Mass effect

A mass effect is the effect of a growing mass that results in secondary pathological effects by pushing on or displacing surrounding tissue.

The mass typically refers to a tumor.

Mass effect is a general term applied to the effects exerted by any mass, including, for example, an evolving intracerebral hemorrhage, presenting with a clinically significant hematoma.

The hematoma can exert a mass effect on the brain, increasing intracranial pressure and potentially causing midline shift or deadly brain herniation. In the past this effect held additional diagnostic importance since prior to the invention of modern tomographic soft-tissue imaging utilizing MRI or CT it was not possible to directly image many kinds of primary intracranial lesions. Hence in those days, the mass effect of these abnormalities on surrounding structures was sometimes used to indirectly infer the existence of the primary abnormalities themselves, for example by using a cerebral angiography to observe the secondary vascular displacement caused by a subdural hematoma pushing on the brain, or by looking for a distortion caused by a tumor on the normal outline of the ventricles as depicted on a pneumoencephalogram. Unfortunately, these studies were often invasive and uncomfortable for patients and provided only a partial assessment of the condition being examined. Nowadays modern diagnostic tools exist which allow physicians to easily locate and visualize all kinds of intracranial lesions without having to rely on indirect effects to make a reliable diagnosis.

Acute right frontal traumatic intracerebral hemorrhage of approximately 46 x 37 x 50 mm (AP x TR x CC) accompanied by moderate perilesional brain edema.

This hematoma is associated with mass effect, causing a deviation of the midline of about 5 mm to the left and partial collapse of the frontal horn of the right ventricle. It is accompanied by subarachnoid hemorrhage in right frontoparietal grooves, small left frontal extraaxial hematic and hyperdense lamina in the cerebral sickle by subdural component.