We present our experience with the installation, commissioning, and clinical utilization of Novalis^{TM}, a new paradigm in stereotactic radiosurgery. The system consists of micro-multileaf collimator (mMLC) integrated into a dedicated 6 MV electron linear accelerator. The linac possesses several unique characteristics ideal for radiosurgery applications. A specially designed flattening filter provides a wide range of output (nominally 0.3 to 20 cGy per degree). Rectangular (backup) diaphragms are significantly smaller than standard jaws resulting in a lighter overall head weight and increased rotational accuracy of the gantry. The mMLC consists of 26 pairs of opposed leaves capable of shaping fields up to 10x10 cm^2 in size. Measured leaf transmission across the entire field averages 1.31 percent with a maximum transmission between any pair of leaves of 1.93 percent. As a result, it is not necessary that the jaws be used as a backup to the mMLC. This simplifies the measurement and planning process significantly. The mMLC, linac functions, and treatment planning system are fully integrated. Tissue-maximum ratios (TMRs) and off-axis profiles were measured for circular fields defined by the mMLC leaves and by standard radiosurgery cones using both a diode and a micro (0.015 cm^3) ionization chamber. The mMLC fields and cones produce indistinguishable TMRs despite the fact that the backup jaws are positioned differently (4x4 cm^2 for cones, 9.8 cm^2 for mMLC). Greater penumbra (80%-20%) with the mMLC (2.6 mm for a 30 mm field size versus 2.0 mm for a 30 mm cone) reflects the greater distal surface-to-isocenter distance.