Journal Of Nursing And Midwifery Vol 2, No. 1 December 2019 e-ISSN 2656-0739

Computed Tomography Scan Orbita on suspicion of tumors in the General Hospital Haji Adam Malik

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Abstract-*Is a collection of abnormal cell tumors formed by cells that grow continuously - and again, it is not limited, it is not coordinated with the surrounding tissue and are not useful to the body. Tumor tebagi two: namely malignant tumors (malignant) and benign tumors (benign). The eye is the optical system that focuses the light beam on the photoreceptor, which converts light energy into nerve impulses. With a tumor of the orbit will change the shape of anatomy and function of the eye that can cause vision disturbances for the sufferer. CT scan is a radiological technique to show the anatomy of the orbit and kelainannnya. The author uses the tool brands Asteion CT Scan, 4 slice. The test results showed a tumor of the orbit.*

Keywords : *Orbita, CT Scan, orbital tumors.*

1. Introduction

Is a collection of abnormal cell tumors formed by cells that grow continuously - and again, it is not limited, it is not coordinated with the surrounding tissue and are not useful to the body. Tumors are divided into two: the malignant tumor (malignant) and benign tumors (benign). The eye is the optical system that focuses the light beam on the photoreceptor, which converts light energy into nerve impulses (Sloane, 2004). Organs of vision, or eye contains the eyeball; nerve - the optic nerve, which connects the eye to the brain, blood vessels, and organs such additional extrinsic muscles, lacrimal apparatus, and eyelids. Radiographic examination on a regular orbit on suspicion of tumor is not easily identified clearly as the object being examined is small, but with the advent of Computer Tomography (CT) ability to diagnose abnormalities of the orbit has increased nicely. Examination of the orbit on suspicion of tumor can be demonstrated by plane CT Scan, which in this examination using a piece sectional (sliced) axial computed tomography (CT) scan is a picture that was built by computer using X-rays collected from various points around and form part called scanned so as to produce a picture of a cross-sectional tomographic plane (slice) is sliced from various body (Brontrager, 2001).

2. Research methods

2.1 Types of research

This study uses descriptive qualitative research. Descriptive qualitative research is a method in researching the status of a group of people, an object with the aim of making descriptive, picture or painting in a systematic, factual and accurate about the facts or phenomena investigated.

2.2 Time And Place Research

a. Research time
The research was carried out in January 2016.
b. Research Sites
Place of research conducted at the General Hospital Haji Adam Malik Medan.

2.3 Data collection technique

In this research phase in order to obtain valid data and can be justified, it can be obtained through:

a. Interview

As for the data collection, the researchers conducted interviews with patients, family of the patient, technologist, Physician Radiology Specialist, Ophthalmologist. It thus carried out with the aim to memeproleh broad and comprehensive data in accordance with current conditions.

b. Observation

Direct observation conducted by the researchers can be realized by recording the form of information related to the radiology room General Hospital Haji Adam Malik Medan. Also observe how the investigation techniques Computed Tomography Scan Orbita on suspicion of tumors. For that researchers can conduct direct observations in obtaining evidence relating to the object of research.

c. Data analysis

Phase analyzing the data is the most important stage in the determination of a study. The data were then analyzed with the aim of simplifying the data into a form that is easier to read and interpret. In addition, data are deployed and exploited in order to be used to address the issue raised in the study. This analysis is based on observations in the field or experience based on data obtained from interviews and observations were then compiled and drawn conclusions.

3. Results and Discussion

3.1 Result

a. patient identification

Name : Mr. B
Age : 4 years
Gender : Man
Date of inspection: January 2016
Examination The CT scan Orbita
doctors Readers : Dr. Maisara Henny S. sprad

b. A CT scan procedure Orbita at the General Hospital Haji Adam Malik Medan. Orbital CT scan procedure on suspicion of tumor that is usually done in the radiology unit at the General Hospital Haji Adam Malik as follows:
   1) Patients arrived with a letter of introduction CT orbit
   2) Patients register at the counter radiology section CT Scan
   3) patient preparation
      a) Preferably before the test patients were given an explanation of the examination procedure to be performed.
      b) Radiology staff should pay attention to the patient's urea and creatinine is normal or above normal, if not normal then the examination can not be continued due to a CT-Scan Orbita on suspicion of injected tumor contras positive media through intravenous.
      c) Do a skin test to see if the patient is allergic to a substance contras media.
      d) Removing objects that cause artifacts such as eyeglasses, hearing aids, hairpins and others.
      e) Make it clear to patients that do not move during the police interrogation.

c. Preparation Tools and Materials

   Preparation tools and materials used in the CT scan of the orbit on suspicion of tumor in radiological installations General Hospital Haji Adam Malik is as follows:
   1) Aircraft CT-Scan 4 Slice
      a) No. Series Tube: A5592098, A5592097
      b) voltage max : 120kV-130kV
      c) Strong currents : 270 mA - 300 mA Filter default: Al
   2) Positive contrast media
   3) 30 cc syringe
   4) Mask
   5) hand schon
   6) An alcohol swab

With the following advantages:

1) Able to produce whole organs in a short scanning.
2) Scanning time becomes shorter because no ISD (InterScan delay).
3) *slice* can be taken at random at the time of scanning volume

Fig 1. Aircraft Toshiba CT Scan

d. A CT Scan Technique Orbita

1) patient position

The patient is positioned supine on the examination table, the second upper extremities 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, and the second lower extremities straight on an exam table. Before adjusting the position of the patient, first turn on the lights on the gantry collimator. Adjust the position of the patient in order to MSP (Mid Sagittal Plane) body parallel / parallel to the longitudinal positioning lights. Midcoronal plane of the patient must be right through the horizontal center of the field of gantry CT Scan.

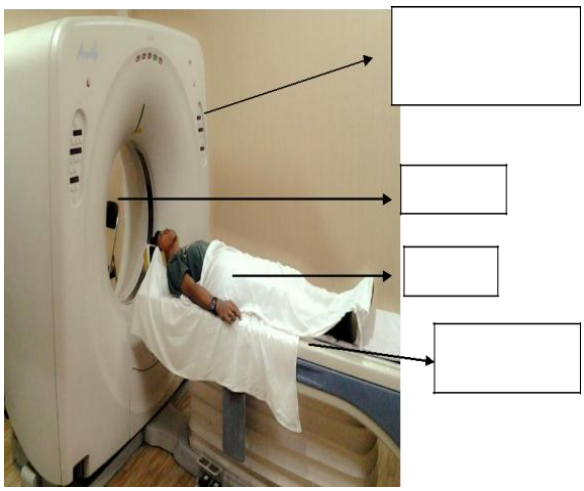

Fig 2. Position the patient in the Hospital Haji Adam Malik

2) position of the object

Place the head on the head holder to reduce the movement of the object. Head is set to true Antero-posterior and chin flexed so penyudutan of axial slices parallel to the anterior along the boundary infraorbital clinoid. Interpupilary first set and adjust the line to align

objects with an upper limit to the lower limit eye circles maksillaris sinus passages. Central point 2-5 cm above auticus external meatus (depending on the patient's condition). Once the position of the object is completed is set in accordance with the position, press clear on the gantry.

e. Non Contras Shooting Techniques

1) Turn on the computer, the CPU and the gantry. After all lit up, click Daily, and then click the Warm Up, Click Confirm, then press Start dikeyboard.
2) After the patient is positioned, then enter the information or personal data of patients that includes: name, place / date of birth, age, sex, registration number (RM) in the available space on the monitor screen by clicking one of the menu is the menu star to studies there on the screen to fill in the patient data.
3) Then select it and click the examinations are to be carried out and the position of the patient at the time of entry into the gantry.
4) Select and click exam protocol group by selecting "Orbita / Temporal Axial HE 2" with a piece of 5 mm.
5) Wait until the light mark on the x-ray button lights up, then press 2 times.

Fig 3. Scannogram Orbita

6) Arrange the pieces axial line with the upper limit of sinus maksillaris start to circle over the eyes and penyudutannya corresponding object position as it appears on the monitor screen and then press the OK button.
7) Take one slice line to set vari area (zooming) orbital highest kedaerah appropriate that appears on the monitor screen, and then press OK. Shows the entire area of the orbit and may reveal abnormalities that exist in the area of the orbit.
8) **Positive media injected contrast agent:** to a patient intravenously as much as 20 cc.
9) Then press the scan redo to proceed to the examination and the orders comes to X-ray gantry and then press OK and cornered in accordance with the arrangements that have been made according to the CT scan of the orbit until the end.
10) Press and rotate the stop, then press the exam quit the control desk

f. Results Ekperstise

After examination scanning ekpertise author gives results as follows:

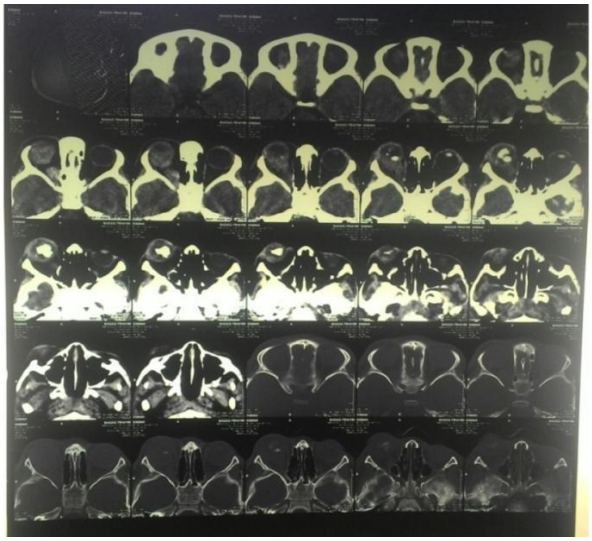

Fig 4. Results of Non-contrast CT scan Orbita

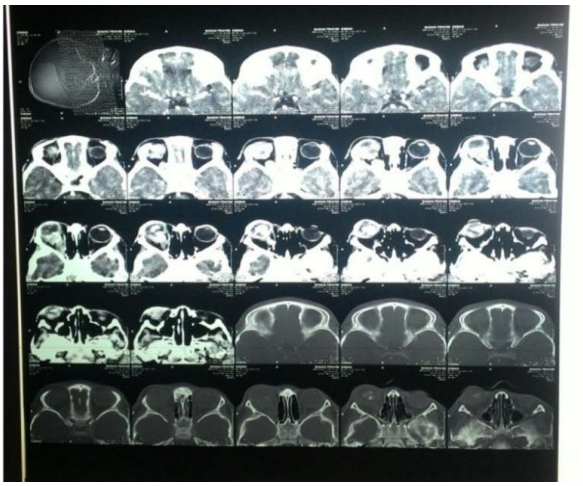

Fig 5. Results Orbita Ct scan with contrast

Fig 6. A CT scan with contrast orbital axial cuts

The interpretation of CT Scan Orbita picture with the Retinoblastoma from a specialist radiologist are as follows:

1) Prestosis looked right oculi
2) Looks calcification in the right oculi intra and post-contrast hyperdense mass in intra oculi right that extends to retrobulbar.
3) N.optikus widening looked right, left n.optikus well.
4) Optic chiasma well.
5) Paranasal sinuses are well visualized. Conclusions: Tumor Orbita Right

3.2 Discussion

From the results of a CT scan done on Tn.B Orbita General Hospital Haji Adam Malik found the right orbital tumor. Eye tumor (retinoblastoma) is a primary malignant tumor intracular found in children, especially in under five years.

These tumors are derived from embryonic retino network. Retina tumor mass can grow into the vitreous (endophytic) and grown through the exit (eksofitik). Most cases are sporadic with no family history of disease, but the majority is familial.

Orbita CT scan should be found to be a good picture to produce a high resolution picture. Spatial resolution is the ability to distinguish two objects that are very close. Contrasresolution is the ability to distinguish between the density is very small. Noise on the CT-scan picture, especially affect the contras resolution. If the noise increases on the image it will reduce the contras resolution. Noise form of patches on the appearance of the image.

Artifacts that is an area that reconstructed pictures but do not correspond to the actual shape. Streak artifacts are artifacts in the form of vertical lines caused by lack of balance scanning and scanning the beginning of the end. The cause is the movement of the patient, and mechanical properties that are not balanced. Ring artifacts are artifacts that are the most common form of ring that caused the error reading / misreading of the detector, usually at the detector which miscallibrasi / not calibrated.

The aircraft used on the CT scan of the orbit with tumor suspicion done by using a single slice CT scan plane with helical techniques. Routine examination of the orbit can be done in two ways, with a reduced axial and coronal pieces, with a slice thickness used in CT scan of the orbit of 5 mm.

CT scan Orbita on suspicion of tumor used to determine foreign infraorbital body and for the evaluation of trauma. Slice thickness 5 mm is used to describe the axial and coronal cuts of the orbit, it is because it can provide an assessment of Lessi soft tissue and can help to see the limits of orbital bone wall.

Because Tn.B pediatric patients, making it more difficult to regulate or less cooperatively so that one patient's family asked for help accompany the patient in the examination room with a CT scan for radiation protection apron wearing.

On CT scan Orbita on Tn.B found right oculi prestosis result, calcification in the right intra oculi, mass hyperdense after contrast in intra oculi right that extends to retrobulbar, widening n.optikus right, left n.optikus well and good optic chiasma.

4. Conclusion

From the discussion papers that have been described above, the authors make the following conclusion:

1) On CT scan of the orbit on suspicion of tumor performed at reduced axial slice and slice thickness of 5 mm.
2) The aircraft used on the CT scan of the orbit with tumor suspicion done by using a single slice CT scan plane with helical scanning technique.
3) Patients who are restless or uncooperative patients can be given drugs sedatip / soporific / sedative and is also accompanied by one of the family during the inspection took place in the examination room.

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