Variability in tooth morphology can play a significant role in appliance design and the achievable results of an endodontic treatment. The objective of this study was to reconstruct the external and internal morphology of six maxillary incisors, by using serial sectioning and computerized 3D reconstruction. The were embedded in a two-phase polyester resin and serial cross-sections were taken by using a special microtome (Isomet, Buehler, IL, USA). Each section was digitized under a stereomicroscope (Stemi 2000-C, Zeiss, Wetzlar, Germany), by using a video camera, and digitized sections were proceeded for 3D reconstruction of the whole teeth using EIKONA 3D (Alphatec, Thessaloniki, Greece). The final representation was accomplished through color addition and shading of the previous wireframe model. The results showed in detail the internal morphology of the teeth under investigation and demonstrate that a great number of variations of their internal morphology can be revealed by using the three-dimensional reconstruction method. Published in Greek.