occluded pulmonary artery, the saturation fell only in those instances when a pressor response was obtained. On bilateral air injection the degree of unsaturation was quantitatively related to the rise in PA pressure. The saturation fell 6–21% (average 14·3%). In six experiments, arterial CO_2 pressure changed less than ± 2 mm. Hg.

During oxygen breathing, embolization lowered the arterial Po_2 from 490 to 399 mm. Hg, corresponding to a shunt of 18% of the cardiac output. This explains only part of the desaturation during air breathing.

Pulmonary Air Embolism: Radiological Changes

S. JOSEPHSON and C. O. OVENFORS Following experimental unilateral and bilateral air embolism in 16 dogs, the pulmonary circulation was studied by means of serial angiography. The pulmonary artery pressure and the arterial oxygen saturation were simultaneously recorded during this procedure. Control studies were carried out before embolization and serial angiography was in some cases continued up to 30 minutes after air injection.

After bilateral embolization the following changes occurred:

(1) The diameter of the pulmonary arteries increased and showed a cork-screw appearance in their distal branches, where there was also a reduction in side branching.

(2) The contrast passage time to the pulmonary veins was shortened despite delayed emptying of the pulmonary arteries.

(3) Abnormal vessels appeared in the periphery of the lungs.

(4) The pulmonary artery pressure doubled.

(5) The arterial oxygen saturation decreased.

It is to be noted that all of these findings were also demonstrated bilaterally when only one lung was subjected to embolization.

These were considered to result from a reflex pulmonary vasoconstriction and opening of precapillary arteriovenous anastomoses, probably indicating one of the causes of arterial hypoxaemia.

All the above changes disappeared within 15–20 minutes after the air injection.

The Plain Radiograph in Acute Massive Pulmonary Embolism

R. E. STEINER On reviewing the plain radiographs in acute massive pulmonary embolism the following vascular and parenchymal changes can be seen: enlargement of the main pulmonary artery or hilar arteries, zones of variable oligaemia or hyperaemia in the lungs, and shadows indicating areas of pulmonary infarction, elevation of the diaphragmatic dome on the affected side, and variable pleural effusions.

The findings are compared with pulmonary angiograms to assess the value of the plain radiograph.

Pulmonary Wedge Arteriography in Clinical Diagnosis

SVEN PAULIN Pulmonary wedge arteriography is specially adapted for demonstration of the peripheral vasculature of the pulmonary circulation. Compared with more conventional angiographic examinations the visualization of small structures is greatly enhanced and vascular branches of as small a calibre as approximately 0·1 mm. can be subjected to analysis. The procedure has been employed in patients with different cardiopulmonary diseases, and highly satisfactory demonstrations of vascular abnormalities have been accomplished. Thus the increased diagnostic potentials of angiography permit the *in vivo* diagnosis of vascular changes known to be associated with certain conditions, such as chronic venous congestion, pulmonary hypertension, and chronic obstructive disease of the pulmonary airways.

The production of such detailed pulmonary angiograms was found in our animal experiments to require a meticulous control of injection pressure in order to avoid artefacts or tissue damage. Trials to study the effect of pharmacodynamic substances upon the vascular pattern in the periphery of the lung have been discouraging. Furthermore, appropriate positioning of the catheter tip in voluntarily chosen areas of the vascular bed may be laborious and time consuming. The practical value of the procedure in clinical diagnosis is therefore considered to be limited.

Blood Diversion to the Upper Lobes not due to a Rise in Pulmonary Venous Pressure

G. SIMON The dilated upper lobe vessels seen in mitral stenosis or left ventricular failure with a rise in pulmonary venous pressure is well known. Examples are shown of such diversion in persons with lung disease but a normal pulmonary venous pressure.

1. Lower lobe disease such as lower lobe bronchiectasis or lower lobe emphysema.

2. Cases of chronic bronchitis with uneven blood gas mixing in the lower zones, but no emphysema.

PULMONARY ARTERY SLING

R. J. M. MCCORMACK A rare anomaly causing obstructive dyspnoea and stridor in infancy is an abnormal left pulmonary artery which passes around the right side of the lower trachea and thence between the trachea and the oesophagus to the left lung, referred to as a pulmonary artery sling. The infant presents with episodes of respiratory obstruction not associated with feeding and the chest radiograph shows obstructive emphysema of the right lung and a small indentation on the right lateral wall of the lower trachea. The lateral view of the barium swallow is almost diagnostic and the diagnosis is confirmed by pulmonary angiography. Death in early childhood is the rule unless surgical correction is achieved. Two recent examples of the condition are described along with their surgical management. The lesion was first recognized at necropsy in 1897, first diagnosed in life in 1953, and first treated successfully by surgery in 1954. Some 38 cases have been reported in the literature and these are briefly reviewed.