

Development of TEM Coil for Animal Experiments at 3T MRI System**Myung-Ja Chu¹ • Bo-Young Choe¹ • Kyung-Nam Kim² • Sung-Taek Chung² •****Chang-Hyun Oh³ • Hyoung-Koo Lee¹ • Tae-Suk Suh¹**¹Departments of Biomedical Engineering, College of Medicine, The Catholic University of Korea,²Medinus Co. LTD. Korea; ³Department of Electronics and Information Engineering, Korea University

목적 : The purpose of this study is to describe a distributed circuit approach to high frequency volume coil design illustrated with specific coils built accordingly and results obtained from animal studies at 3.0 tesla.

대상 및 방법 : All experiments were conducted on 3T MRI system (Medinus Co., Ltd. Korea). The tuned TEM resonator measures 15cm outer diameter. by 10cm inside diameter. by 30cm in length. The inside diameter and length were determined by animals body or head size (eg. rats or small dogs, etc.) while the outer diameter was chosen for compactness with some sacrifice of the optimal coil Q predicted for a larger cavity. A spin echo sequence with a TR/TE/flip angle=500/12.4ms/75° was used to check image qualities with phantom. The breed of rat which used for animal images was Sprague-dawley(SD) and was anesthetic using ketamin hydrochloride 75mg/kg.

결과 : The TEM resonator coil was employed to collect anatomical data of a coronal rat brain. High SNR rat brain images was acquired.

결론 : A TEM resonator coil was developed that is suitable for small animal studies. Because of high SNR, the coil will apply to functional magnetic resonance imaging (fMRI) or magnetic resonance spectroscopy (MRS) for animals.