

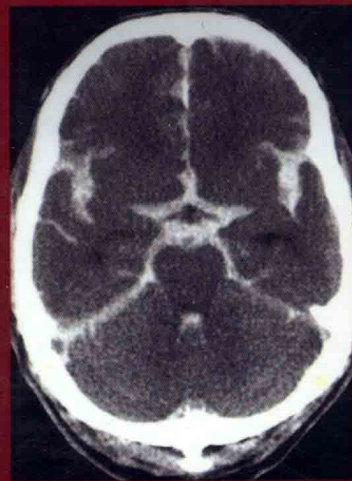
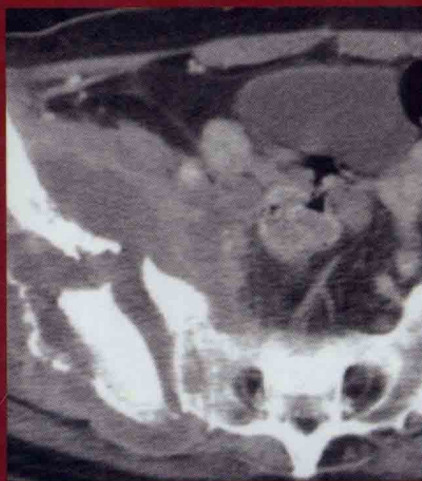
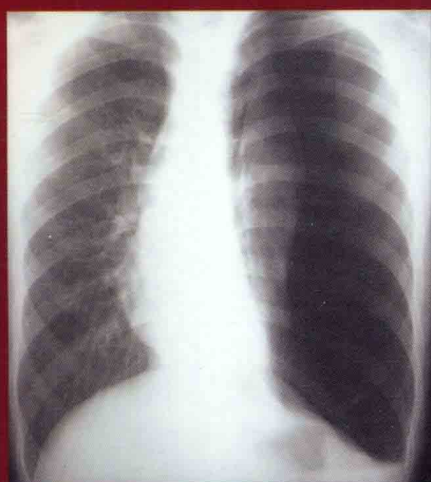
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# 医学影像学典型病例分析

## *Case Studies in Medical Imaging*

供医学生、实习医生和住院医师练习

*Radiology for Students and Trainees*



编著

*Edited by*

**区皓智 Anil T. Ahuja**

安邦 Gregory E. Antonio

黄嘉德 K.T. Wong

袁学远 H.Y. Yuen

翻译

*Translated by*

刘源 Liu Yuan

李艳萍 Y.P. Lee

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编著

Anil T. Ahuja 区皓智

Gregory E. Antonio 安邦

K.T. Wong 黄嘉德

H.Y. Yuen 袁学远



香港中文大学

医学院

放射诊断学系

*The Chinese University of Hong Kong*

*Faculty of Medicine*

*Department of Diagnostic Radiology and Organ Imaging*

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编 著: (印) 区皓智 (Anil T. Ahuja) 安 邦 (Gregory E. Antonio)

黄嘉德 (K.T. Wong)

袁学远 (H.Y. Yuen)

译 者: 刘 源 李艳萍

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## **Anil T. Ahuja**

MBBS(Bom), MD(Bom), FRCR, FHKCR, FHKAM(Radiology)  
Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Gregory E. Antonio**

MD(CUHK), MBBS(UNSW), BSc(Med), FRANZCR, FHKCR, FHKAM(Radiology)  
Associate Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **David P.N. Chan**

MBChB, FRCR, FHKCR, FHKAM(Radiology)  
Honorary Clinical Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Monica S.M. Chan**

MBChB, FRCR, FHKCR, FHKAM(Radiology)  
Honorary Clinical Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **James F. Griffith**

MBCh, BAO, MRCP(UK), FRCR, FHKCR, FHKAM(Radiology)  
Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Simon S.M. Ho**

BSc, MBBS(London), MRCP(UK), FRCR  
Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Stella S.Y. Ho**

PhD, MPhil, BSc(Hon), PDDR, RDMS, RVT  
Adjunct Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Gavin M. Joynt**

MBBCh(Witwatersrand), FFA(SA)  
(CritCare), FHKCA, FHKCA(IC), FHKAM(Anaesthesiology), FEICANZCA, FJFICM, FCCP  
Professor  
Department of Anaesthesia and Intensive Care  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Ann D. King**

MBCh, MRCP, FRCR, FHKCR, FHKAM(Radiology)  
Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Shlok J. Lolge**

MBBS, MD(Radiology)  
Lecturer  
Department of Radiology  
King Edward Memorial Hospital  
Parel  
Mumbai  
India

## **Alex W.H. Ng**

MBChB, FRCR, FHKCR, FHKAM(Radiology)  
Honorary Clinical Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **K.K. Shing**

MBChB, FRCR, FHKCR, FHKAM(Radiology)  
Medical Officer  
Department of Diagnostic Radiology and Organ Imaging  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Alice Tang**

MBBS, FRCR, FHKCR, FHKAM(Radiology)  
Consultant  
Department of Diagnostic Radiology  
Alice Ho Mui Ling Nethersole Hospital  
Taiipo  
Hong Kong  
China

## **K.T. Wong**


MBChB, FRCR, FHKCR, FHKAM(Radiology)  
Honorary Clinical Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Simon C.H. Yu**

MBBS, FRCR, FHKCR, FHKAM(Radiology)  
Honorary Clinical Associate Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China

## **Edmund H.Y. Yuen**

MBChB, FRCR, FHKCR, FHKAM(Radiology)  
Honorary Clinical Assistant Professor  
Department of Diagnostic Radiology and Organ Imaging  
The Chinese University of Hong Kong  
Prince of Wales Hospital  
Shatin  
Hong Kong  
China



谚云：一图抵千言。对许多医科生来说，应付实际医学问题，既为习医之苦，亦为个中之乐。《医学影像学典型病例分析：供医学生、实习医生和住院医师练习》一书糅合影像与实例，大开读者眼界，对医科生和实习医生裨益尤巨。

双语版格外提供以中、英文学习医学术语的机会。今各国人民交流日趋紧密，语言沟通能力益形重要。是书俾读者学习医学影像学之余，更有助他们提升语言能力，实在难得。

良好沟通是教与学之重要条件。此卷可达其旨矣。

李国章

香港中文大学医学院  
外科荣休讲座教授

A picture is worth a thousand words. For many students, what is exciting about studying medicine is the challenge of finding solutions to practical medical problems. *Case Studies in Medical Imaging* combines pictures with real life examples, which serves to broaden the experience of the readers. It is particularly invaluable for medical students and trainees.


The bilingual version has an added attraction for speakers of both Chinese and English: through it they can learn professional terminologies in a less familiar language. As interaction between peoples and countries continues to grow, language skills become increasingly important. This book is therefore useful not only for learning about imaging but also for polishing one's language skills.

Good communication is important in both teaching and learning. This book has certainly succeeded in achieving its objectives.

Arthur K C Li

Emeritus Professor of Surgery  
The Chinese University of Hong Kong

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在工作需要和爱好的驱使下我常常翻阅各种中外文的影像学书籍，时间长了似乎有这么一个印象，那就是现在有关影像诊断学的书籍固然很多，但是专为非影像专业的医学实习生和年轻的住院医生写的，帮助他们复习、提高和应用所学的影像学知识、尽快胜任他们承担的角色角色的书倒是为数不多。因此，当我读到香港中文大学医学院影像诊断和器官影像科现任主任Anil T. Ahuja教授主编的这本《Case Studies in Medical Imaging》时不禁十分惊喜。32开的便携本装帧、精美的图片和简洁的文字立刻就吸引了我，使得我在几天的工作之余就通读了此书。读后感到终于又见到一本可以介绍给实习生和年轻住院医生的好书了。

该书精选了百余个典型病例，基本上按器官和系统分章节，便于查阅。每一个病例都按影像诊断的思维方式先给出临床资料和1—2幅图片，并提出问题让你思考。在随后的讨论中首先给出诊断，介绍病理和本例的影像学表现。作者往往还另外出示数张图片向读者显示一些该病的其它影像学表现，然后讨论鉴别诊断。最让我感兴趣的是作者在讨论后介绍了影像学在该病诊断中的价值，这对临床医生正确地选择影像学检查手段是有很大的指导意义的。最令我印象深刻的是每个讨论最后的要点，虽仅寥寥数条却是精华中的精华所在，如读者能记住是可以受用一生的。

该书所选病种都是临床工作中比较常见的，叙述繁简得当。每例的图片都非常精美而且所展示的病变典型，很有代表性。图片说明详细，标注准确，是一本可读性强且易读、易理解、易记的好书。该书另一特色是作者将医学影像学的各个分支融会贯通，包括X线、CT、MR、超声、核医学和介入放射学的各种资料信手拈来、熔于一炉，使该书成为走大影像学之路的典范之作。

主编Ahuja教授和几位编者都是香港中文大学医学院的影像科医师，也是从事多年教学经验丰富的医学影像学教师。他们对影像诊断有很深造诣，又熟悉教学工作、了解学生，这点我通过与他们多年的交流是深有体会。正因如此他们才能编出这么一本好书。

该书由汕头大学医学院第一附属医院放射科刘源主任主译，其对本书的英文版有很好的理解，译文准确、流畅、生动，为该书在国内发行增色不少。此书的中译本在编排上另一特色，即中英文混排，逐段对照，对医学生和年轻住院医生学习英语，特别是学习医学影像学词汇和表达方式也是极有帮助的。因此我很乐意将此书推荐给初入临床医学之道(包括影像学科)的年轻人。

孟俊非

2008年5月

于中山大学附属第一医院

放射学(医学影像学)在现代医学实践中扮演着极其重要的角色。临床决策的制定需要依靠及时和准确的影像判断，特别是在紧急的情况下。事实上几乎所有的患者到医院就诊都有影像学检查的经历，其日常医疗工作中的重要性可见一斑。很多临床医师自己评阅影像资料，所获得的信息能最大限度地降低治疗过程给病人带来的创伤和侵袭。因此，把医学影像学作为医学院校的核心课程是十分必要和理所当然的，唯有此方可使未来的医生拥有必备的知识技能，为社会提供高质量的医疗服务。

放射学是一门“视觉”科学，最好的教学方法是观察图像而不是单纯的文字学习。这些图像可以用来演示解剖学、生理学、病理学(用断层、实时、三维、多平面和虚拟图像)，影像与相关临床资料的结合，便成为临床医生强大的工具。放射学的应用覆盖医学各个方面、横跨所有医学专业，已成为提高诊治水平的关键之一。因此未来的医生有必要熟悉放射学各方面知识(包括诊断和介入)。本书《医学影像学典型病例分析：供医学生、实习医生和住院医师练习》，就是基于这种想法而编写的。

随着科学技术的迅猛发展，放射学的发展也在突飞猛进。市场上不乏供住院医师专科培训的百科全书式的放射学课本(其中一些也为本书所参考)。然而，医学生和实习医生面前已排满了各门课程，这些教科书因全面详尽和相对冗长而难于实施。另外一些放射学的学生用书，则多为说教式的，其重点放在文字上而不是图像。

本书中，放射学知识的传授主要是通过病例的图像分析，并以提问和回答的方式作简要的文字补充。这些病例涵盖了一个医学本科毕业生应该掌握的放射学核心知识。本书也没有花费文字讨论各种成像的原理，这些在其他的课本里已经有了足够的介绍。而是把重点放在医学生和年轻住院医师必须熟悉的常见病例的图像信息上。

本书的准备，大量地查阅了Wolfgang Dahnert所著的《放射学观察手册》和Chapman S, Nakielny R所著的《放射学鉴别诊断》。这两本著作对影像和临床的相关信息作了高度的提炼，已经成为多数放射学住院医师和受培训者的必读书籍。书中所述内容思路清晰、无可辩驳，也被很多其他著名的放射学教材引用。这些著作通过教师、同行、合作者的传递，使医学教育继续从中受惠。


本书所有作者和参编人员都是医学院系富有教学经验的老师。他们对医学教育十分投入，他们的工作受到学生和同事们赞赏。他们以提高放射学课程的教学水平为目的，通过多年的教学实践，把理论知识和技能有机地结合在一起。

我要衷心感谢香港中文大学放射诊断学和器官成像系的全体同事和员工，没有他们的帮助，不可能完成本书。他们奉献了自己的知识、图片、时间、耐心和专长，令本人感激不尽。同时我也要感谢印度孟买Seth G.S 医学院 K.E.M 医院放射科主任Ravi Ramakantan教授，感谢他的支持，并为本书提供了他们科室(我原来接受培训的单位)的教学资料。

个人而言，我把这本书献给我已故的父亲，T.S Ahuja医生，他生前在印度孟买Seth G.S 医学院、K.E.M 医院教授临床前期的组织学和解剖学(我也是其中学生)。他的辛勤劳作和对教学的贡献，使所有的学生仍然铭记着他的慈爱。最后，我始终感谢我母亲Mrs Laj Ahuja，我的妻子Chu Wai Po，我的女儿Sanjali 和 Tiana，感谢他们的亲密帮助和支持，使我保持心智健全，得以完成本书。

**Anil Ahuja**





Radiology (Medical Imaging) now plays a pivotal role in modern medical practice. Clinical decision making depends on timely and accurate interpretation of imaging studies particularly in acute situations. Its importance in daily clinical practice is reflected by the fact that almost no patient leaves the hospital without undergoing an imaging study. Many clinicians now need to interpret images themselves and the information provided is particularly useful for minimally invasive treatment. It is therefore essential that imaging take its rightful place in the Medical School Core Curriculum so that future doctors have the necessary knowledge and skills to provide high quality medical care to the community they serve.

Radiology is a “visual” science and is best taught and learnt viewing images rather than text alone. These images can be used to demonstrate anatomy, physiology, pathology (in cross-section, real time, 3D, multi-planar and virtual reality) and are a powerful tool when combined with relevant clinical information. Its applications cover every aspect of medicine and across all specialties making radiology the key to prompt diagnosis and management. Future doctors must therefore be familiar with all aspects of Radiology (diagnostic and interventional). It is with this in mind that ‘Case Studies in Medical Imaging: Radiology for Students and Trainees’ is written.

Radiology is constantly being revolutionized by rapidly advancing technology. There is a wealth of encyclopedic radiology textbooks (some of which have been used in the preparation for this book) available in the market for residents undergoing specialist training. However, they may be too exhaustive for medical students and trainees to squeeze into their already overwhelmed curriculum. There exist student textbooks on radiology but they are didactic and tend to focus on text rather than images.

In this book, knowledge is conveyed predominantly through case studies using images and supplemented with brief text in a question and answer format. The core knowledge in Radiology that a medical graduate ‘must know’ is covered in these cases. This book does not discuss the physical principles of the various imaging modalities, as these have been adequately covered in other ‘textbooks’, but focuses on imaging information for common cases medical student and young residents, must be familiar with.

In the preparation of this book two other books have been extensively referred to. These are Wolfgang Dahnert: Radiology Review Manual and Chapman S, Nakielnny R: Aids to Radiological Differential Diagnosis. They have distilled the basic facts regarding imaging and clinical information and have become essential reading material for most radiology residents and trainees. The facts stated in these books are clear, indisputable and have themselves been obtained with the help of many other reputable radiology texts. This is a legacy that is passed on from teachers, colleagues, collaborators which continues to benefit medical education.

All the authors and co-editors in this book are teachers in academic departments and have a wealth of teaching experience. They are strongly committed to medical teaching and their efforts are appreciated by students and colleagues alike. They have put to paper knowledge and skills acquired over many years of teaching with the aim of improving Radiology teaching in the Medical Curriculum.

I owe a large debt of gratitude to colleagues and staff in The Department of Diagnostic Radiology & Organ Imaging, The Chinese University of Hong Kong, without whose help none of this would have been possible. They have shared their knowledge, images, time, patience and expertise and for this I remain grateful. I would also like to thank Professor Ravi Ramakantan, Head of Department, Radiology Department, Seth G.S Medical College, K.E.M Hospital, Mumbai, India for his support and contributing teaching material from his department (where I originally trained!). His efforts are much appreciated.

On a personal note, for me, this book is for my late father, Dr T.S Ahuja, who taught Histology and Anatomy to medical students (including myself) in their preclinical years at The Seth G.S Medical College, K.E.M Hospital, Mumbai, India. He is still fondly remembered by all his students for his hard work and dedication towards teaching. Finally, I remain forever grateful for the close help and support of my mother Mrs Laj Ahuja, wife Chu Wai Po and daughters Sanjali and Tiana (who have helped me maintain my sanity).

**Anil Ahuja**

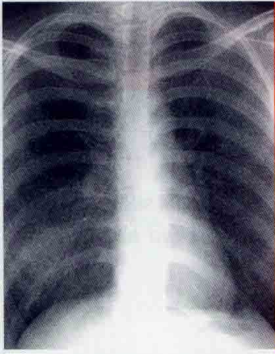
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## 胸部 CHEST

作者 Contributors:

K.T. Wong, Edmund H.Y. Yuen, Anil T. Ahuja

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肺炎 Pneumonia

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肺不张 Lung collapse

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气胸 Pneumothorax

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纵隔气肿 Pneumomediastinum

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原发性肺癌 Primary lung carcinoma

29 - 31

肺上沟瘤 Pancoast tumour

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肺转移瘤 Pulmonary metastases

33 - 34

胸腔积液 Pleural effusion

35

脓胸 Empyema

36

肺脓肿 Lung abscess

37

继发型肺结核 Post-primary pulmonary tuberculosis

38 - 39

囊性支气管扩张 Cystic bronchiectasis

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慢性阻塞性气道疾病 Chronic obstructive airways disease

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淋巴瘤 Lymphoma

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矽肺 Silicosis

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肺栓塞 Pulmonary embolism

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复张性肺水肿 Re-expansion pulmonary oedema

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外伤 Trauma

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心力衰竭 Heart failure

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二尖瓣狭窄 Mitral stenosis

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法洛四联征 Tetralogy of Fallot

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## 病例/Case 1

35岁男性患者，发热并咳嗽咳痰3天。体格检查示：急性热病容，右下肺呼吸音减弱、可闻及水泡音。实验室检查示：白细胞增多。患者行胸部X线检查(图1a)。

A 35-year-old man presented with fever and productive cough for 3 days. He was febrile, hypoxic and physical examination showed focal decrease in air entry and coarse crepitations over the right lower chest. Laboratory investigations revealed leukocytosis and a CXR was performed (Fig. 1a).

## 问题 Questions

(1) 胸部X线检查可见何异常征象？

- 边界模糊的片状密度增高影
- 阴影内隐约见支气管充气像

What abnormalities do you see on this CXR?

- Area of increased opacity with ill-defined borders
- Faint air bronchogram within the area of opacification

(2) 最可能的诊断？

What is the most likely diagnosis?

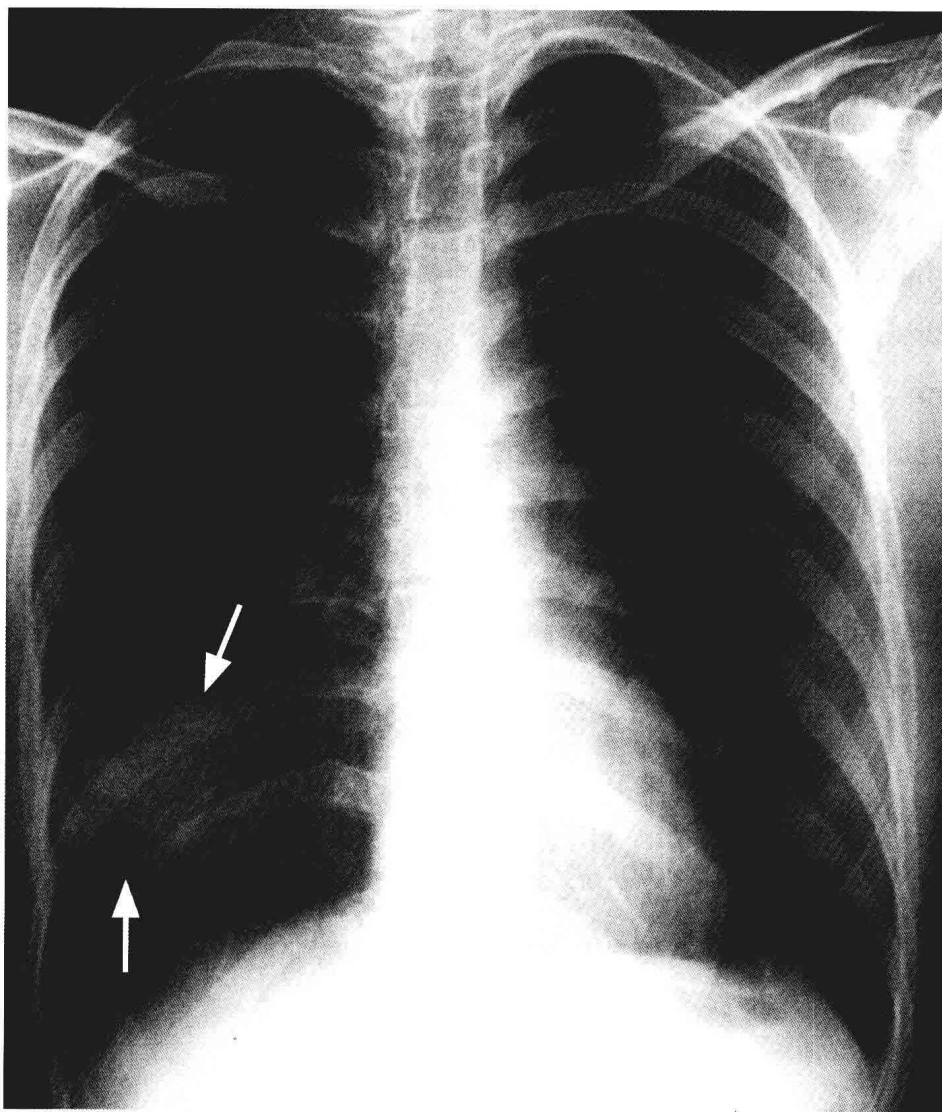


图1a 胸部正位片示：右肺下叶见边界模糊的密影(箭)，是肺炎引起的肺实变。

Fig.1a Frontal CXR showing ill-defined air space opacification in the right lower lobe (arrows) due to consolidation from pneumonia.



## 病例/Case 2

70岁患者，长期吸烟，咯血伴体重减轻2个月。无发热、畏寒。体格检查示：双手杵状指，右上胸壁扩张度和呼吸音减弱。实验室检查基本上正常，白细胞在正常范围内。行胸部X线进一步检查(图2a)

A 70-year-old chronic smoker presented with haemoptysis and weight loss for 2 months. He had no fever, chills or rigor and a physical examination of both hands showed finger clubbing. There was decreased chest wall expansion and air entry over right upper chest. Laboratory investigations were essentially unremarkable and WCC was within normal limits. A CXR was performed for further evaluation (Fig. 2a).

### 问题 Questions

(1) 胸部X线检查有何异常征象？

- 右上肺野见外侧缘清晰锐利的密影(箭)，内不含气。
- 阴影的下端局部膨凸。
- 右下叶过度充气。
- 右膈抬高。

What abnormality can you see on this CXR?

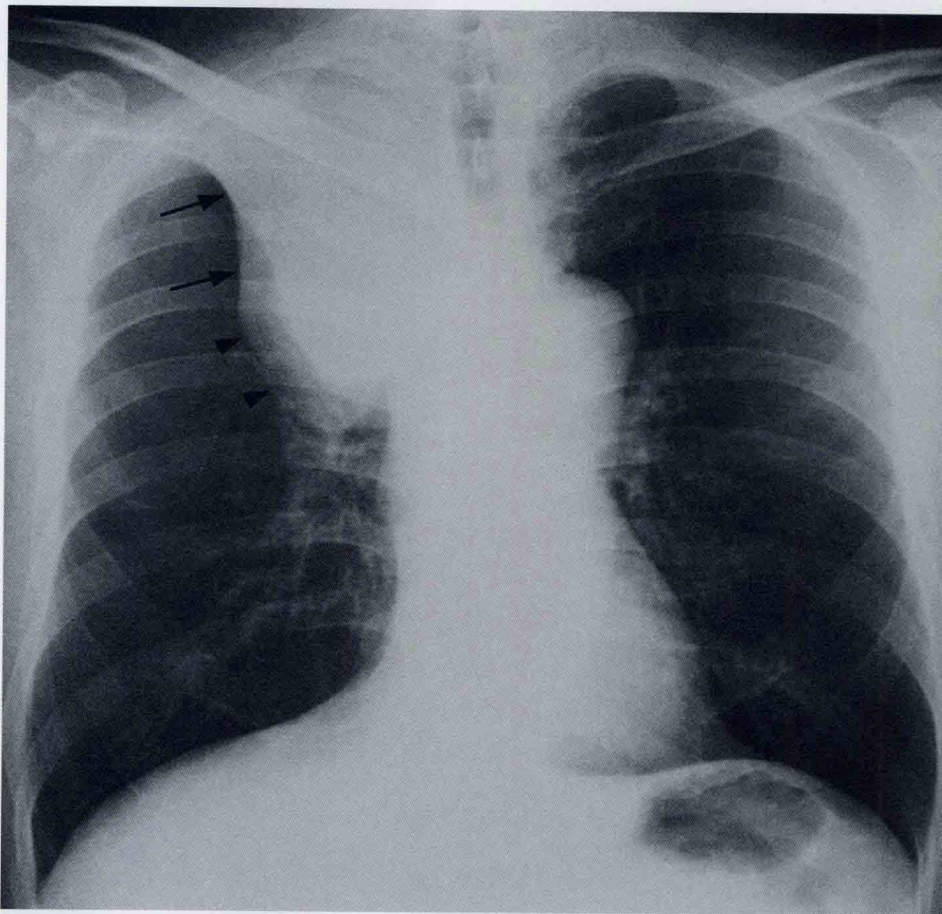
- Opacity with a sharp well-demarcated lateral border (arrows) in right upper zone with lack of air within the abnormality.
- Focal convex bulge at the apex of the abnormality.
- Hyperinflation of the right lower lobe.
- Elevated right hemidiaphragm.

(2) 放射学诊断如何？

What is the radiological diagnosis?

图2a “金S征”(反“S”征)——右肺上叶不张，右侧水平裂升高，形成清晰的外侧缘(箭)；肺不张的尖端局部膨凸，中央型支气管癌的肿块所致(箭头)。

Fig. 2a The “Golden S sign”—collapse of the right upper lobe with a well demarcated lateral border formed by the elevated horizontal fissure (arrows), and a focal convex bulge at the apex due to the centrally located bronchogenic carcinoma (arrowheads).





## 病例/Case 3

23岁男性患者，既往健康，突发左侧胸痛和呼吸短促。疼痛呈锐痛并随吸气加重。体格检查：左上胸部呼吸音减弱，叩诊呈鼓音。实验室检查基本正常。行胸部X线进一步检查(图3a)。

*A 23-year-old man with good past health, presented with sudden onset left sided chest pain and shortness of breath. The pain was sharp in nature and more severe on inspiration. Physical examination showed decreased air entry in the left upper chest which was hyperresonant on percussion. Laboratory investigations were essentially normal. A CXR was performed for further evaluation (Fig. 3a).*

### 问题 Questions

#### (1) 异常的放射学征象？

- 左侧胸的外围透亮增强，其内血管纹理消失。
- 中线结构右移。

*What radiological abnormality can you identify?*

- Hyperlucent zone devoid of vascular marking in periphery of left hemithorax.
- Shift of midline to the right.

#### (2) 最可能的诊断？

*What is the most likely diagnosis?*

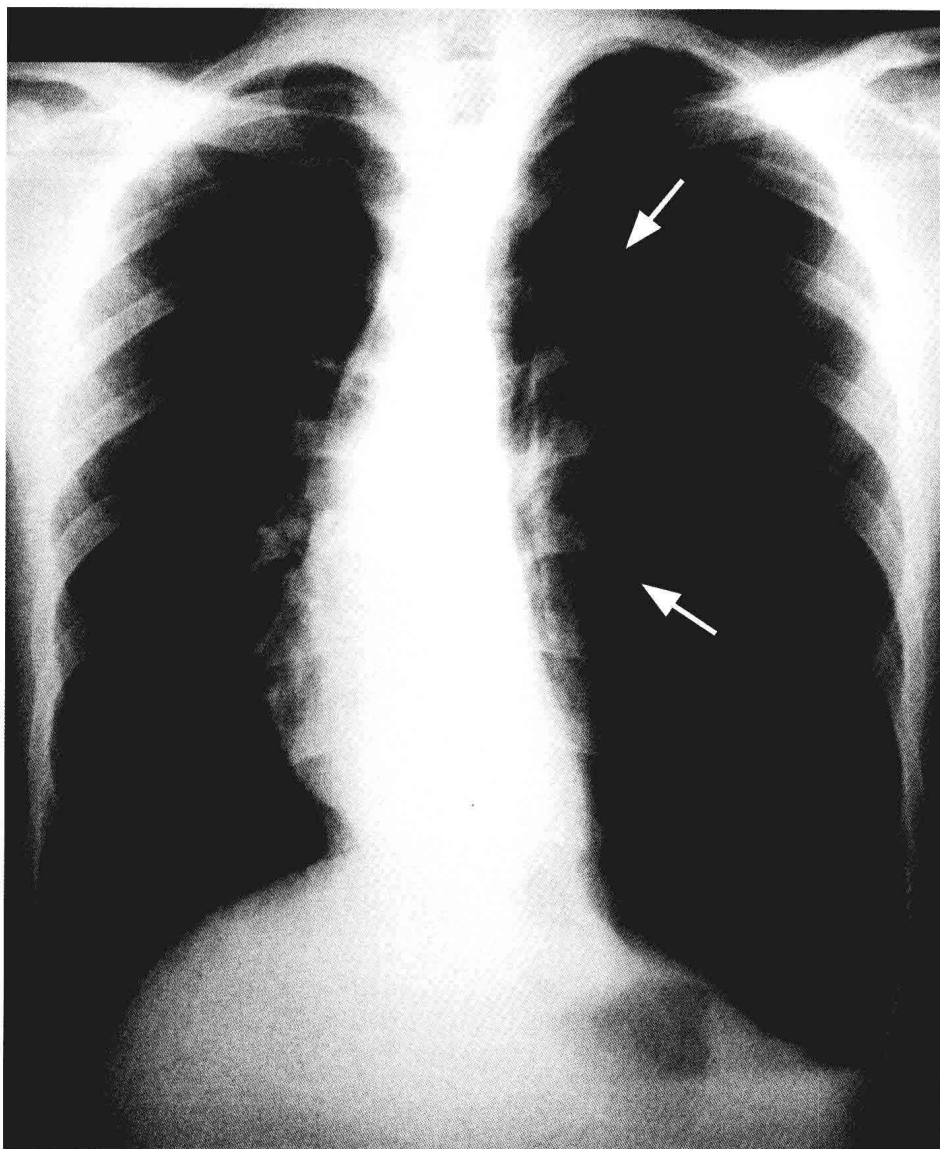


图3a 左侧大量气胸伴中线结构右移。左肺不张萎陷(箭)，其外侧透光增强。

*Fig.3a Large left pneumothorax with mediastinal shift to the right. Note the collapsed left lung (arrows) and the hyperlucent left hemithorax.*

30岁女性患者，两天前，误吞鱼骨后不久出现胸骨后剧痛，伴吞咽疼痛。体格检查：无发热，血液动力学稳定。呼吸和心血管系统检查未见明显异常。血液化验基本正常。行胸部X线进一步检查(图4a)。

A 30-year-old lady presented with severe retrosternal pain, and pain on swallowing, shortly after accidental ingestion of fish bone 2 days earlier. Physical examination showed the patient was afebrile, haemodynamically stable and examination of respiratory and cardiovascular systems were unremarkable. Blood tests were essentially normal and a CXR was performed for further assessment (Fig. 4a).

### 问题 Questions

(1) 有何异常放射学征象？

- 纵隔内气体透亮影描绘出左心缘和主动脉结的轮廓

- 下颈部皮下气肿

What radiologic abnormality can you identify?

- Air lucency in mediastinum outlining the left heart border and aortic knuckle

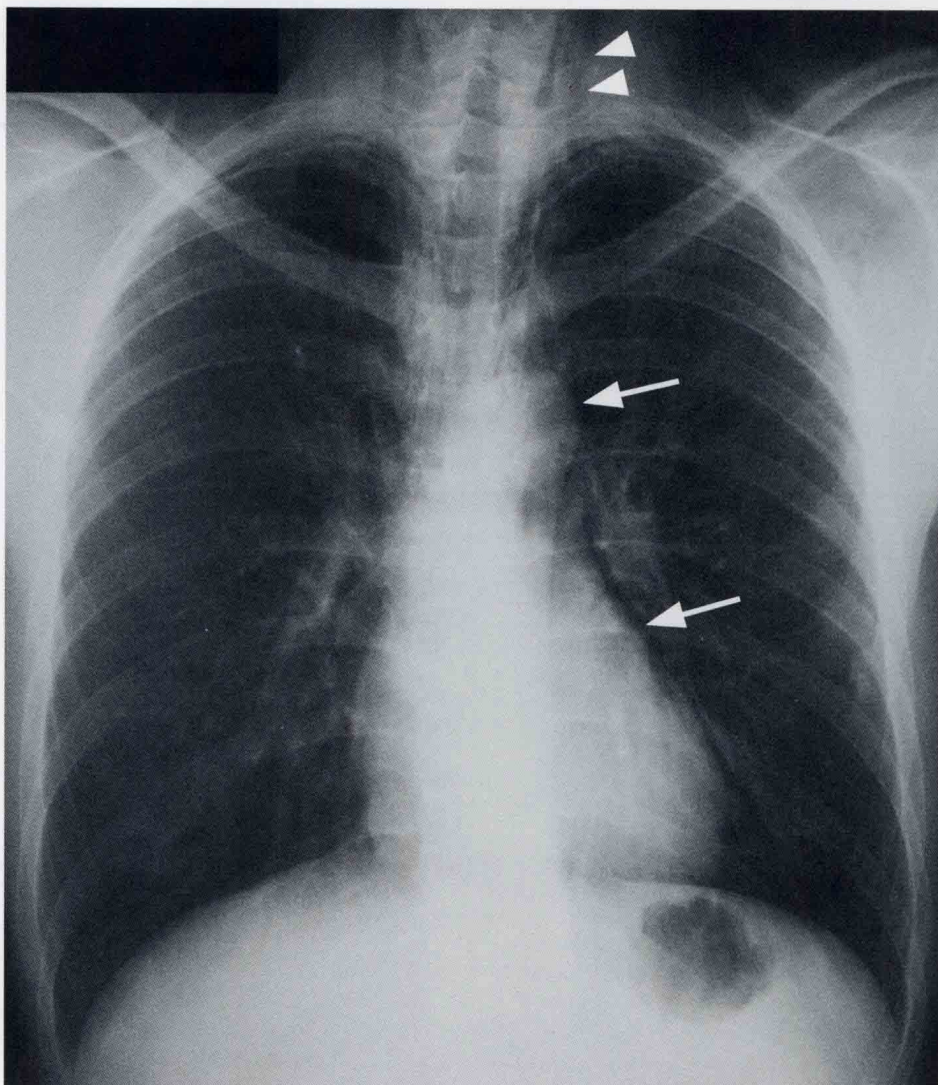
- Subcutaneous emphysema in the lower neck

(2) 放射学诊断如何？

What is the radiological diagnosis?

图4a 纵隔气肿。薄层气体描绘出左心和主动脉的轮廓(箭)，下颈部皮下气肿(箭头)。

Fig.4a Pneumomediastinum. Note the thin layer of air outlining the left cardiac and aortic contour (arrows) and subcutaneous emphysema in the lower neck (arrowheads).



## 病例/Case 5

75岁长期吸烟患者，诉3个多月来反复咳嗽，体重下降20磅。体格检查：患者恶病质，消瘦、皮包骨，右锁骨上窝可触及一大一小2cm的硬块。呼吸系统检查基本正常。实验室检查示：正色素正红细胞性贫血，红细胞沉降率升高。白细胞计数无增多。行胸部X线检查(图5a)。

A 75-year-old chronic smoker complained of chronic cough and weight loss of 20 pounds over recent 3 months. On physical examination, he was cachectic with little subcutaneous fat and a 2 cm hard mass was palpable in the right supraclavicular fossa. Examination of respiratory system was essentially normal. Laboratory investigations showed normochromic normocytic anaemia and raised erythrocyte sedimentation rate. White cell count was not raised. A CXR was performed (Fig. 5a).

## 问题 Questions

(1) 可见何异常放射学征象？

- 右上肺野见软组织肿块阴影，形态不规则、边界不清。
- 右肺门增大并膨凸。
- 右侧气管旁影增宽。

What radiologic abnormalities do you see?

- Soft tissue mass with ill-defined irregular border projected over the right upper zone.
- Enlarged and bulging right hilum.
- Thickened right paratracheal stripe.

(2) 放射学诊断如何？

What is the radiological diagnosis?

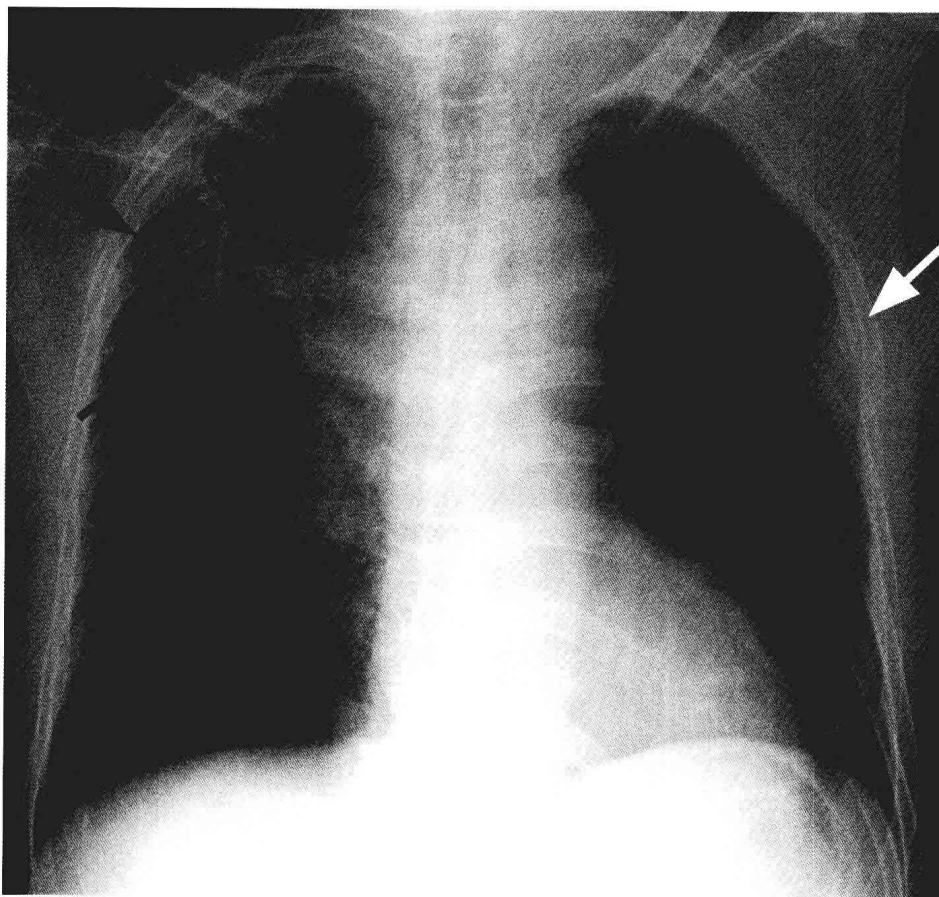


图5a 胸片示：右肺上叶见一较大的不规则肿块(大箭)，伴肺门淋巴结肿大(小箭)。右气管旁影增宽(箭头)提示气管旁淋巴结肿大。左中肺野见胸膜转移(白箭)，附近肋骨破坏。

Fig.5a Chest radiograph showing a large irregular tumour mass (large arrows) in the right upper lobe with right hilar lymphadenopathy (small arrows). The thickened right paratracheal stripe (arrowheads) also indicates enlarged paratracheal nodes. Note the presence of a pleural metastasis in the left mid zone (white arrow).



## 病例/Case 6

66岁长期吸烟患者，1个月来出现咳嗽伴血痰和右上胸、臂痛。一般检查示：右侧出现 Horner's 综合征，右手肌肉萎缩。呼吸系统检查未见明显异常。实验室检查示正细胞正色素性贫血，痰细胞学检查发现可疑恶性细胞。行胸部X线检查(图6a)。

A 66-year-old chronic smoker presented with one-month history of cough with blood-stained sputum and right upper chest and arm pain. General examination showed signs of Horner's syndrome on the right and muscle wasting of right hand. Examination of the respiratory system was unremarkable. Laboratory investigations revealed normochromic normocytic anaemia and suspicious malignant cells were detected on sputum cytology. A CXR was performed (Fig. 6a).

### 问题 Questions

(1) 出现何异常放射学征象？

- 右肺尖肿块
- 右上肋骨骨侵犯

What radiological abnormality can you identify?

- Mass in right lung apex
- Bony invasion of right upper ribs

(2) 作何诊断？

What is the working diagnosis?

图6a 胸片示：右肺尖见致密影，伴肋骨浸润破坏(箭头)(与左侧相比，第一前肋消失)。气管向左侧偏移。患者既往有淋巴结结核钙化(曲箭)。

Fig.6a Chest radiograph showing right apical lung opacity with rib infiltration (arrowheads) and destruction (absent anterior first rib, compare with left side). The trachea is deviated to the left side. There is evidence of previous TB with calcified lymph nodes and granuloma (curved arrow).

