1 CHAPTER 1
General observations

Introduction

Cardiovascular examination begins with the inspection of clothed and unclothed patients. The detection of systemic diseases often provides a clue as to the associated cardiovascular problem. General observations include evaluating the weight, the height, the degree of alertness, and the gait. Subsequent observations are organized on a regional approach, starting with the face and ending with the lower extremities. This problem-oriented approach is justified as it mirrors the way a physical examination is carried out. Systemic diseases obviously manifest themselves in more than one region of the body, so some repetition of the clinical findings is inevitable. The examination of the face and hands is especially important in detecting underlying cardiovascular disease. In the legends, the most common cardiovascular entity associated with the depicted sign has been placed in brackets.

Weight

Looking at the patient's own clothing may give a clue to any weight change [1, 2]. Wearing unusually loose clothing may reflect excessive weight loss (Figure 1). The belt may be hitched in several notches (Figure 2) or there may be a loose wedding ring (Figure 3) to indicate weight loss. Cardiac causes of weight loss include advanced heart failure with cachexia or overzealous use of diuretics. Noncardiac causes such as carcinomatosis or anorexia nervosa need to be excluded.

Weight gain may also be assessed by looking at the belt buckle marks to show an expanding abdominal girth as in ascites or obesity (Figure 4). In the latter case, some of the belt marks were obscured by boot polish. Patients with obesity (body mass index over 30 kg/m^2) have a higher incidence of hypertension and diabetes mellitus.

Height

A tall thin person with arm span exceeding the height (Figure 5), a tremulous iris, posterior dislocation of the lens (Figure 6), long thin fingers, a positive wrist, and thumb sign (Figures 7 and 8) [3, 4] are common characteristics of Marfan syndrome [5, 6].[1] In the case (Figures 7 and 8) illustrated, the patient had aortic regurgitation on echocardiography and an enlarged aortic root on CAT scan of the chest (Figures 9 and 10). Aortic dissection is a common complication of Marfan syndrome [5, 6]. A female of short stature (usually <5 feet tall) with webbing of the neck points to Turner syndrome which is associated with coarctation of the aorta in 30% of cases (Figure 11) [7]. A short stature is also seen in William's syndrome (supravalvular aortic stenosis), Ellis–van Creveld syndrome (60% have atrioventricular canal defects), and osteogenesis imperfecta. Patients with osteogenesis imperfecta have blue sclera (Figure 18) and associated aortic insufficiency [8, 9].

Progressive decrease in height and a progressive increase in hat size and saber shin are features of Paget's disease of bone (Figure 12) [10]. Aortic stenosis [11] and left ventricular systolic dysfunction [12] occur in moderately severe Paget's disease of bone, whereas high output failure occurs in patients with more extensive osseous involvement [12].

[1] Schwartz (*JAMA* 187:473–479) has claimed that Abraham Lincoln (1809–1865) had Marfan syndrome on the basis of a tall slender appearance, arachnodactyly, hyperopia, and a positive family history. Such skeletal and ocular findings have been challenged by Montgomery (*JAMA* 1964; 189: 165), which in any case are inadequate criteria for making the diagnosis of Marfan syndrome (see Ref. [6]). The history of Marfan syndrome in the Lincoln family is also unconvincing.

Degree of alertness

Patients who frequently fall asleep during an interview may be suffering from sleep apnea syndrome and may or may not be obese (Figures 13) [13]. Sleep apnea is associated with cor pulmonale and systemic hypertension.[2] Other causes of excessive somnolence such as sleep deprivation, boredom, or use of CNS depressants need to be excluded.

[2]Sotos JG (*Chest* 2003; 124: 1133–1142) noted that William Howard Taft (1857–1930) probably had obstructive sleep apnea. He was about 6 feet tall and weighed up to 340 lb. He would fall asleep during important diplomatic conversations, while standing up and during meals. These symptoms of hypersomnolence were evident during his presidency (1909–1913). When he had temporarily lost a lot of weight, the President said, "I have lost that tendency to sleepiness which made me think of the fat boy in Pickwick. My color is very much better and my ability to work is greater."

Gait

Muscular dystrophy may present as a high steppage gait [14], whereas Friedriech's ataxia (occurring 1.5/10,000/year) is manifested by a sensory ataxia and pes cavus (Figure 199). Both of these disorders are associated with a cardiomyopathy in over 50% of cases [14]. Tabes dorsalis is characterized by sensory ataxia, optic atrophy, and the Argyll Robertson pupil. There may be coexistent aortic insufficiency due to luetic aortitis [15]. Luetic aortitis is symptomatic in 10% of cases [13]. A festinating gait with orthostatic hypotension is seen not only in Parkinson's disease, but also in the Shy–Drager syndrome [16].

Figure 1 Weight loss: a woman who was treated for heart failure and lost 60 lb. Her clothes now hang loosely.

Figure 2 Weight loss: an elderly man who has multiple buckle marks on his belt due to progressive loss of abdominal girth from cardiac cachexia.

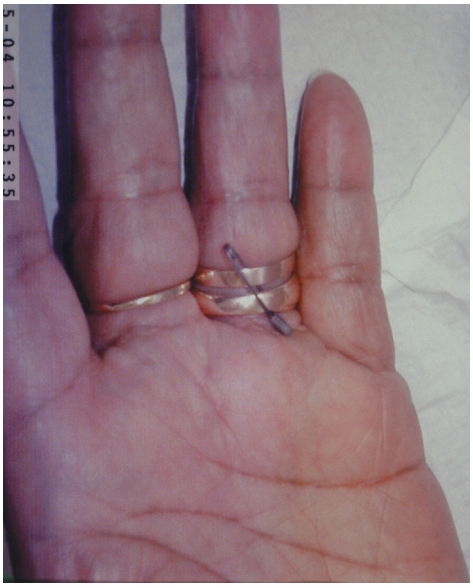


Figure 3 Weight loss: an elderly obese woman with hypertensive heart disease who had lost 40 lb and had to use a safety pin to keep her ring on.

Figure 4 Weight change in obesity: three buckle marks on the belt are seen, one of which has been obscured by black boot polish.

Figure 5 Marfan syndrome: the legs and arms are disproportionately long. The hands may touch the knees and the armspan/height >1 (Aortic dissection). (Reprinted with permission from Elsevier. Copyright 1989)

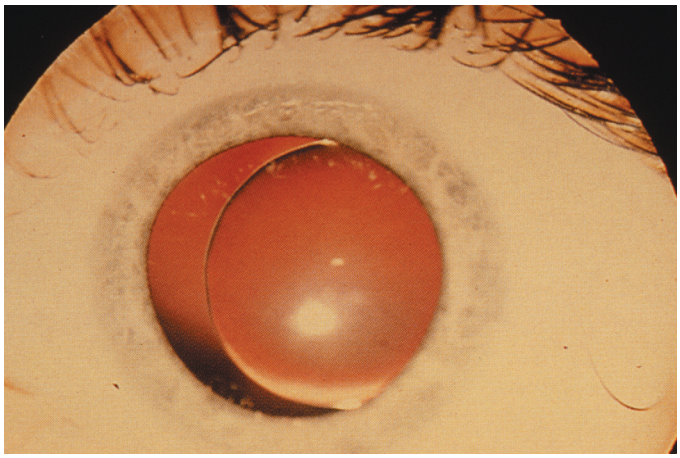


Figure 6 Marfan syndrome: there is posterior dislocation of the lens. (Reprinted with permission from Elsevier. Copyright 1989)

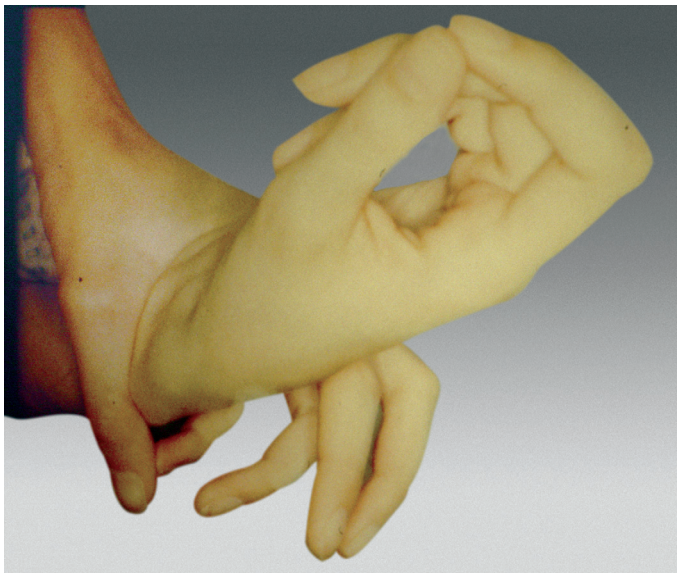


Figure 7 Marfan syndrome: wrist sign in a 24-year-old female. The thumb and fifth finger are encircling the wrist with space to spare. (Reprinted with permission from Humana Press. Copyright 2006)

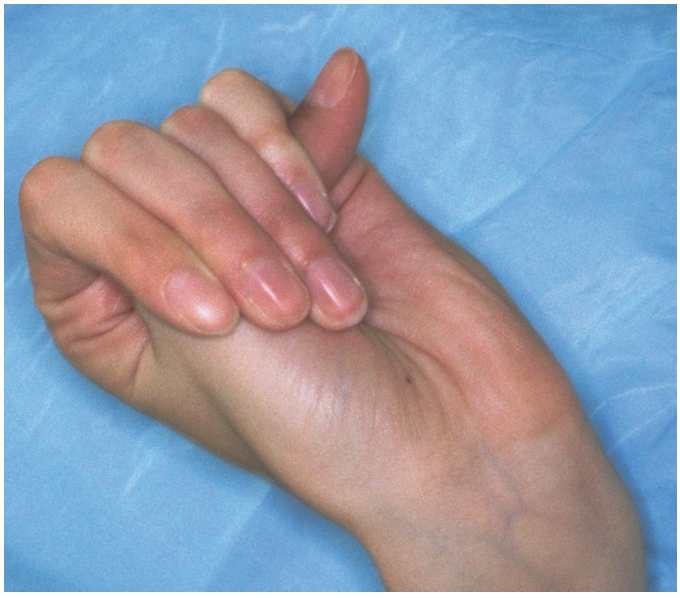


Figure 8 Marfan syndrome. Same patient as in Figure 7, showing the thumb sign in which the thumb can extend across the palm and reach beyond its ulnar surface. (Reprinted with permission from Humana Press. Copyright 2006)

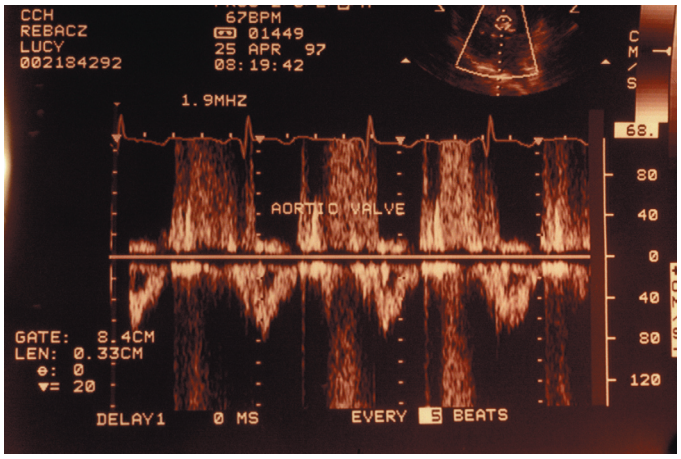


Figure 9 Marfan syndrome: same patient as in Figure 7, showing a pulsed Doppler recording just inferior to the aortic valve, illustrating a normal systolic laminar flow and high velocity diastolic flow of aortic regurgitation.

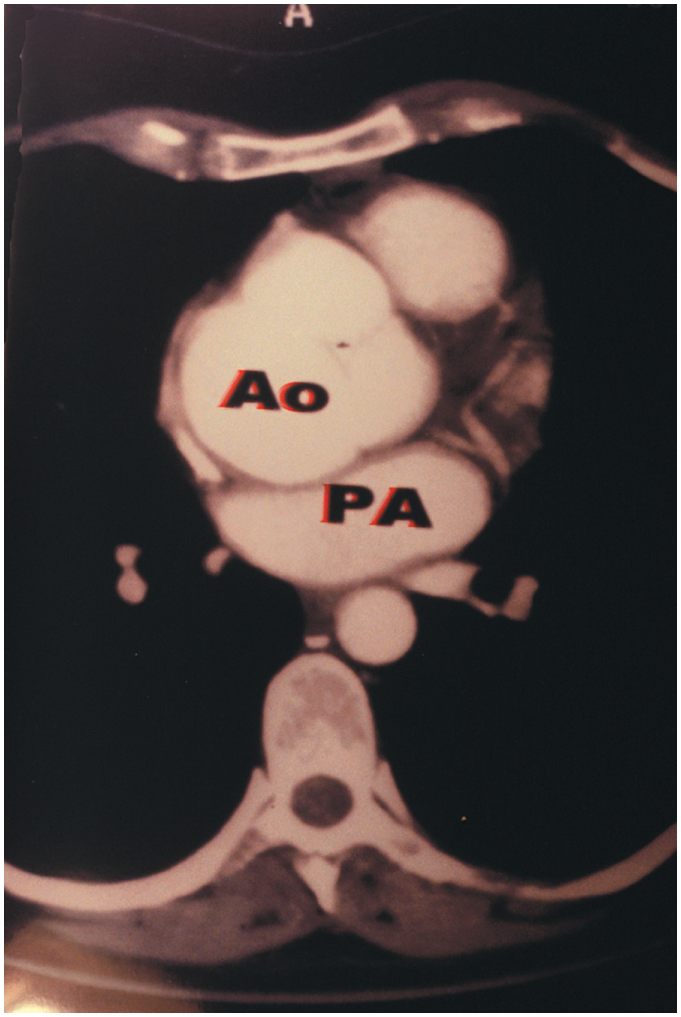


Figure 10 Marfan syndrome: the aortic root of the patient in Figure 7 is dilated to 5.5 cm. The patient subsequently underwent a successful repair of her ascending aorta. Ao, aorta; PA, pulmonary artery.

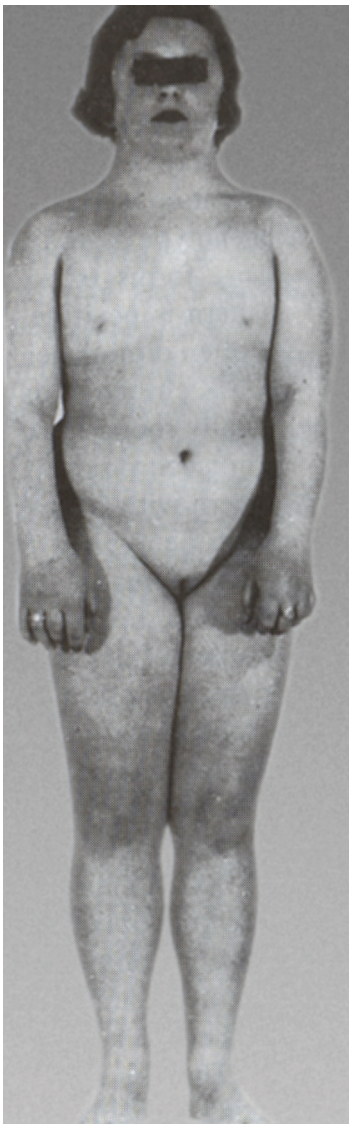


Figure 11 Turner syndrome: a 15-year-old with a short stature (55 inches tall), webbed neck, increased inter-nipple distance, shield chest, and delayed secondary sexual characteristics (coarctation). (Copyright 2003. McGraw Hill. All rights reserved)

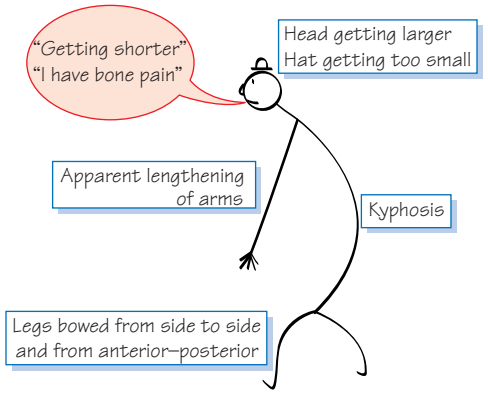
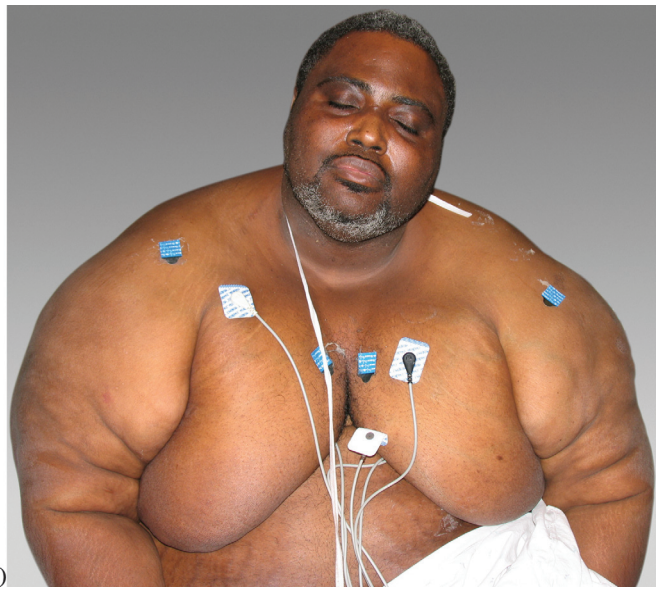


Figure 12 Paget's disease showing in cartoon form its main skeletal characteristics. Modified from Ref. [9]. (Reprinted with permission from Hodder. Copyright 1960)

(a)



(b)

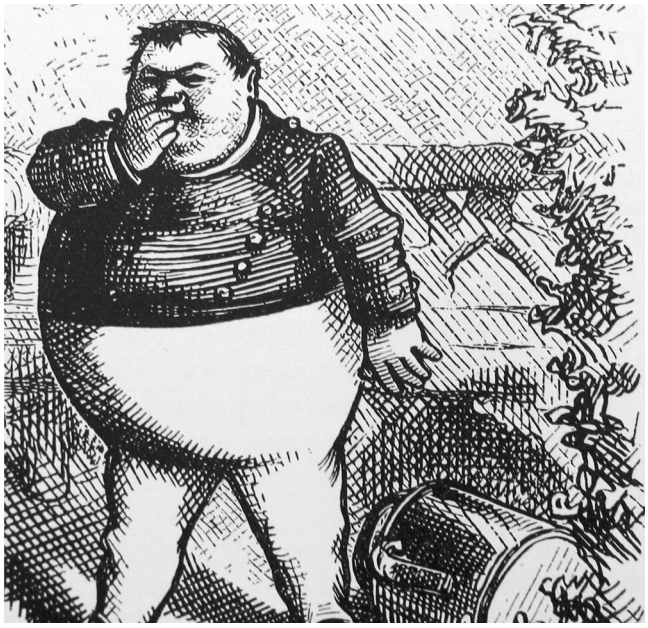


Figure 13 Sleep apnea syndrome: (a) this 46-year-old obese man was fast asleep. Height 71 inches, weight 400 lb (cor pulmonale). (b) Thomas Nast's drawing of the fat boy Joe, in the Pickwick papers who was often "in a state of somnolency." (Reference: US edition of Posthumous Papers of the Pickwick Club by Charles Dickens. New York, 1873, as quoted by Burwell CS *et al*. *Am J Med* 1956; **21**: 811–818.)