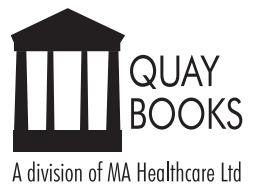


# **The Radiology Survival Guide**



# The Radiology Survival Guide

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I would like to dedicate this book to my parents.

# Introduction

The aim of this book is systematically to review examples of the radiological appearances of commonly encountered pathologies. It is designed to be used not only as a reference text but also as a 'self-test' book.

The *Radiology Survival Guide* is written primarily to be of interest to medical students, F1 and F2 year postgraduate doctors (formerly the house officer and senior house officer years of training). However, due to the depth of information given, it is also anticipated to be of use in the preparation for postgraduate examinations including MRCP and MRCS.

In essence, this text should prove invaluable for the medical student prior to the sitting of final examinations, and provides 'all you need to know' for the day-to-day work of the junior doctor.

The *Radiology Survival Guide* is divided into seven sections:

- the chest radiograph
- the abdominal radiograph
- musculoskeletal radiology
- intravenous urography and imaging of the urinary tract.
- ultrasound, computed tomography, and magnetic resonance imaging
- computed tomography of the brain
- interventional radiology

Each section begins with an introduction to the basics of radiological interpretation, and includes 'key points' which act as a part summary. This is followed by a series of cases within each section that provide a pictorial summary of the commonly encountered pathologies. Each case begins with a radiograph and radiological 'report', and this is then followed by relevant background material.

This book is written in an easy to understand style, and clinical information is also given where relevant. The section on computed tomography of the brain has been included due to the likelihood of these examinations being provisionally reported by non-radiological staff in the near future. The section on interventional radiology has been included due to the author's realisation of the need for more awareness of this sub-speciality among junior medical staff, and the increasing reliance on minimally invasive procedures within modern medical practice.





# Section I

## The Chest Radiograph

## **Introduction**

The chest radiograph (or chest X-ray, CXR) is one of the most widely requested radiographic examinations but is also one of the most difficult to evaluate accurately. A basic scheme for CXR evaluation is invaluable and should include all the points covered below.

### **Patient details**

Patient details are annotated on the radiograph at the time of its being taken. The patient's age and name, and possibly the geographical position of the hospital may all give important clues as to subsequent pathology, whether it be sex preponderance in certain malignancies, or inhalational exposure-related diseases in known industrial areas.

### **Radiographic analysis**

Consider the following:

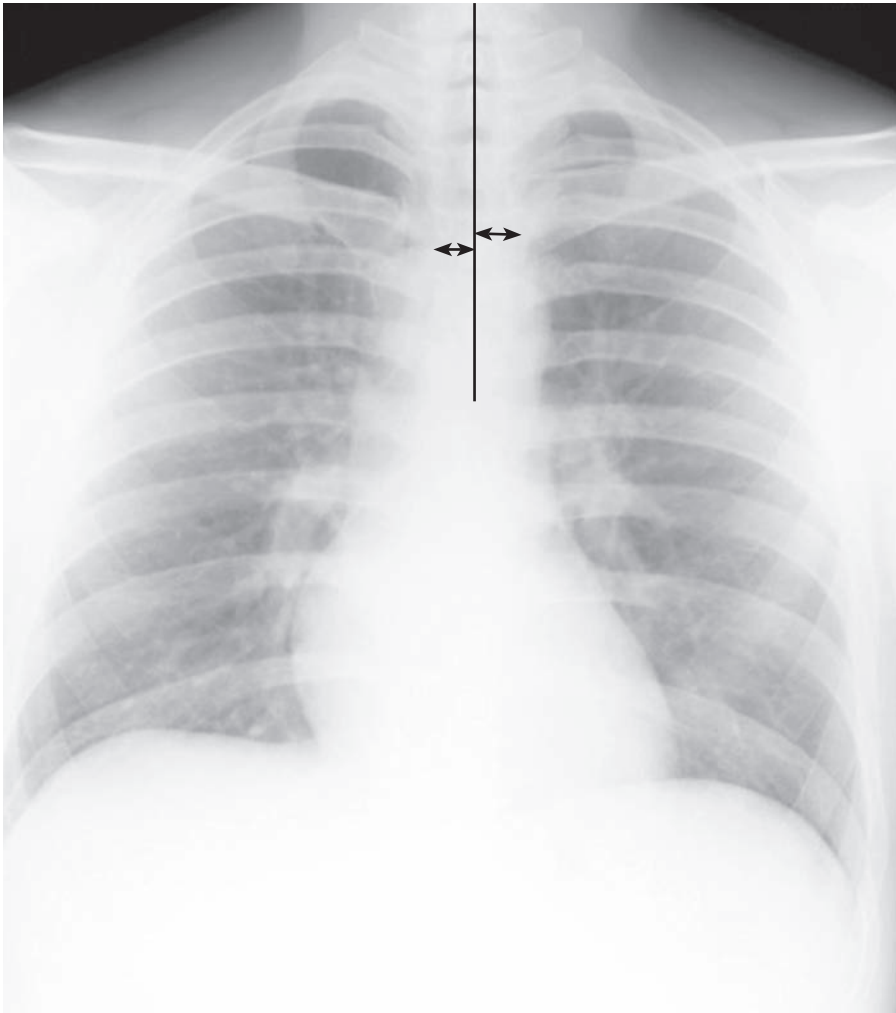
- postero-anterior (PA) or antero-posterior (AP) projection
- exposure
- rotation
- the side marker.

The *standard projection* in which chest X-rays are taken in an X-ray department is the *PA projection*. This is sometimes annotated on the radiograph, but this projection is so much the norm that if there is no such marking it is usually safe to assume that the radiograph has been taken in this way. By comparison, if the radiograph has been taken AP, this is invariably marked as such on the film, either by a subtle 'AP' next to the patient details, or it is written elsewhere on the film by the radiographer at the time of the exposure. AP films are usually taken if the patient is too ill for the PA projection, for example in cases of trauma, or in mobile (ie. non-departmental) chest radiographs.

The radiograph *exposure* is both subjective and objective. Historically, the correct exposure should just allow visualisation of the vertebral end-plates through the mediastinum.

*Rotation* can be assessed by overall symmetry of the thoracic cavity, and in particular by ensuring that the distance from the spinous process (a posterior structure) with the medial end of the clavicles (anterior structures) are the same on both sides. If this distance is decreased, this suggests that the patient is rotated forward on that side (see *Figure 1A*).

It is important to ensure that the *side marker* is present and in the expected position; remember, however, that it is more likely for the radiographer to have placed the side marker incorrectly than for the patient to be suffering from dextrocardia!



*Figure 1A. CXR with a line drawn along the spinous processes, and measured from the medial end of both clavicles. Note the decreased distance on the left side indicating the patient is rotated with the left side of the chest rotated anteriorly; i.e. a left anterior oblique rotation.*