2D imaging

2D imaging refers to diagnostic imaging techniques that produce two-dimensional representations of anatomical structures, typically in a single plane (axial, coronal, or sagittal). Common examples include standard CT scans, X-rays, and MRI slices.

In neurosurgery, 2D imaging has traditionally been used for diagnosis and preoperative planning. However, it requires the surgeon to mentally reconstruct complex 3D anatomical relationships, which can limit spatial understanding in intricate cases such as brain tumors or vascular lesions.

The emergence of 3D imaging, including 3D virtual reality and 3D printing, aims to overcome the limitations of 2D imaging by providing more intuitive and immersive anatomical visualization.