Anomalous (Nonconstricting) Left Pulmonary Artery

Report of Two Cases

By ISRAEL STEINBERG, M.D.

ANOMALOUS nonconstricting left pulmonary arteries are probably rare. Only two cases have been encountered among several thousand patients who have had angiocardiography at this center. In contrast to the alarming respiratory symptoms of dyspnea, stridor, and recurrent pulmonary infections in patients with constricting pulmonary ring lesions, the patients herein reported were asymptomatic and referred because of unusual left hilar vascular shadows discovered after routine roentgenography of the chest.

Case Reports

Case 1
A 15-year-old school boy was referred by Dr. Herman D. Ruskin after routine roentgenograms, made because of a severe upper respiratory infection, disclosed asymmetry of the thoracic spine owing to hemivertebrae, diminished vascularity of the left lung, and prominence of vessels behind the heart (fig. 1). Angiocardiography disclosed that the left pulmonary artery arose from its usual site, but instead of proceeding directly into the left hemithorax it curved medially and caudally for a short distance and then became attenuated and plunged into the lung at the left hilus (fig. 2A). When the left heart structures were opacified, the lowermost vessels were demonstrated to be the left inferior pulmonary veins (fig. 2B). Serial angiography showed that the left pulmonary artery was posterior and did not encroach on the bronchi or trachea (fig. 3A). Esophagosgraphic studies were normal and bronchography disclosed that the left lung consisted of a single lobe (fig. 3B).

Case 2
A 40-year-old housewife was referred from the out-patient clinic because of unusual left hilar vascularity (fig. 4A). Serial angiography showed that the left pulmonary artery was a...
slender vessel containing a fleck of calcium at its origin and gave off meager branches to the left lung (fig. 4B).

Discussion
There is general agreement that the pulmonary artery forms early in embryonic life (36 days) from primitive pulmonary arteries and elements of the sixth aortic arch.\(^1\) Normal, the left pulmonary artery connects with the left lung buds and develops alongside the left

Figure 2
Case 1. A, left. Serial erect frontal angiocardiogram revealing the upward and medial direction of the slender left pulmonary artery. B, right. When the left atrium and pulmonary veins are opacified, the inferior left pulmonary veins are large and prominent.

Figure 3
Case 1. A, left. Lateral angiocardiogram shows the slender, curved, and posterior position of the left pulmonary artery. B, right. Frontal bronchogram shows that there is no left upper lobe.
ANOMALOUS LEFT PULMONARY ARTERY

bronchus. Arrest of growth may result in congenital absence of the artery \(^8\) while variations in rotation of the artery may produce the anomalies reported above.\(^6\) Patients with non-constricting anomalies of the left pulmonary artery apparently do not have respiratory complaints and esophagographic studies are normal. In contrast, patients with anomalous left pulmonary arteries which constrict bronchi usually have respiratory distress. Diagnosis can be made by observing marked indentation of the esophagus in lateral view by a soft tissue mass which is at the level of the pulmonary artery and lies between the trachea and esophagus.\(^5\)\(^\text{-}\)\(^6\)

Associated malformations in case 1 consisted of thoracic spine hemivertebrae with fusion of the third to fifth bodies and absence of the left upper lobe (fig. 3B). Contro and colleagues\(^6\) also reported hemivertebrae in one of their cases. Case 2 had a calcific deposit at the origin of the left pulmonary artery (fig. 4B). This finding is in accord with Dalith’s view that the aortic arch remnants frequently calcify.\(^9\) Contro and associates\(^11\) have also reported two patients with bronchial obstruction due to pulmonary artery aneurysms. Since both of their patients showed the lesions of tetralogy of Fallot, it would appear that such cases had better be classified as having poststenotic dilations owing to pulmonic stenosis. Resections of the pulmonary artery as an emergency measure do not seem warranted in such instances; the cardiac abnormality is apparently of greater significance than pressure of the dilated pulmonary arteries against the tracheobronchial system.

Summary and Conclusions

Two asymptomatic patients with anomalous left pulmonary arteries causing unusual left hilar shadows were readily diagnosed by angiocardiography. One patient had associated thoracic hemivertebrae and a single-lobed left lung. The other patient had a single-lobed esophagus. The cardiac diagnosis was confirmed by poststenotic dilatations of the pulmonary artery. The cases reported are of interest to the orthopedic surgeon for the demonstration of unusual malformations and the cardiologist for his understanding of the significance of these anomalies.

References


3. Potts, W. J., Holinger, P. H., and Rosenblum, A. H.: Anomalous left pulmonary artery causing...


Of the Preparations and Doses of the Foxglove

I still continue to prefer the leaves. These should be gathered after the flowering stem has shot up, and about the time that the blossoms are coming forth.

The leaf-stalk and mid-rib of the leaves should be rejected, and the remaining part should be dried, either in the sun-shine, or on a tin pan or pewter dish before a fire.

If well dried, they readily rub down to a beautiful green powder, which weighs something less than one-fifth of the original weight of the leaves. Care must be taken that the leaves be not scorch'd in drying, and they should not be dried more than what is requisite to allow of their being readily reduced to powder.

I give to adults, from one to three grains of this powder twice a day. In the reduced state in which physicians generally find dropysical patients, four grains a day are sufficient. I sometimes give the powder alone; sometimes unite it with aromatics, and sometimes form it into pills with a sufficient quantity of soap or gum ammoniac.

If a liquid medicine be preferred, I order a dram of these dried leaves to be infused for four hours in half a pint of boiling water, adding to the strained liquor an ounce of any spirituous water. One ounce of this infusion given twice a day, is a medium dose for an adult patient. If the patient be stronger than usual, or the symptoms very urgent, this dose may be given once in eight hours; and on the contrary in many instances half an ounce at a time will be quite sufficient. About thirty grains of the powder or eight ounces of the infusion, may generally be taken before the nausea commences.—Louis H. Roddis, M.D. William Withering: The Introduction of Digitalis Into Medical Practice. New York, Paul B. Hoeber, Inc., 1936, p. 66.
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