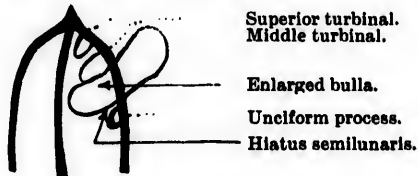


neuralgia, is often caused by pressure of the secretion in the antrum upon the branches of the trigeminus ; and in closed empyema, as the result of the accumulation of secretion, distention of the walls of the cavity often occurs. The cavity of the antrum in such cases becomes round in form, and if the tension is not relieved, bulging of the inner or anterior wall is noticed, or there may be bulging over the hard palate, recognised by the presence of a soft fluctuating tumour situated at the roof of the mouth. Further observations must prove whether the cases described by Weichselbaum, Grünwald, Manchot and others, in which peritonsillitis and perichondritis of the thyroid cartilage were associated with empyema of the antrum of Highmore, were caused by a direct infection from the latter cavity ; or whether these localized inflammatory areas were local manifestations of a general infection.

On examination of the nose in cases of closed empyema of the ethmoidal labyrinth one frequently finds dilatation of the ethmoidal bulla and atrophy of the middle turbinal due to pressure upon it by the enlarged bulla as shown roughly in the accompanying diagram.



The bulla is sometimes congenitally dilated, but in such cases both bullae participate in the enlargement. Again, the middle turbinal may become enlarged and present a bowl-shaped appearance. Such enlargement must be differentiated from the condition first described by P. Heyman, in which an isolated ethmoidal cell, frequently found in the anterior third of the middle turbinal, becomes dilated owing to occlusion of its duct. And, finally, when the whole ethmoidal labyrinth is diseased complete dilatation of the inner wall may occur. In such cases a tumour will be found which fills up the olfactory portion of the nose causing deviation of the septum to the opposite side and with its resulting symptoms.

A very suggestive external symptom of distention of this cavity is displacement of the eye downwards and outwards, due to pressure of the paper plate upon the tissues of the orbit, or rupture of the plate and evacuation of the contents of the cavity into the orbit. The possibility of the infection of the meninges by the blood current or by rupture of the cribriform plate must not be overlooked. When there is occlusion of the naso-frontal duct with accumulation of secretion within the frontal cavity, dilatation, if it occurs, usually appears at the inner angle