With the emergence of dynamic conformal and intensity-modulated therapy, the multileaf collimator (MLC) is expected to play a major role in patient treatment. Unfortunately, the jagged MLC dose profile (undulation) is a major distraction and psychological impediment for full acceptance of such technology. The undulation index (UI) can be minimized or eliminated to a near closeness of a blocked beam-edge dose distribution by changing the MLC pattern or by translating the treatment table. Such study was performed for a Siemens MLC where UI is maximum for the fields at 45° MLC leaves. The treatment table was incremented in one-millimeter step from the original position to a maximum of 8 mm in the x, y, and diagonal perpendicular directions. Results show that the pattern of UI with respect to the table increment has a parabolic shape with a minimum UI at nearly 5 mm step. The table translations in the x and y directions do not provide improvements in UI with MLC. However, when table is increased perpendicular to the leaves, the UI improved significantly. With a perpendicular translational step of 5 mm the dose distribution of MLC is dramatically close to a blocked field. The table translation perpendicular to the MLC leaves improves the dose distribution and maintains nearly the same penumbra for the 20%-80% isodose lines. However, there is slight increase in 10%-90% isodose penumbra with this method. The table translation technique can be easily achieved with modern treatment table with digital interface and record and verify system.