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Computed Tomography Scan Brain Tumor on suspicion General Hospital Haji Adam Malik

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Abstract- *Brain (brain) is the center of the nervous system that regulates and mengkoordiner sabagian besat movement, behavior and function of the body, blood pressure, body fluid balance and body temperature. Brain tumors (brain) is the occurrence of abnormal cells in the brain continuously so that interfere with the function of the brain (brain). To show abnormalities in the brain (brain) tumors caused by radiological examination with CT Scan Brain (brain). CT Scan tool used Brand Toshiba, Asterion 4 / helical (spiral).*
The results of examination with diagnosis as Brain Tumors (brain).

Keywords: *Brain, CT Scan, Brain tumors (brain)*

1. Introduction

Brain (brain) is the center of the nervous system. Brain organizes and coordinated most of the movement, behavior and bodily functions such as heart rate, blood pressure, body fluid balance and body temperature (Budiyono, 2013).Is a collection of abnormal cell tumors formed by cells that grow continuously indefinitely, not coordinated with the surrounding tissue and are not useful to the body. The tumor consists of malignant tumors (malignant) and benign tumors (benign) (Hima, 2005). Brain tumor is a tumor in the brain. Both malignant and benign tumors would give equal weight problems because the brain located in the skull cavity limited extent. Brain tumor is a disease that attacks the brain. Caused brain is one of the most important organs of the body, other organs may be disturbed, so that death may occur. Brain tumors can affect anyone, even children and adolescents, but in general the tumor to attack the productive age or older. Computerized Axial Tomography is an x-ray procedure that combines many x-ray images with the aid of a computer to generate a sectional view and if necessary can generate a 3D picture of the internal organs and body structure. Computerized Tomography axila better known as a CT scan or CAT scan (Rizal, 2014). CT-Scan is a picture that was built by using x-ray computer collected from various points around the perimeter and forming part of the so-called scanned so as to produce cross-sectional tomographic picture plane (slice) is sliced from the body (Brontrager, 2001). Excess CT scan that can generate cross-sectional radiographic images of the body that can not be done by conventional 2D teknikradiografi (X-rays). Pieces of the body can be adjusted as needed, whether the pieces of sagittal, coronal or transverse pieces (Rizal, 2014). So the CT-Scan is an important diagnostic tool in the evaluation of patients suspected of suffering from a brain tumor. In conventional radiography for examination of patients with a suspicion of a tumor in the head to do, only less efficient because it can not show the boundaries of the tumor clearly as in a CT scan. The sensitivity of CT scan is able to detect tumors which have a less than 1 cm and is located at the base of the skull. Some types of tumors would be more noticeable if at the time of a CT-Scan accompanied by administration of contrast agents.

2. Research Methods

2.1 Patient identity

Name	: Nur Asnah
Gender	: Women
Date of birth	: July 7th, 1972
Age	: 42 Years

Inspection Date : January 2016
doctors Readers : Dr. Henny Maisara S, sprad

2.2 Examination procedure

CT scan of the brain with a tumor in the brain allegation made at the General Hospital Haji Adam Malik in Radiology at the indoor unit CT-Scan Jl.Bunga lau 17 Medan

a. Aircraft Spefikasi CT-Scan

Brands / Aircraft : Toshiba Asteion 4 / Helical or Spiral
tension : 120 kV - 150 kV
Strong currents : 260 mA - 500 mA
Serial No. Tubes : A5592098
filter Default : Al
generation Tool : III / helical scan

Fig 1. Aircraft Toshiba Asteion CT-Scan

b. Procedure best use of CT-Scan

1) Press the power button and press the ON button on the tool dryview.
2) Display the menu screen monitor scanning right click on the mouse select menu system maintenance.
3) In the maintenance system menu select warming up after that wait until the light turns on x-ray.

c. preparation of the patient

In a CT-Scan Brain on suspicion of tumor and performed with contrast before the test patients need to perform lab tests urea, creatinine. Ureumcreatinin lab test results on specified in the letter of request and inform consent that has been signed by the patient's family. Preferably before the test patients were given an explanation of the examination procedure to be performed. All objects - objects that are worn by the patient that may hinder the implementation of the inspection should be released, such as: earrings, sunglasses, hair clips and other objects that may interfere with the examination. Patients are encouraged to not move while the examination is in progress

2.3 Mechanical Inspection

a) patient position

The patient is positioned supine on the examination table, the patient's arm can be arranged in addition to the patient's body and to avoid movement of the patient during the examination then placed straining straps to the body

Fig 2. Position the patient supine
(General Hospital Haji Adam Malik)

b) position Objects

Place the head on the head holder to reduce the movement of objek.Kepala arranged in the middle and the left and right symmetrical or true AP and chin so that infra orbito diflesikan meatal line forming an angle of approximately 25° and head right place at the intersection of indicator lights.

Fig 3. The position of the object is in the gantry
(General Hospital Haji Adam Malik)

2.4. Mechanical Shooting

a) Once the patient is already in position, then enter the information or data - personal data of patients that includes: name, age, sex, registration number (RM) in the available space on the monitor screen by clicking one of the menu is the menu scan and then at the bottom right corner monitor select the next patient to fill the proficiency level patient data and fill in the appropriate columns of data on patients diagnosed colom comment browse and select the type of patients.
b) Then select the organ to be examined and then select the type of piece. Select "Head Routine Axial He" with a piece of 5 mm and 10 mm.
c) Click confirm. wait until the scan indicator light turns on and press to begin its initial scan or scanogram topogram that aims to capture axial slices or pieces where the object moves into the gantry and at the joint occurs with radiation X-ray detector tube or stationary position at position 0° or 90°, In order to obtain the picture. When finished making scanogram then performed by intravenous injection of kontars media. And set the upper limit of sinus maksillaris to circle above the eyes and penyudutannya corresponding object position as it

appears on the computer screen. This image is used for localization of the area to be in scanning. Then will come the demand for penyudutan gantry on the screen, then press OK after the beginning of the gantry penyudutan indicator lights will illuminate the indicator hit until the lights are not on. After the scan indicator lights will be lit press once and scans will run automatically until finished, wait until the scan is complete.In a CT-Scan Brain on suspicion of brain tumor Scan mode used is helical CT. And the results of the drawing is a slice per slice or piece by piece. Advantages of helical CT, ie: able to produce whole organs in a scanning short, the scanning time becomes shorter because no ISD (InterScan delay), gapless scanning, reduction of patient motion artifact, the slice can be picked at random on a volume scanning, misregistrasi anatomy bias is removed, enhancement with contrast medium can be displayed as a whole, and the accuracy of the multiplannar imeging and 3D reformatted.

The weakness - the weakness of the CT-Scan with helical modes, namely:

Helical CT requires an x-ray tube that has a high ability to time a relatively longer scanning the scanning volume.

Although interpolation algorithm is capable of eliminating streak artifacts but unsharpness may still appear due to partial volume avaraging

2.5. Evaluation Examination

After examination Scanning the author gives the evaluation results of the examination as follows:

Patient identity

Name	: Nur Asnah
Gender	: Women
Date of birth	: July 7th, 1972
Cause of the problem	: Headache
Inspection Date	: January 2016
doctors reader	:Dr.Henny Maisara S, sprad

Results Scanning photos:

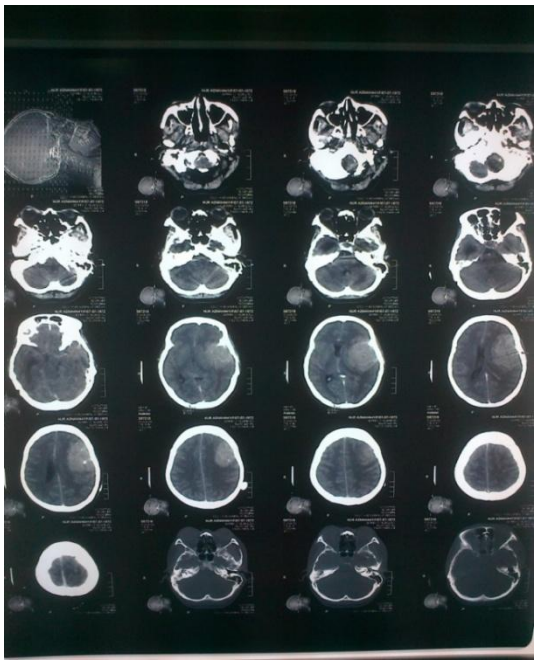

Fig 4. Results of radiographic brain CT scan at the Hospital Haji Adam Malik

3. Discussion of Problems

In a CT-Scan to note the following points to optimize the inspection include:

a) Give an explanation to patients and their families about the tests. If patients want the company or the family wanted to accompany in order to be briefed to the patient's family and given the radiation protection clothing.
b) Positioning the patient well and comfortable as possible, and use of immobilization for image optimization tool that will be generated.
c) Instruct the patient to remain silent during the investigation progresses and the patient's family resides in not out during the police interrogation.

In a CT-Scan brain can occur image blur or less optimal results that include CT scan can be caused by:

a) The movement of the patient during the examination takes place.
b) Immobilizing tool is not used well as the strip head holder does not dupergunakan.
c) The presence of metal in areas such as the patient's head or ear piercing in the nose that cause artifacts on the images.

3.1 Incidence Causes Problems

The cause of the problem so that an image is not optimal can be caused by:

a) Patients who are restless
In this matter the things that cause problems in patients who are agitated is:
1) Agitated patient during the examination takes place so that the patient's movements can not be controlled.
2) Agitated patient generally accompanied by respiratory disorders.
b) Flight weakness CT scan used can of Slice thickness of the scan time.
c) The failure to capture prior to the injection of contrast media (pre contrast)

3.2 Efforts must be undertaken

The efforts made to overcome the problems that arise in the formulation of the problem is:

In patients with restless

a) Efforts are being made starting first by using existing tools and if the fixation which aids available fixation can not overcome the patient's movements so it may be advisable obta sedative drug use over a license / doctor's advice.
b) Efforts are being made with the head on the head rest is extended so that a more open airway and when in need can be given breathing apparatus, namely oxygen.

The best in terms of CT-Scan

a) Aircraft type CT-Scan
In choosing the best type of CT scan that is good in Brain better evaluation is spiral CT. However, along with the development of CT-Scan plane that has been created is now more efficient is the kind of*CT multi-detector array* (VII generation) taking into account the profit - gains, such as faster scan time, projection data is generated more that can show abnormalities - disorders and facilitate the diagnosis.
b) Slice thickness (thick slices of the object)
In Brain slice thickness used was 5 mm and 10 mm. In a CT-Scan Brain, the thinner*slice thickness* scanningnya the better results and the higher the resolution and yet require higher doses of radiation.
c) Scan time
Have influence to reduce artifacts due to movement of the object. The smaller the scan time then the less artifacts due to movement of the object.

On examination which did not take pictures of pre kontars should really give a clear picture of the tumor or the diagnosis in order to diagnose correctly. In a CT-Scan Brain often found by the authors in the field is the implementation of a CT-Scan Brain are not included with the injection of contrast media agent. But should, in every CT-Scan, especially a CT-Scan Brain on suspicion of tumor better done with inclusion of an injection of contrast media because it can show abnormalities - abnormalities exist in regions of the brain clearly and also can show the firm boundaries of the tumor itself , As well as basically had to do shooting pre contrast and post contrast to provide a comparison of images before and after contrast agent media, in order to provide the proper diagnosis. And in a CT scan should be performed by the projection Brain / axial pieces.

4. Conclusion

After the author discusses the problem that is described above, it can take several conclusions, namely:

a) Brain CT scan with brain tumors allegation is made by using a CT scan where shooting is done after injection of intravenous contrast media without pre kontars shooting first.
b) In a CT-Scan Brain on suspicion of tumors using contrast media supplied urea cretinin lab results on permintaandan letter written informed consent signed by the patient's family.
c) In patients who were briefed properly agitated and used tools and strip with good immobilization.

5. Reference

[1] Akhadi, Muklis. (2000). Basics of Radiation Protection, Jakarta: Rineka Reserved
[2] Balinger, Philip W. (2003). Radiographic Position and Radiologic Procedures, volume III, Tenth Edition. St Louis: Mosby
[3] BONTRAGER, Kenneth.L. (2001). Textbook of Radiography Positioning and Related Anatomy, Fifth Edition. CV.Mosby Company, St. Louis
[4] Budiyono, Setiadi. (2013). Anatomy of the Human Body. Bekasi: Warriors Script
[5] Hima, Sutisna. (2005). Pathology. FK UI: Jakarta
[6] Kurniawan, Reiza Farandika. (2014). Book Smart Anatomy of the Human Body. Depok: PT. Mahadaya
[7] Pearce, C. Evelyn. (2002). Anatomy and Physiology for Paramedics, Jakarta: PT. Gramedia
[8] Rasad, Sjahrial. (2005). Diagnostic radiology. Jakarta: New Style
[9] Rizal, Achmad. (2014). Biomedical Instruments. Yogyakarta: Graha Science
[10] Sloane, Ethel. (2004). Anatomy and Physiology for beginners, Jakarta: EGC
[11] Syaifuddin. (1997), Anatomy Physiology for Nursing Students, Jakarta: EGC