

CSF VALVES/SHUNTS

PURPOSE

- To ensure patients with ventricular shunts are appropriately evaluated and safely undergo MRI.

PROGRAMMABLE VALVES

- A programmable valve has a mechanism (usually magnetic and/or spring) that allows alteration of valve pressure settings via an externally applied device.
- All routinely implanted programmable valves are themselves MR conditional (without knowing the specific brand/model), however the external devices used to alter the valve pressure settings are MR UNSAFE. The brand/model of a programmable valve can usually be determined by radiography.
- A programmable valve requires pre and post MRI radiographs to assess any change in the valve pressure setting. The post MRI radiographs should be obtained as soon as possible after MRI (within 24 hrs).
- MRI should not begin until the pre MRI radiographs are deemed of adequate quality and dictated by the supervising radiologist.
- Examples of programmable CSF valves include Codman Hakim programmable, Codman Certas, Medtronic Strata, Sophysa Polaris, Sophysa Sophy SM8, Aesculap Miethke proGAV Aesculap Miethke proSA.

NONPROGRAMMABLE VALVES

- Nonprogrammable valves are also known as fixed pressure or monopressure valves.
- Nonprogrammable valves do not require pre or post MRI radiographs.
- Examples of nonprogrammable CSF valves include Medtronic Delta, Medtronic CSF Flow-Control, Codman Hakim Precision, Sophysa Pulsar and Aesculap Dual Switch.

PRE & POST MRI VALVE RADIOGRAPHS

- Pre MRI radiographs should include AP and lateral skull radiographs and tangential radiograph(s) demonstrating the valve (see image below). Fluoroscopy can be used to obtain the tangential view(s).
- Pre MRI radiographs must be assessed by the supervising radiologist prior to the patient leaving the department to ensure the radiographs are of sufficient quality to assess the pressure setting of the valve.
- Repeat pre MRI radiographs are not required if post MRI radiographs (from a prior examination) within the past **1 month** are available and there have been no changes to the valve pressure setting since those radiographs.

- Post MRI radiographs only need to include tangential radiograph(s) demonstrating the valve (and its pressure setting). AP and lateral skull radiographs are not required.

