

on percussion over this area except around the margin. Pulsation is felt to be uniform all over this area; it is synchronous with, and stronger than that felt at the apex of the heart; there is no thrill. Pressure over this area causes cough and pain, as does also lying on the back or left side. The apex beat of the heart is weak and displaced nearly an inch downwards; the sounds are normal; the radial pulses are weak, the left being considerably weaker than the right. The superficial veins over the upper part of the chest are slightly dilated. The pupil of the right eye is considerably larger than the left; it reacts slowly to light, but very well to accommodation.

Now let us consider the important points in this history seriatim and endeavor to ascertain the cause and interpret the significance of each. In his previous history there are three things to be noted, viz.: his occupation and mode of life, his having had rheumatism and also gonorrhœa. In discussing the etiology of aneurism, we said that *straining* was one of the most important causes of atheromatous degeneration of arteries and the cause, in most cases, of the aneurismal dilatation of the vessel. This man's life as a soldier, was one subject to repeated and severe exertion and that too under the additional strain of tightly fitting dress and accoutrements, conditions that have been adduced to account for deaths from aneurism being about ten times as frequent among soldiers as among civilians. The sudden onset of pain in the chest and other symptoms, leave no room for doubt that the strain of lifting caused the weakened wall of the aorta to give way, so that the case illustrates in the clearest manner the efficacy of straining in causing first the degeneration of the walls of the aorta, and secondly, the formation of the aneurism. The rheumatism may have helped on the atheromatous change in the wall of the artery. That he had gonorrhœa has some possible connection, in that he may also have had syphilis, although he never showed any evidence of it.

Of the symptoms of aneurism, *pain* is one of the earliest and most troublesome. It is caused by stretching of the nerve fibres in the arterial wall and by pressure of the tumor on neighboring organs. There is usually, as in this case, a fixed pain with exacerbations in which there are sharp darting pains in various directions;

the pain is often affected by change of position. Thus, variability in character and seat of the pain possesses great diagnostic significance and is due chiefly to change in blood-pressure, hence any excitement or exertion increases the shooting neuralgic pain. If the tumor cause erosion of the vertebræ or sternum, gnawing pain results. The pain is more persistent than that of angina pectoris, and causes much less anxiety.

The cough, dyspnoea and feebleness of respiratory murmurs in right lung are all probably due to one cause, viz.: narrowing of the right bronchus by pressure of the tumor. The irritation of the bronchus will cause some collection of mucus at the narrowest part, which in turn will excite the cough. The somewhat metallic sound of the cough suggests some spasm of the glottis as a cause; if there is spasm it must be slight and only occasional, as the voice is natural and the laryngoscopic mirror shows a normal condition of the vocal cords. When spasm of the glottis exists it is caused by irritation of the vagus or recurrent laryngeal nerve by pressure of the tumor. When the pressure on the recurrent laryngeal increases so as to destroy it, then paralysis of the corresponding vocal cord results, and is easily demonstrated by the throat mirror. If both cords are paralyzed, voice is completely lost and dyspnoea very great; this is rare. These respiratory symptoms are paroxysmal, on account of the varying degree of distension of the tumor. Anything increasing the arterial tension distends the tumor, thus suddenly lessening the calibre of the bronchus or increasing the irritation of the nerve.

The dilatation of the right pupil is caused by irritation of the cervical sympathetic, through pressure on the nerve filaments, which pass from the anterior roots of the spinal nerves in the cilio-spinal region—the lower cervical and upper dorsal—to the cervical ganglia of the sympathetic, thence up to supply the dilator muscles of the iris. Pressure sufficient to irritate these nerves causes dilatation of the pupil, as in this case before you; if the nerves are paralyzed by the pressure then the pupil contracts, as the sphincter muscle of the iris is unopposed. The condition of the pupil usually varies much from day to day; yes, even from hour to hour, as it depends on the degree of distension of the aneurism by the blood-pressure. This fact possesses much significance in distinguishing an-