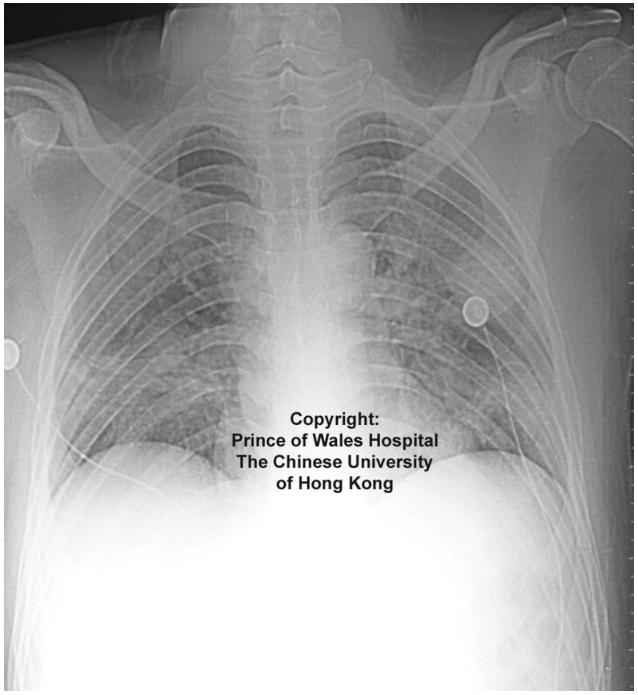


Fig 13: (day 5 after onset of symptoms)

Multi-focal confluent areas of
air-space opacities in both lungs

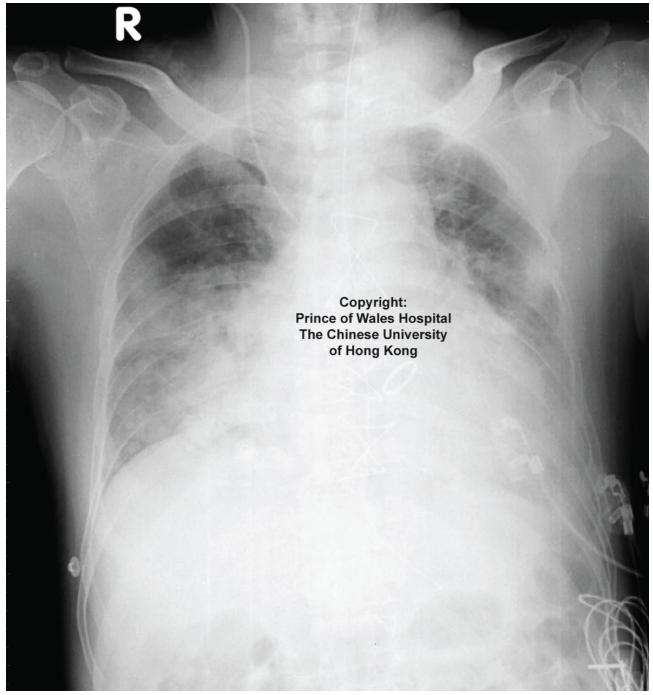
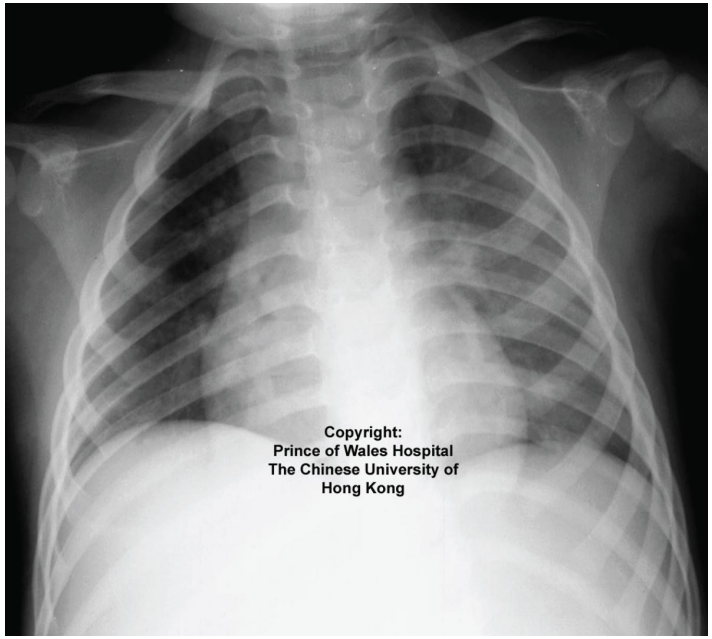


Fig 14: (day 6 after onset of symptoms)

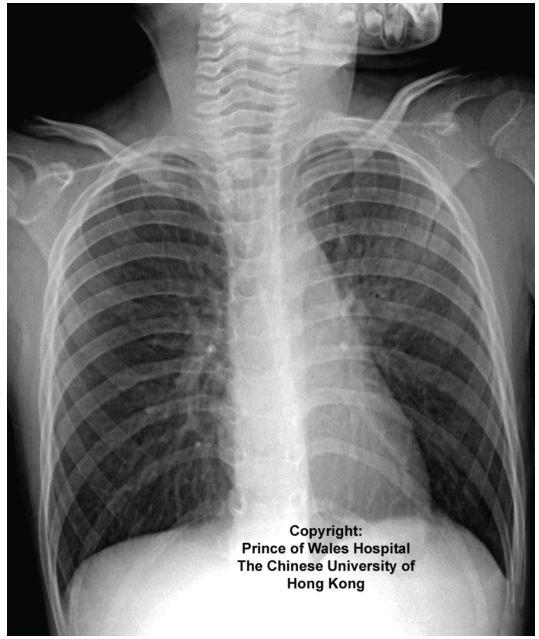
Diffuse and widespread consolidative changes
in both lungs (patient is intubated)

IMAGE GALLERY

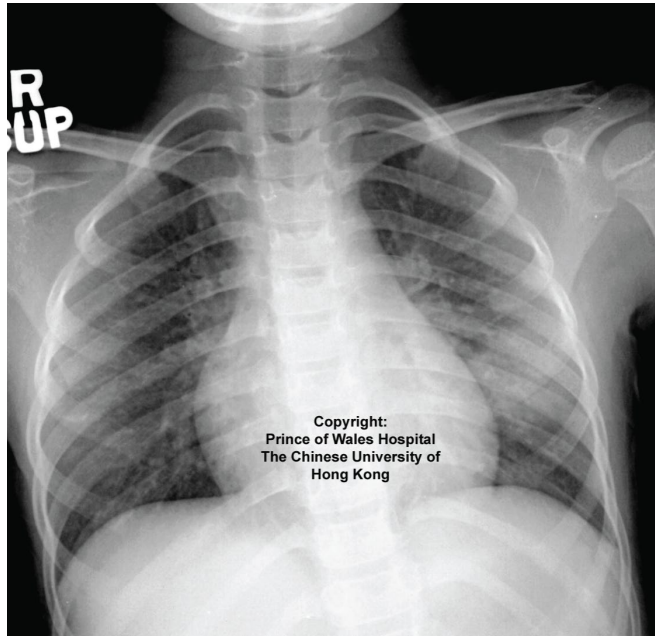
PAEDIATRICS



2-year-old boy presented with febrile convulsion and cough. CXR on admission showed air-space opacities in left mid and lower zones.



6-year-old girl presented with fever, running nose and cough. CXR on admission showed focal air-space consolidation in left upper zone.



5-year-old girl presented with fever for 4 days. CXR showed air-space opacity in left lower zone.

IMAGE GALLERY

CT

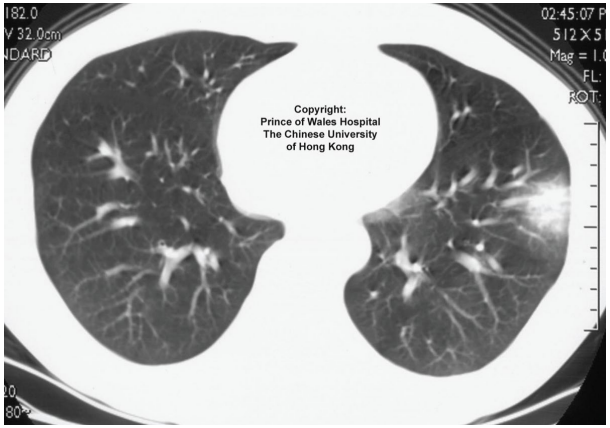


Fig 1: (day 3 after onset of symptoms)

Peripheral ill-defined consolidation in the lateral basal segment of left lower lobe and lower zones.

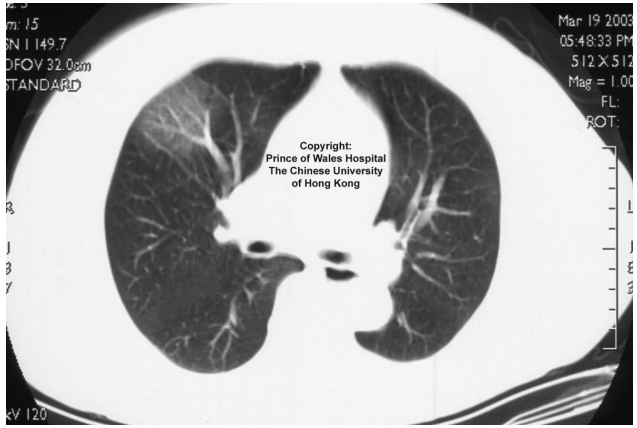


Fig 2: (day 2 after onset of symptoms)

Peripheral ground-glass opacification in middle lobe

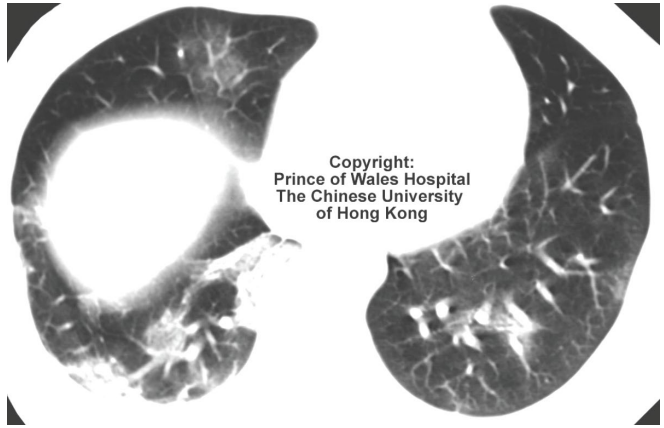


Fig 3: (day 2 after onset of symptoms)

Patchy ground-glass opacification in periphery of both lower lobes (R>L)

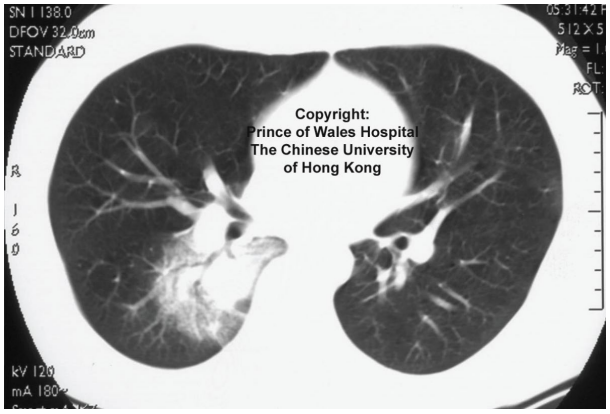


Fig 4: (day 3 after onset of symptoms)

Ill-defined consolidation with air-bronchogram in apical segment of right lower lobe

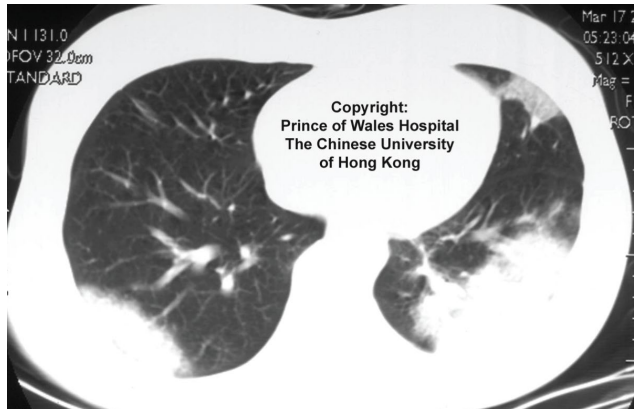


Fig 5: (day 5 after onset of symptoms)

Multi-focal peripheral consolidation in posterior basal segments of both lower lobes and an area of ground-glass opacification in left lingular segment

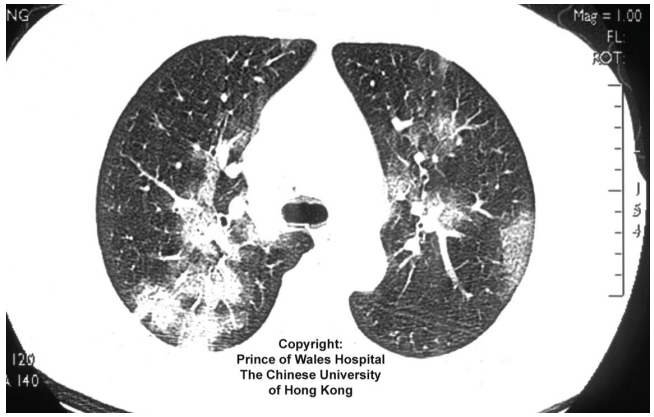


Fig 6: (day 5 after onset of symptoms)

Patchy, multi-focal, ground-glass opacification and consolidation in both upper lobes

IMAGE GALLERY

CT

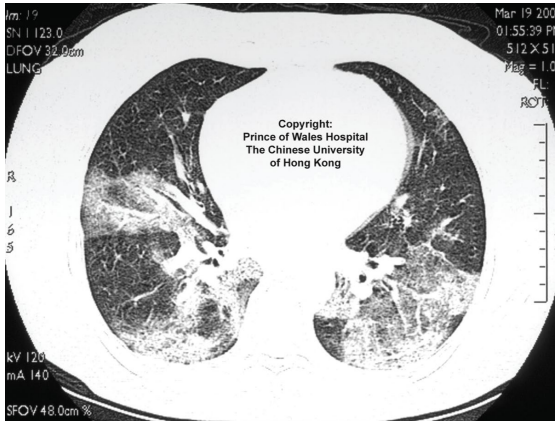


Fig 7: (day 4 after onset of symptoms)

Multiple confluent areas of consolidation in the middle lower and both lower lobes

IMAGING PROTOCOL

Our current imaging protocol is

1. If SARS is clinically suspected, a chest radiograph should be performed.

2. If the chest radiograph is abnormal, then no further imaging investigation is required other than serial radiographs for follow up.

3. If the chest radiograph is normal, a HRCT is performed. This may show changes one to two days before they become radiographically apparent.

4. **All patients currently admitted with this syndrome have abnormal chest imaging findings.**

5. Please note that as the disease is contagious appropriate personal precautions need to be taken as well as appropriate cleansing of radiographic or CT equipment.

N.B. Initially we performed both conventional and high resolution CT of the thorax on all patients. With increasing experience, it became apparent that pleural effusion or lymphadenopathy was not a feature of this disease. CT examination is now limited to **HRCT only.**

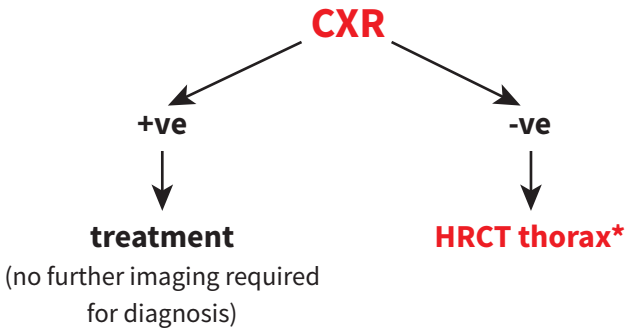
IMAGING PROTOCOL

STRICT INFECTION CONTROL IS A MUST.

PLEASE REFER TO OUR GUIDELINES REGARDING MANAGEMENT AND INFECTION CONTROL IN A RADIOLOGY DEPARTMENT DURING THE SARS OUTBREAK.

All staff in the radiology department must be absolutely familiar with and adhere to infection control guidelines.

Suggested algorithm for imaging investigation of SARS:



* HRCT should be used with caution as it may result in overdiagnosis. It should be used only if:

- there is a history of contact **OR**
- the clinical signs, such as a continuing fever, leucopenia etc., are strongly suggestive of SARS, **AND**
- the initial chest radiograph is normal

MANAGEMENT AND INFECTION CONTROL IN A RADIOLOGY DEPARTMENT DURING THE SARS OUTBREAK

1. Basic considerations regarding the spread of SARS

2. Problems related to Radiology

3. Infection control measures

   A) Specific personal infection control guidelines for staff and patients

   B) General infection control guidelines for staff

   C) Main areas of attention when re-organising the Radiology Department

   D) Practical checklist for running the Department

   E) Specific problems related to individual imaging modalities

   F) Update on new measures (15.5.03)

4. Final comment

IMAGING OF SARS PATIENTS AT DISCHARGE

As SARS is a new disease, there is no previously established imaging policy at the time of discharge for reference. We have adopted the following protocol for imaging SARS patients on discharge. This may evolve with greater experience. Our current protocol for imaging SARS patients on discharge is:

For patients with positive initial CXR and displaying resolution of radiographic changes on treatment, we perform a CXR on discharge (and subsequently monitor their clinical progress).

For patients with normal chest radiographs and lung changes were detected only on HRCT, we perform a HRCT on discharge (and subsequently monitor their clinical progress).

DIIR SARS ACTIVITIES

Indexed Publications on SARS:

1. Lee N, Hui D, Wu A, Chan P, Cameron P, Joynt GM, Ahuja A, Yung MY, Leung CB, To KF, Lui SF, Szeto CC, Chung SSC and Sung JJY. A Major Outbreak of Severe Acute Respiratory Syndrome in Hong Kong. N Engl J Med. 2003 May 15;348(20):1986-94. Epub 2003 Apr 07.

2. Wong KT, Antonio GE, Hui DSC, Lee N, Yuen EHY, Wu A, Leung CB, Rainer TH, Cameron P, Chung SSC, Sung JJY, Ahuja AT. Radiographic Appearances and Pattern of Progression of Severe Acute Respiratory Syndrome (SARS): A Study of 138 Patients.Radiology 2003; 228:401-406.

3. Wong KT, Antonio GE, Hui DSC, Lee N, Yuen EHY, Wu A, Leung CB, Rainer TH, Cameron P, Chung SSC, Sung JJY, Ahuja AT. Radiological Appearances of Severe Acute Respiratory Syndrome. Journal of the Hong Kong College of Radiologists 2003;6:4-6.

4. Wong KT, Antonio GE, Hui DSC, Lee N, Yuen EHY, Wu A, Leung CB, Rainer TH, Cameron P, Chung SSC, Sung JJY, Ahuja AT. Thin-Section CT of Severe Acute Respiratory Syndrome: Evaluation of 73 Patients Exposed to or with the Disease. Radiology 2003;228:395-400.

5. Ahuja AT. Letter to Editor, Severe Acute Respiratory Syndrome in Hong Kong. Clin Radiol. 2003 Jun;58(6):496.

6. Antonio GE, Wong KT, Hui DSC Lee N, Yuen EHY, Wu A, Leung CB, Rainer TH, Cameron P, Chung SSC, Sung JJY, Ahuja AT. Pictorial Essay: Imaging of Severe Acute Respiratory Syndrome in Hong Kong. AJR Am J Roentgenol 2003;181:11-7.

7. Antonio GE, Wong KT, Hui DSC Lee N, Yuen EHY, Wu A, Leung CB, Rainer TH, Cameron P, Chung SSC, Sung JJY, Ahuja AT. Thin-section Computed Tomography in Severe Acute Respiratory Syndrome (SARS) Patients Following Hospital Discharge: Radiology. 2003 Sep;228(3):810-5. Epub 2003 Jun 12.

8. King AD, Ching ASC, Chan PL, Cheng AYH, Wong PK, Ho SSY, Griffith JF, Lyon DJ, Fung KSC, Choi P, Li CK, Cheng AFB, Ahuja AT. Severe Acute Respiratory Syndrome: Avoiding the Spread of Infection in a Radiology Department. AJR Am J Roentgenol. 2003 Jul;181(1):25-7.

9. Ho SSY, Chan PL, Wong, PK Antonio GE, Wong KT, Lyon DJ, Fung KSC, Li CK, Cheng AFB, Ahuja AT. Eye of the Storm: The Roles of a Radiology Department in the Outbreak of Severe Acute Respiratory Syndrome. AJR Am J Roentgenol. 2003 Jul;181(1):19-24.

10. Griffith JF, Antonio GE, Ahuja AT. SARS and the Modern Day Pony Express (the World Wide Web). American Journal of Roentgenology 2003;180:1736.

11. Hon KLE, Leung CW, Cheng WTF, Chan PKS, Chu WCW, Kwan YW, Li AM, Fong NC, Ng PC, Chiu MC, Li CK, Tam JS, Fok TF. Clinical presentations and outcome of severe acute respiratory syndrome in childern. Lancet. 2003 May 17;361(9370):1701-3.

12. Antonio GE, Wong KT, Chu WC, et al. Imaging in severe acute respiratory syndrome (SARS). Clin Radiol. 2003 Nov;58(11):825-32.

13. Gomersall CD, Joynt GM, Lam P, et al. Short-term outcome of critically ill patients with severe acute respiratory syndrome. Intensive Care Med. 2004 Mar;30(3):381-7. Epub 2004 Jan 23.

DIIR SARS ACTIVITIES

14. Hui DSC, Wong KT, Antonio GE et al. Severe Acute Respiratory Syndrome (SARS): Correlation of Clinical Outcome and Radiological Features. Radiology in press.

15. Joynt GM, Antonio GE, Lam P, et al. Late-stage adult respiratory distress syndrome caused by severe acute respiratory syndrome: abnormal findings at thin-section CT. Radiology. 2004 Feb;230(2):339-46

16. Griffith JF, Antonio GE, Kumta SM, et al. Osteonecrosis of the hip and knee in SARS patients treated with steroids. Radiology in press.

Conference Lectures/ Presentations on SARS:

1. Hong Kong College of Radiologists, Hong Kong Academy of Medicine and Hong Kong Hospital Authority. SARS Imaging Symposium. Hong Kong, China. 7th June 2003
   Pneumonia, atypical pneumonia and pneumonia-like conditions "Pneumonia in children including SARS"
   Dr. Winnie Chu

2. Hong Kong College of Radiologists, Hong Kong Academy of Medicine and Hong Kong Hospital Authority. SARS Imaging Symposium. Hong Kong, China. 7th June 2003
   Pneumonia, atypical pneumonia and pneumonia-like conditions "Application & Imaging Features of SARS on HRCT"
   Dr. KT Wong

3. World Health Organization, SARS Clinical Management Workshop, Hong Kong, China, 13th June 2003. "Imaging in SARS: The Hong Kong Experience"
   Dr. Ahuja

4. The Second Chinese Medical Association Medical Forum, Beijing, China. 9th September 2003. "Imaging of Severe Acute Respiratory Syndrome (SARS)"
   Dr. Antonio

5. Radiological Society of North America Scientific Assembly and Annual Meeting. 1st December 2003. "Computed Tomography of Severe Acute respiratory Syndrome: Initial Experience"
   Dr. Antonio

6. 16th European Congress of Radiology, 8 March, 2004 "Steroid-induced AVN in patients treated for SARS: Early observations." (abstract B-702)
   Dr. Antonio

7. 16th European Congress of Radiology, 9 March, 2004 "Radiographic appearances and pattern of progression of Severe Acute Respiratory Syndrome (SARS)." (abstract B-862).
   Dr. Antonio

8. Hong Kong SARS Forum and Hospital Authority Convention 2004. 8 May 2004. "Magnetic Resonance Screening for Skeletal Abnormalities in post-SARS patients"
   Dr. Antonio

DIIR SARS ACTIVITIES

Scientific Exhibits on SARS:

1. SARS Imaging - What do we need to know?
   Shetty S, Burney K, Hopkins R, Antonio GE, Ahuja AT
   Annual Meeting of The Royal College of Radiologists UK September 2003

2. Severe Acute Respiratory Syndrome (SARS): Correlation of Clinical Outcome and Radiological Features.
   Wong KT, Hui DSC, Antonio GE, Wu A, Wong V, Lau W, Wu, JC, Tam LS, Yu LM, Joynt, GM, Chung SSC, Ahuja AT.
   Hong Kong College of Radiologists 11th Annual Scientific Meeting, Hong Kong, 18th -19th October 2003.

3. Computerised tomography (CT) in severe acute respiratory syndrome 9SARS): late-stage acute respiratory disease syndrome (ARDS) and follow-up findings.
   Joynt G, Antonio G, Wong K, Lam P, Gomersall C, Li T.
   24th International Symposium on Intensive Care and Emergency Medicine
   Brussels, Belgium, 30 March - 2 April 2004

4. Texture Classification of SARS Infected Region in Radiographic Image
   Xiaoou Tang, Dacheng Tao, Gregory E Antonio
   Institute of Electrical and Electronics Engineers, 11th International Conference on Image Processing, Singapore October 2004

Books on SARS:

1. Imaging in SARS
   Editors: Anil T Ahuja and Clara GC Ooi
   2004 Greenwich Medical Media Limited, London, UK.

Book Chapters:

1. SARS. Editor: Joseph JY Sung
   Imaging in Severe Acute Respiratory Syndrome (SARS)
   KT Wong, Gregory E Antonio, Anil T Ahuja,

2. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
   2004 Greenwich Medical Media Limited, London, UK.
   Chapter 5
   The Role of Chest Radiographs in the Diagnosis of SARS
   KT Wong, Gregory E Antonio, Anil T Ahuja

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3. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 6
Chest radiography: Clinical correlation and its role in the management of Severe Acute Respiratory Syndrome (SARS)
David SC Hui, KT Wong, Gregory E Antonio, Anil T Ahuja, Joseph JY Sung

4. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 7
The Role of High-resolution Computed Tomography (HRCT) in Diagnosis of SARS
Gregory E Antonio, KT Wong, Anil T Ahuja

5. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 8
The Role of Imaging in the Follow up of SARS
Gregory E Antonio, KT Wong, Anil T Ahuja

6. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 9
Treatment of Severe Acute Respiratory Syndrome
Joseph JY Sung, Alan Wu

7. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 10
SARS in the Intensive Care Unit
Gavin M Joynt, Gregory E Antonio, Charles D Gomersall.

8. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 11
Imaging of Pneumonia in Children
Winnie CW Chu

DIIR SARS ACTIVITIES

9. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 12
Imaging and Clinical Management of Paediatric SARS
Winnie CW Chu, Ellis KL Hon, Frankie WT Cheng, TF Fok

10. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 14
Radiographers' Perspective in the Outbreak of SARS
Stella SY Ho

11. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 15
Implementation of Measures to Prevent the Spread of SARS in a Radiology Department
Anne D King and Alex SC Ching

12. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 16
Post-mortem of SARS
Gregory E Antonio, James F Griffith, Anil T Ahuja

13. Imaging in SARS. Editors: Anil T Ahuja and Clara GC Ooi
2004 Greenwich Medical Media Limited, London, UK.
Chapter 17
The Future of Severe Acute Respiratory Syndrome
Anil T Ahuja, Gregory E Antonio

ARTICLES ON SARS

- NEW ENGLAND JOURNAL of MEDICINE
- Radiology
- American Journal of Roentgenology

USEFUL LINKS

- WHO
- Aunt Minnie
- Dignostic Imaging
- ICU information

FREQUENTLY ASKED QUESTIONS:

1. Should I perform CT on all suspected SARS patients?
   HRCT should be used with caution as it may result in over-diagnosis. It should be used only if there is a history of contact OR the clinical signs, such as a continuing fever, leucopenia etc., are strongly suggestive of SARS, AND the initial chest radiograph is normal.

2. What are the findings on radiographs and CT?
   Please refer to the section on imaging findings.

3. Are the imaging findings specific?
   The findings are non-specific and resemble those of other types of atypical pneumonia, BOOP, eosinoplilic pneumonia, Langerhan Cell Histiocytosis etc. This is why the clinical context is very important for diagnosis.

4. What precautions are needed when scanning SARS patients?
   The area should be declared an Ultra-High risk area when SARS are being examined. Infection control measures are tabulated as a link at the end of the section the title MANAGEMENT AND INFECTION CONTROL IN A RADIOLOGY DEPARTMENT DURING THE SARS OUTBREAK.

5. What preventive measures should our staff take?
   Follow the infection control guidelines at work. Infection control measures are tabulated as a link at the end of the section the title MANAGEMENT AND INFECTION CONTROL IN A RADIOLOGY DEPARTMENT DURING THE SARS OUTBREAK.

6. In what order showed I put on or take off the protective apparel?
   Please see the new link at the end of the second last paragraph under the title MANAGEMENT AND INFECTION CONTROL IN A RADIOLOGY DEPART MENT DURING THE SARS OUTBREAK.

7. Does a normal HRCT exclude SARS?
   Most probably it does. In our experience, no patient with suspected SARS symptoms and a completely normal HRCT at that time subsequently went on to develop SARS.

Prepared on behalf of Faculty of Medicine, CUHK, PWH