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|  | POLICY #: Rad Policy 14.7 |
| SUBJECT: : Aneurysm Clips | Effective: 10/1/2018 Revised 02/2019 |
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BACKGROUND: The micro surgical management of intracranial aneurysms by the application of aneurysm clips is a well-established procedure. The presence of an aneurysm clip in a patient referred for an MRI procedure represents a situation that requires that utmost consideration because of the associated risk.

Certain types of intracranial aneurysm clips (i.e., those made from martensitic stainless steel such as 17-7PH or 405 stainless steel) are an absolute contraindication to the use of MR because excessive magnetically induced forces can displace these clips and cause serious injury or death.

By comparison, aneurysm clips classified as “non-ferromagnetic” are safe for patients undergoing MR procedures. These clips include those made from Phynox, Eligiloy, austenitic stainless steel, titanium alloy, or commercially pure titanium.

It is not uncommon to use MR procedures to evaluate patients with certain types of aneurysm clips, and a great deal of scientific literature has been published on the subject. A web site of particular merit in terms of device compatibility with MRI is www.mrisafety.com. This site is under the direction of Frank G. Shellock, Ph D. Dr. Shellock is an adjunct Clinical Professor of Radiology and Medicine at the Keck School of Medicine, University of Southern California, the Director of MRI Studies at the Biomimetic Microelectronic Systems, NSF Engineering Research Center, University of Southern California, and the Founder of the Institute for Magnetic Resonance Safety, Education, and Research (www.IMRSER.org).

POLICY:

1. In the event it is unclear whether a patient does or does not have an aneurysm clip in place, plain films should be obtained. If available, any cranial plain films, CT or MR examinations taken in
2. the past subsequent the suspected surgery date, should be reviewed for possible clip by the MR medical director or designated Radiologist.

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3. In the event that a patient is identified to have an intracranial aneurysm clip in place, the MR examination should not be performed until the following can be documented: specific manufacturer, model, and type of aneurysm clip within the pt. All documentation (i.e. date, facility where the clip was placed, etc.) of the types of implanted clips must be in writing and signed by a licensed physician. Phone or verbal histories or histories provided by a non-physician are not acceptable. Fax copies of operative reports, physician statements, etc. are acceptable as long as a legible physician's signature accompanies the requisite documentation.
 - a. All intracranial aneurysm clips manufactured 1995 or later for which the manufacturer's product labeling continues to claim MR Conditional labeling may be accepted for MR scanning without further testing.
 - b. Clips manufactured before 1995 require either pretesting before implantation or individual review of previous MRI of the clip or brain in that particular case, if available.
 - c. A patient with an aneurysm clip or other implant may have safely undergone a prior MR examination at any given static magnetic field strength. This fact in and of itself is not sufficient evidence of the implant's MR safety and should not solely be relied upon to determine the MR safety or compatibility status of that aneurysm clip or other implant.
4. In the event the type and name of the clip is known, compatibility with MR can be obtained from the manufacturer's product label or the MRI safety web
5. site at www.mrisafety.com and must be clearly documented in the medical record.

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6. In the absence of MRI data on the clip in question, a risk – benefit assessment and review must be performed in each case individually. Should the risk – benefit ratio favor the performance of the MR study, the MR medical director or designated radiologist should obtain informed consent from the patient or guardian. Consent should include death as a potential risk of the MRI procedure before patient undergoes procedure.

Final determination of whether or not to scan any given patient with any given implant, foreign body, etc., is to be made by the MR medical director or designated radiologist