

Three-dimensional imaging of the musculoskeletal system: An overview

李志明;梁庭繼

Wang HJ;Leung TK;Lee CM;Chen YY

摘要

Abstract

The clinical applications of three-dimensional computed tomography (3-D CT) reconstruction continue to expand rapidly. Recently, the field of three-dimensional magnetic resonance (3-D MR) reconstruction has also been developing. Three dimensional imaging offers a new approach to the analysis of complex anatomic relationships. The spatial configuration of an object can be directly displayed without observers requiring mental integration of a series of two-dimensional images. The easily interpretable images of 3-D CT have proven to be useful for surgical planning. Three-dimensional CT displays have used widely in the preoperative planning of craniofacial surgery, dysplastic hips in children, and complex fractures of skeletal systems. However, 3-D MR displays are technically more difficult than those of CT scans, and 3-D MR displays of the musculoskeletal system are still in a developing stage. Recently, we explored the feasibility of 3-D MR displays. This article provides an overview of those areas of the musculoskeletal system where the use of 3-D MR has proven valuable. The current techniques and ongoing applications are also presented. We believe that this exciting development will expand our ability to visualize pathologic anatomy in the near future.