

Computed Tomography Scan (Ct Scan) Brain On suspicion of Subdural Hematoma In Haji Adam Malik Hospital

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Abstract-Afriansyah Sitepu, Computed Tomography scan (CT-scan) Brain on suspicion of subdural hematoma in Adamalik Haji Hospital Medan. CT-scan is an appropriate method to show brain abnormalities and showed abnormalities in cases of subdural hematoma. At this writing, the writing method used is descriptive of opserpasi field and conclusion. In the author's data collection with interviews and field opserpasi Scans showed a subdural hematoma on the brain and accurately so as to make the diagnosis.

Keywords : Brain, Subdural Hematoma, CT-scan

1. Introduction

The brain is an organ that is important because it is the central computer of all organs, parts of central nervous located inside the cavity of the skull (cranium) wrapped by the lining of the brain stronger is the pia mater or inner layer, the arachnoid or lining of the middle, the dura or outer layer (Syaifuddin, 2006). Hematoma is a local pool of blood in the skin, under the skin or in other tissues (Ramali, 2003). Subdural hematoma is bleeding It is located in the subdural space. Can be widespread in the hemisphere, causing compression of the cerebral. Bleeding can come from rubtur of venous connector (bridging vein), rupture granulasio pacchioni, prluasan bleeding from piamater fossa, and it could be from kontusi cerebral hemorrhage (Malueka, 2008). Conventional radiography as the most common diagnostic tools can not show that there are abnormalities in the brain. Therefore, a CT-Scan is a very superior method to generate each layer of the brain so the disorder can be shown accurately, especially in the case of a subdural hematoma. Computed Tomography (CT) is a picture that was built by using X-ray computer collected from various points around and forming part of the so-called scanned so as to produce a picture tomographic cross-sectional plane (slice) is sliced from the body (Ballinger, 2003). Computed Tomografy (CT) uses a collimated x-ray in patients to obtain a thin cross-sectional image of the patient's head and body. (Patel, 2006).

2. Research methods

2.1. Types of research

In writing this scientific paper the author uses descriptive type research. Descriptive research is one way to describe and interpret the study of an object in accordance with the facts, without exaggerated - overstated.

2.2. Research Sites

- a) Research time : January 2018
- b) Research Sites : Dr H. Adam Malik Medan, Jl. Bungalau No. 17 Medan

2.3. Data collection technique

In writing this scientific paper the authors can collect data in the following way:

- 1) Interviews and Consultation
Namely by interviewing the relatives of patients in terms of disease in the patient suffering, Doing discussions and cooperation with the radiographer, and consultation with a specialist radiology.
- 2) Observation

Namely obtain data by directly observing and following a CT-scan of Brain are done to the patient starting from the patient comes to the patient's home with the results.

3. Results and Discussion

3.1. result

a. Results Identification

Name : Mr.SS
Age : 49 yrs
Address : Pakat village Toruan
Gender : Male
Examination : CT-Scan Head
doctors Sender : PPDS Neurosurgery, Dr.
doctors Readers :Dr. Rudolf H. Pakpahan, Sp. Rad

b. Examination procedure

- 1) Patients come to the place of registration to register first at the hospital Dr H Adamalik Terrain
- 2) Patients were examined by doctors neurosurgeons on diseases and complaints from patients.
- 3) The doctor then mengimkan letter of request Brain CT scanning to radiology
- 4) Patients come to the radiology to bring the letter and gave it to petuugas radiology
- 5) Radiology clerk read the form and give guidance to the patient and the patient keluarga to follow a written inspection procedure.

c. patient preparation

Basically there is no special preparation of the patient, but the radiographer can perform a CT-scan technique Brain. Preferably objects that lead to artifacts such as earrings, glasses, hearing aids, hairpins and others must be released and provide an explanation to the patient so as not to move during the police interrogation.

d. Preparation Tools and Materials



Fig 1. Computed tomography plane TOSHIBA CXXG-005 A (Dr H. Adam Malik)

Caption :

- a) gantry
 - b) Examination table
 - c) Head Holder
- 1) TOSHIBA CT-Scan plane CXXG-005 A aircraft specification CT-Scan
Type : Asteion TSX-021B
brands : TOSHIBA
Model : CXXG-010A
Frequency : 50/60 Hz
Input Power Max : 55 kVA

Output: 120 kV / 300 mA : 135 kV / 260 mA

No. series Tube : 2AA06X3002

filter default : Al

- 2) Emergency medicine / Sedatives
- 3) Oxygen

e. Mechanical Inspection

1) patient position

- a) The patient is positioned supine sleep on an exam table (supine position) by placing the head in a head holder, wherein interpupillary line parallel to the horizontal line of light collimator and neck a little extension.
- b) Place both upper extremities are next to the patient's body.



Fig 2. Patient CT scan of the head with the patient lying flat (supine) above examination table (Dr H. Adam Malik).

2) The checking procedure

- a) Adjust the patient to MSP (Mid Sagittal Plane) body parallel / parallel to the longitudinal positioning lights with the push of a button_in!pada gantry.
- b) Position the head, where Interpupillary line parallel to the horizontal line of light collimator, and little neck extension

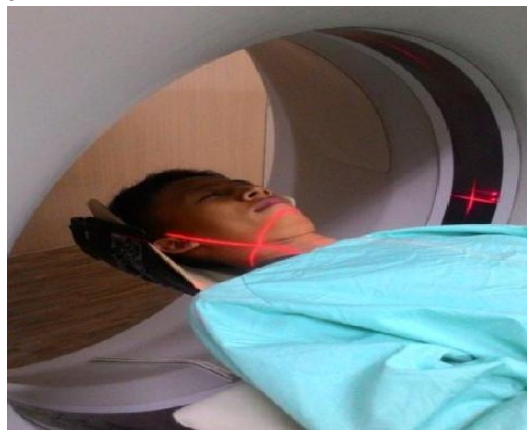


Fig 3. Positions of being in Gantry (Dr H. Adam Malik).



Fig 4. The position of the object visible from the front (Dr. Adam Malik).

- c) Enter your information / data of patients included: No. ID, Patient Name, Age, Sex, Comment (when using contrast media in the available space on the monitor screen by pressing the ID button on the keyboard), and then press OK.
- d) Select the type of examination or exam protocol by pressing Brain HCT group (Helical Computer Tomography) 3 mm - 5 mm untuk more specific areas thinner slice is 1 mm - 2 mm.
- e) Click OK, and then press scanredo on the keyboard until the lamp X-Ray button press to scan in progress.
- f) On the screen appears the image scanogram then set penyudutan axial slices to get a piece of that is: select rotate all, set the slice penyudutan to align with MAI and corners of the eyes and the upper limit and the lower.



Fig 5. Figure Scanogram (Dr. Adam Malik).

- g) Choose your moves to set up the biggest part Click OK, until gantry formed in accordance with penyudutan wedge angle that is set, and then press the X-Ray and Abort on the keyboard to stop the scan, and then click the area vary for mengatus scan area (FOV). Then press Ok and X-Ray button to complete.
- h) If the inspection is complete then specify the number of slice images to be printed by selecting the appropriate slice picture with the patient's clinical and starting from the upper limit to the lower limit to the printing to complete.

f. **Results Ekpertise**

- 1) Infratentorial normal cerebellum and fourth ventricle
- 2) Supratentorial lesions appear hyperdens crescent shaped in the left fronto-temporo parietal
- 3) Looks midline shift to the right
- 4) Left lateral ventricle a little depressed, which is normal right, sulci on the left hemsifer obliterated.
- 5) The bones intact
- 6) Looked soft tissue swelling in the left temporoparietal Conclusion radiological

g. **Evaluation Examination**

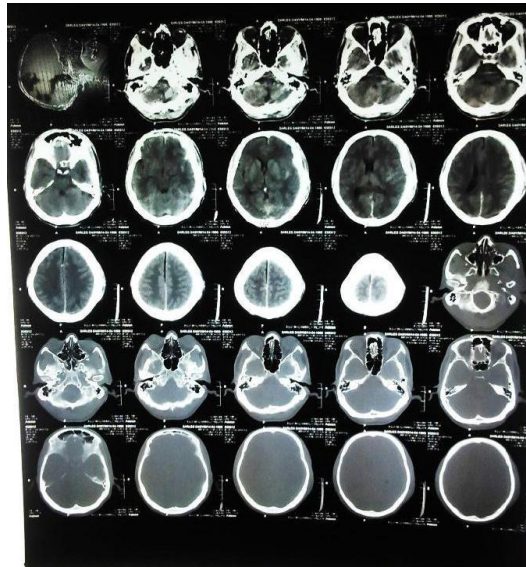


Fig 6. Axial Section Brain(RSUP. Adam Malik Medan).

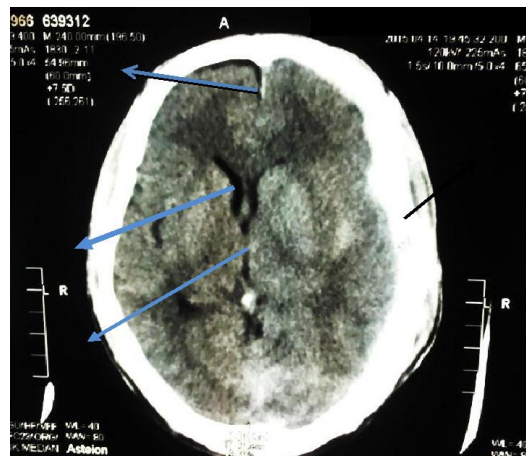


Fig 7. Axial Section Brain (Dr. H. Adam Malik)

Caption :

- a) Longitudinal fissure Cerebri
- b) Acute subdural hematoma
- c) Cornu lateral Ventriculus Frontale
- d) Spetum pellucidum
- e) Cornu lateral occipital Ventriculus

4. Discussion

Brain CT-scan picture that shows a subdural hemetoma is the optimal clinical picture that can show the object. To obtain optimal results:

- 1) Selection of appropriate inspection protocol that is due to patient emergencies that require quick inspection because of decreased patient consciousness and anxiety of patients Therefore, choose a fast protocol that is technique HCT (Helical computed tomography) dangan thick slices of 3 mm - 5 mm. With renge starting from the skull base to the vertex.
- 2) CT-scan plane used in that examination can be performed using multislice computed tomography plane which produces four slices per satukali scan. Wherein the image generated in the examination of brain with suspicion subdural hematoma, it can allow radiogrefer can choose the type of plane CT-scan which is equipped with amplification called MPR (Multi planer Reconstruction) where the scan time used is shortened so that the radiation dose to the patient can be reduced.
- 3) To improve the image quality of the CT-scan, the recording system must be effective and efficient, both types of films as well as the type of laser printer use. However, on examination, the author uses the film printer Sony UP-DF500 with the kind of film that is blue thermal. According to the author's use of this type of laser printer is optimal, because it can produce shadows that can show clearly the picture of a subdural hematoma.

5. Conclusion

After the authors follow a CT-Scan brain with subdural hematoma suspicion installed radiology Dr H. Adam Malik and based on the results of the discussion of the problems that have manifested in a scientific paper is then drawn some conclusions and suggestions:

- 1) In a CT scan of brain on suspicion of subdural hematoma, need to be done in collaboration with the patient's family and provide sedation for patients who are not cooperative (agitated) for the smooth running of the examination.
- 2) CT-Scan plane used for examination of brain with suspicion subdural hematoma can be done with a CT-Scan generation III produces four slices each one scan.
- 3) Examination of brain CT scan on suspicion of subdural hematoma should be able to show hematoma and organs of the head area with excellent image detail
- 4) To show the anatomical features and pathological abnormalities in particular brain subdural hematoma can be done with the axial cuts.

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