How to Read Your Brain MRI Radiology Report



Your healthcare provider (usually a doctor, nurse practitioner, or physician assistant) sometimes uses medical imaging tests to diagnose and treat diseases. A radiologist (http://www.radiologyinfo.org) is a doctor who supervises these exams, interprets the images, and writes a report for your healthcare provider. This report may contain medical terminology and complex information. The radiologist writes the radiology report for your healthcare provider, and that can make it challenging to understand. However, you have a right to see your report and to be better informed about your brain health. Write down any questions and concerns you may have about your report and talk to your healthcare provider about the results and any next steps.

What is Brain MRI commonly used for?

Doctors use this exam to help diagnose the cause of neurologic symptoms, such as headache, dizziness, weakness, changes in sensation, memory loss, confusion, and seizures. Radiologists use brain MRI to diagnose diseases such as migraine, stroke, microvascular ischemic disease, dementia, multiple sclerosis, epilepsy, hydrocephalus, brain tumors, sinusitis, and traumatic brain injury. Your healthcare provider may order an MRI brain exam with or without intravenous contrast depending on what they are screening for as well as what your symptoms are.

For more information, see the Brain MRI (https://www.radiologyinfo.org/en/info/mri-brain) (https://www.radiologyinfo.org/en/info/mri-brain) page.

Sections of the Radiology Report

Type of exam

This section states the type of exam that your doctor has ordered based on your symptoms or needs.

Example:

- *MRI BRAIN WITH AND WITHOUT CONTRAST*

History/Reason for exam

This section describes your symptoms, and it allows your healthcare provider to explain why they are ordering the exam. This helps the radiologist accurately interpret your exam and focus the report on your symptoms and past medical history. Sometimes the radiologist who reads your exam will also add information that they find in your chart or in the forms that you fill out before your imaging exam.

Example:

- *64-year-old man with a history of headaches, which have progressed in severity over the past 3 months.*

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Comparison/Priors

If you have had relevant prior imaging exams, the radiologist will list them here. The radiologist will compare your prior exams to the new imaging exam. Comparisons usually involve exams of the same body area and exam type. It is always a good idea to obtain any prior imaging exams from other hospitals/facilities and give them to the radiology department where you are having your current exam. Having these older exams can be very helpful to the radiologist. In some cases, simply having your prior test available will make a difference in what the radiologist recommends if they see something on your scan. The prior exam can help show if a previous finding is unchanged or if there is a new finding.

Example:

- *Comparison is made to a prior MRI of the Brain performed on August 24, 2018.*

Technique

This section describes how the exam was done and whether contrast was used. Because this section is used for documentation purposes, it is not typically useful for you. However, it can be very helpful to a radiologist for any future exam if needed.

Example:

- *Contrast-enhanced MRI of the brain was performed on a 3.0 Tesla scanner utilizing the following sequences: Sagittal T1, axial T2, axial FLAIR, axial GRE images, axial DWI, axial ADC, axial T1, coronal T2, axial T1 post-contrast and coronal T1 post-contrast. The patient was injected with 15 cc Clariscan from a 15-cc single-use vial (remainder discarded).*

Findings

This section describes what the radiologist saw on your MRI Brain exam as well as important things they did not see. These pertinent negatives will tell your doctor that there is nothing serious on the exam to worry about.

Some radiologists will report things in paragraph form, while others use a list reporting style. If the radiologist does not see anything concerning it may say “normal” or “unremarkable” or “normal for patient age.”

Your report may contain medical terms you don’t understand. However, many of the things that radiologists see on imaging tests are quite common and will cause you no harm. So, for example, you may have a small cyst, which often is something you are born with and may not cause any problems at all. Write down any questions you have and talk to your doctor who ordered the exam.

The radiologist will often comment on whether they see evidence of a new or old infarct in the brain, which is another name for a stroke.

They will also often comment on whether there are white matter changes in the brain, which can be related to microvascular ischemic disease. If so, the report will indicate whether it is mild, moderate, or severe in degree. It’s important to note that radiologists see these changes in most people over the age of 60, and it may be well within normal limits for your age. When moderate or severe, it may be a sign of underlying vascular disease (such as from high blood pressure or high cholesterol), which your doctor may discuss with you.

Your report will often comment about the volume (size) of your brain. When there is brain volume loss, it’s called atrophy. Everyone loses brain volume after the age of 40, so just because you see the word atrophy (shrinking) it doesn’t mean that your brain volume is abnormal for your age.

Your report may also mention other findings, such as whether you have mucosal thickening or mucous retention cysts in your paranasal sinuses (the air spaces in the bones of your face). Most people have at least some paranasal sinus mucosal thickening, but if there is a lot or if there is actual fluid in your sinuses, it can cause headaches. Fluid in your mastoid air cells (the air pockets

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in the bone behind your ears) also can cause headaches. This condition is called “mastoiditis.”

Example:

- *There is no evidence of an intracranial mass, bleed, or infarct.*
- *There is no abnormal parenchymal or meningeal enhancement.*
- *There are foci of FLAIR and T2 hyperintensity scattered throughout the cerebral white matter, suggesting mild microvascular ischemic disease, commensurate with age.*
- *There is mild cerebral atrophy, within normal limits for patient age.*
- *There is moderate cerebellar atrophy.*
- *Incidental note is made of an 8 mm simple-appearing pineal cyst, a normal variant congenital finding of no clinical significance.*
- *There is mild chronic mucosal thickening in the bilateral maxillary sinuses.*
- *There is moderate chronic mastoid air cell disease.*

Impression

The Impression section summarizes the findings that the radiologist wants to make sure your doctor/healthcare provider is aware of. It provides the radiologist’s conclusions and may also contain some recommendations for further evaluation that you should discuss with the doctor that ordered your scan. This section offers crucial information for decision-making. Therefore, it is the most important part of the radiology report for you and your healthcare team.

For an abnormal finding, the radiologist may recommend:

- an additional exam that may help assess the finding (such as a CT or PET exam of the brain).
- a follow-up brain MRI to see if the finding changes over time.
- a follow-up brain MRI with contrast to see if the finding enhances.
- a biopsy.
- that your doctor correlates the imaging finding with clinical symptoms or laboratory test results.
- comparing the finding with any other imaging studies that the radiologist does not have access to. This is common when you have imaging tests done at different facilities or hospitals.

For a potentially abnormal finding, the radiologist may make any of the above recommendations.

Sometimes the report does not answer the clinical question, and more exams may be needed. More exams may be necessary to follow-up on a suspicious or questionable finding.

Additional Information

Once the report is complete, the radiologist signs it, and sends the report to your doctor who will then discuss the results with you. The doctor may upload the report to your patient portal before they call you. If you read the report before talking to your doctor, don’t make assumptions about the report’s findings. Something that seems to be bad often turns out not to be a cause for concern.

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