How to Read Your Head CT 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, reads and interprets the images, and writes a report for your healthcare provider. This report may contain medical terminology and complex information. If you have any questions, be sure to talk to your provider or ask if you can speak to a radiologist (not all imaging centers make their radiologists available for patient questions).

What is Head CT commonly used for?

Doctors typically use this procedure to help assess head injuries, severe headaches, dizziness, and other symptoms of aneurysm, bleeding, stroke, and brain tumors. It also helps your doctor to evaluate your face, sinuses, and skull or to plan radiation therapy for brain cancer. In emergency cases, it can reveal internal injuries and bleeding quickly enough to help save lives. They also use it to diagnose conditions such as:

- blood clot (https://www.radiologyinfo.org/en/info/bloodclot)
- brain tumors (https://www.radiologyinfo.org/en/info/braintumor)
- vascular malformations (https://www.radiologyinfo.org/en/info/vascular-malformations)

For more information, see the Head CT (https://www.radiologyinfo.org/en/info/headct) (http://www.radiologyinfo.orgheadct) page.

Sections of the Radiology Report

Type of exam

This section usually shows the date, time, and type of exam. This is usually dictated by your symptoms or needs.

Example:

- *Head CT without intravenous contrast performed July 16th, 2024.*

History/Reason for exam

This section usually lists the information that your ordering provider has listed for the radiologist when they ordered your exam. It allows your ordering provider to explain what symptoms you are having and why they are ordering the radiology test. This helps the radiologist accurately interpret your test 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 test.

Example:

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- *42-year-old female with a history of headaches presenting with a worsening headache for 1 week.*

Comparison/Priors

If you have had relevant prior imaging exams, the radiologist will compare them to the new imaging exam. If so, the radiologist will list them here. Comparisons usually involve exams of the same body area and exam type. It is always a good idea to get any prior imaging exams from other hospitals/facilities and give them to the radiology department where you are having your test. 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 Head CT performed July 10th, 2016.*

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 or your doctor. However, it can be very helpful to a radiologist for any future exam if needed. The radiation dose will be mentioned here, including the CTDI (CT Dose Index) and the DLP (Dose Length Product). CTDI and DLP are metrics used to measure and describe the amount of radiation used during a CT scan.

Example:

- *CT scan of the head was acquired without intravenous contrast. Multiple axial sections were obtained through the brain from the skull base to the vertex. Brain and bone windows were reconstructed in the coronal and sagittal plane. The images were reviewed in brain, subdural and bone windows.*

- *Radiation Dose: CTDI: 42 mGy DLP: 688 mGy*cm*

Findings

This section lists what the radiologist saw in each area of the body in the exam. Your radiologist notes whether they think the area is normal, abnormal, or potentially abnormal. Sometimes an exam covers an area of the body but does not discuss any findings. This usually means that the radiologist looked but did not find any problems to tell your doctor. Some radiologists will report things in paragraph form, while others use a reporting style where each organ or region of the body is listed as a line with the findings. If the radiologist does not see anything concerning it may say “normal” or “unremarkable.”

The radiologist will often comment on whether there is evidence of a new or old infarct in the brain, which is another term for a stroke. They will also assess for white matter changes in the brain, which can be related to microvascular ischemia. The report will indicate whether these changes are mild, moderate, or severe. It is important to note that white matter changes are common in individuals over the age of 60 and may be within normal limits for your age. However, moderate or severe changes could suggest underlying vascular disease, such as high blood pressure or high cholesterol, which your doctor may discuss with you.

Your report may mention brain volume (size). Loss of brain volume, known as atrophy, is a normal part of aging that begins after age 40. Therefore, the presence of atrophy does not necessarily indicate abnormal brain volume for your age. Additionally, the report may mention atherosclerotic calcification of the vasculature, which refers to calcium deposits in the brain's blood vessels due to atherosclerosis.

Other possible findings include mucosal thickening or mucous retention cysts in the paranasal sinuses (air spaces in the facial bones). Some degree of paranasal sinus mucosal thickening is common, but significant thickening or fluid accumulation in the sinuses can cause headaches. Fluid in the mastoid air cells (air pockets behind the ears) can also lead to headaches and may be

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diagnosed as "mastoiditis." The report might note lens replacement if you have had cataract surgery in the past.

Example:

- *Parenchyma: There is no evidence for mass effect, acute intracranial hemorrhage, or large territory infarction. There is mild cerebral atrophy, within normal limits for patient age. There is moderate cerebellar atrophy.*
- *Ventricles and extra-axial spaces: Both the ventricular size and morphology are normal.*
- *Paranasal sinuses and mastoid air cells: There is mild chronic mucosal thickening in the bilateral maxillary sinuses. There is moderate chronic mastoid air cell disease.*
- *Bones: No aggressive osseous lesions.*
- *Soft Tissues: Unremarkable.*

Impression

In this section, the radiologist summarizes the findings and reports the most important findings that they see and possible causes for those findings. It also has recommendations for any follow-up actions. This section offers the most important 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:

- Other imaging tests that can help better assess the finding or getting a follow up imaging test to relook at the finding after a period of time.
- Biopsy.
- Combining the finding with clinical symptoms or laboratory test results.
- Comparing the finding with any other imaging studies that the radiologist interpreting your test 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 more exams may be needed because the report does not answer the clinical question or a suspicious or questionable finding needs follow-up.

Example:

- *No acute intracranial hemorrhage or abnormal extra-axial collection. No evidence of acute infarct, however MRI would be more sensitive.*
- *There is a new 2 cm lesion in the brain which is indeterminate (cannot be definitively diagnosed by the study).*
- *RECOMMENDATION: Given the patient's history of severe headaches, a MRI Brain is recommended to better characterize the indeterminate brain lesion to exclude the possibility of metastases (or cancer spread).*

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.

Sometimes, you may have questions about your report that your doctor cannot answer. If so, talk to your facility's imaging staff. Many radiologists are happy to answer your questions.

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