The Neurotron 1000 system installed at UT Southwestern Medical Center uses a 6MV X-band linear accelerator mounted on the end of a robotic manipulator to treat intracranial lesions from 94 possible beam directions. During treatment, orthogonal x-ray images are acquired prior to each beam delivery and compared to digitally reconstructed radiographs to update the patient coordinate system with the coordinate system of the robot. This is to allow non-invasive head frames to be used without sacrificing accuracy of the delivered dose distribution. Quality assurance tests for each patient treatment include verification of an equivalent dose distribution planned and delivered to a plastic head phantom. Eight slices (3.4 mm spacing) of radiochromic film are used to record the dose distribution for analysis. Between 5/97 and 2/98, the system was used to treat 28 lesions in 13 patients. Results show that the center of the dose distributions were a mean distance of 1.7 mm from that planned (range 0.5 - 3.5 mm). All treatments were isocentric with circular collimators resulting in nearly elliptical dose distributions. Planning and quality assurance for intensity modulated treatments with more complex dose distributions will also be presented.