

The trachea in this case was connected with the air pump and a pressure of 30 mm. of mercury applied, overdistingending the right lung, but without leakage occurring from the bronchial stumps.

While it is true that almost complete obliteration of an eviscerated pleural cavity may be obtained by closure under exaggerated pressure (18 to 20 mm. of mercury), such a procedure not only imposes a serious strain upon the bronchial stump and the mediastinum, but may precipitate critical symptoms both respiratory and circulatory, owing to the disturbance of the normal respiratory rhythm and the sudden displacement of the heart. Further experimentation may prove that within certain limits hyper-pressure may be safely used in this connexion, but it would appear that uniform results can be obtained only where, in closing an eviscerated cavity, one leaves behind a pressure difference approximating as closely as possible the physiological. This negative differential should necessarily be without violent effect upon either the mediastinum, heart or great vessels; that is, a minus pressure of from seven to ten mm. of mercury. Under such conditions obliteration of the cavity takes place chiefly through the gradual displacement of the mediastinum and its contents toward the operated side, and to a less extent through a rise in the diaphragm, and in young animals the falling in of the thoracic wall.

On the other hand, a total closed pneumothorax invariably proves fatal. In the presence of such the mediastinum oscillates with each inspiration towards the sound side. Owing to the absence of lung tissue absorption of the enclosed air is practically nil. Eventually the accumulation in this cavity of clear, limpid transudate which rapidly increases in volume, adding more and more to the embarrassment of the heart and sound lung, proves fatal through its mechanical pressure effects. A study of the effects of closed pneumothorax upon the mediastinum has, in a measure, accounted for the unsatisfactory results of extensive thoraco-plastic operations undertaken for the obliteration of large pleural cavities. In such cases the integuments coming to rest upon the mediastinum, and unsupported by the bony thorax, leave the former without protection against the effects of atmospheric pressure during inspiration. In consequence, the ribless chest wall moves with the mediastinum towards the sound lung, and in so doing largely negatives the effects of the inspiratory act upon the sound organs, preventing lung expansion and leading eventually to death.

Very great progress has been made in the technique of bronchial closure, and from our limited experience we are led to conclude that the method of Meyer is the best method so far devised. This method