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A CT-Scan Thorax Lung Tumor on suspicion of Columbia Asia Hospital Medan

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Abstract- *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. Tumors are divided into two: the malignant tumor (malignant) and benign tumors (benign). The lung is an organ that is conical with the apex (peak) above and appear slightly higher than clavicula in the base of the neck. Lung tumors is a collection of abnormal cells that grow and develop in the chest cavity and usually in the airways or alveoli. Interest CT Scan Thorax on suspicion of lung tumors is to determine the location of the tumor, explains the examination technique and how to obtain a high-resolution picture. Reviewed on thoracic CT scan found Tn.TS soft tissue mass in the left lung ½ segment, with surrounding infiltrates, suggestive of malignant (T3NOMx) and the results were found Tn.HT stinging right lung tumors in intralesional contrast, demarcated, irregular suggestive of malignant (T3NOM1). Thorax CT scan on the suspicion of lung tumors is done with pieces of axial slice and slice thickness 5 mm, which in this case was able to show the anatomy and homosexuality.*

Keywords *: Thorax, Lung Tumors.*

1. Introduction

The lung is an organ that is conical with the apex (peak) above and appear slightly steeper than clavicula in the base of the neck. The lungs are divided into several parts or lobes by fissures. The lungs are located on the right and left and center are separated by the heart. The right lung has three lobes and the left lung has two lobes. Each lobe is made up lobula.adapun of lung function is as a place of oxygen and carbon dioxide gas (Evelyn, 2009). Is a collection of abnormal cell tumors formed by cells that grow continuously indefinitely, not coordinated with the surrounding tissue, and not useful to the body. The tumor consists of malignant tumors (malignant) and benign tumors (benign). (Hima, 2006). Lung tumors is a collection of abnormal cells that grow and develop in the chest cavity and usually in the airways or alveoli. Lung tumors can be shown on the thorax radiography projection antero-poterior and lateral. In the photos will provide a benchmark radiologically as follows: a shadow round / oval in the lung area. But the examination of computed tomography is more believable because it can determine the location of the lung tumor anatomy and relationships surrounding organs with exact and DAPT measure the density of the tumor.

computed Tomography is a picture to be built by the computers using X-rays were collected from various points around the perimeter and forming part of the so-called scaned so as to produce cross-sectional tomographic picture plane (slice) is sliced from the body (Ballinger, 1986)

As for the features of the CT-Scan is used as a receiver image detector, the image produced has good resolution and accurate reconstructed image can be manipulated with a computer can be viewed from different angles.

B. Restriction Problem

2. Research methods

2.1 Types of research

This study uses descriptive qualitative research. Descriptive qualitative study wasa 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

1) Research time
The research was conducted on January 2016.
2) Research Sites
Place of research conducted at Columbia Asia Hospital 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:

1) Interview

As for the data collection, the researchers conducted interviews with patients, family of the patient, technologist, Radiology Specialist Physician, Specialist Physician Neurology.
It thus carried out in order to obtain comprehensive data
and thoroughly in accordance with the current conditions.

2) Observation

Direct observation conducted by the researchers can be realized by recording the form of information relating to space Radiology Columbia Asia Hospital Medan. Also observe how Computed Tomography Scan examination techniques with suspicion Thorax Lung Tumors. For that researchers can conduct direct observations in obtaining evidence relating to the object of research.

3) analysis Results

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

1) patient identification
a) Patient Identification 1
Name : Mr. TS
Age : 79 years
Male gender
Date of inspection: January 2016
Examination: CT-Scan Thorax Non Contras
doctors sender : Dr. Surjadi Rimbun
Doctors reader: Dr. Rudolf Hamonangan Pakpahan, Sp.Rad
b) Patient Identification II
Name: Mr. HT
Age: 71 years
Male gender
Date of inspection: January 2016
Examination: CT-Scan Thorax IV Contras
doctors sender : Dr. Hasan Sjahrir, SPS (K)
doctors reader : Dr. Rachel M Sitorus, Sp.Rad.
2) Examination Procedure Thorax CT scan at Columbia Asia Hospital Medan
3) patient preparation
a) Preparation of patients I

There is no special preparation for patients. Patients wear dressed with patients who have been provided. Any objects that may cause artifact, be removed first. Before the inspection was carried out to ascertain whether the patient is calm. If the patient is not quiet, then given a sedative.

b) Preparation of patients II

Before the examination the patient should do the laboratory for urea and creatinine. Then submit gets radiology because of this case using contrast media. There is no special preparation for patients. Patients dressed with the clothes provided. Any objects that may cause artifact, be

removed first. Because this case is using media that is injected through the cubital vein officer must explain to the patient about the examination procedure. Patients must sign an agreement injecting contrast media or informed consent if the patient agrees to do the injection. Then do the skin test on subcutan, do skin test purpose is to know and see the reaction of contrast media to a patient's body,

4) Examination Preparation Tools

Preparation tools and materials used for a CT-Scan Thorax on suspicion of lung tumors at Columbia Asia Hospital Medan is as follows:

a) Aircraft Multi Slice CT scan with specification: Brand / Tip: Philips Briliance 16
   Type Tubes : 989000085881
   No.Seri : 129 356
   Maximum voltage : 140 kV
   Strong currents : 500 mA
   filter Default : Al
b) Patients clothes
c) Blanket
d) Oxygen
e) Non-Ionic Contrast Media (according to BB + 50cc)
f) An alcohol swab
g) Handschoen

Fig 1. Aircraft multi-slice CT scan

5) Mechanical Inspection

a) patient position

Position the patient on the two subjects that I researched was supine on an exam table with both hands to the head. In order to position the patient comfortably use restraining straps (belt holders)

6) position Objects

Position the thorax area in an area to scanning by arranging the examination table and light indicators to determine the upper limit and lower limit.

7) Examination procedure

a. Enter your information / patient data include: The ID number, patient name, age, gender, type of examination performed.
b. Select and click the Chest examination protocols that exist on a computer screen.
c. Then click on the computer screen and confirm OK.
d. Wait until the X-ray button on the keyboard lights up. Once lit press the X-ray.
e. On the screen will appear scanogram picture. Perform scanning with scanning area taken topogram thorax area is the upper limit and lower limit apex lung or sinus costophrenicus

diaphragm. All parts of the thorax must be covered from the top end to the bottom end. Area scanning is made as optimal as possible to reduce the radiation received by the patient.

Fig 2. Computed tomography Thorax Scanogram

f. Do scanogram finished setting the number of slices to be used, the scanning area of the object and the thickness of the slice is used.
g. Then select confirm and OK on a computer screen.
h. Inject contrast media in accordance with the patient's weight + 50cc through the cubital vein of patients by injection, the patient's arm lowered without changing the patient's position.
i. After contrast is injected placed back in the patient's arm to its original position.
j. The light on the X-ray button on the keyboard will light up, press the button once, and then the light is on the button will light up again and press one more time, then the scan will automatically run until the end of the wedge.
k. If the checks are finished and then click Stop rotate, quit exam.
l. Then do the selection of picture you want to print, by the way:
   - Click fliming on a computer screen.
   - Click the directory, and then will appear the data that has been done scanning. Select / download patient data to be printed.
   - Then on the computer screen click the tool first, then scanno CT, CT Scano picture will appear on the screen of the computer.
   - Then select the object to be printed in accordance with the diagnosis of the patient.
   - Specify the number of images you want to print, click the 8x5 format sheet 2 pieces (window lung and mediastinal window)
   - Then click print.

8) Results Ekpertise
patients first

Name	: Mr. TS
Age	: 79 years
Date of inspection	: January 2016

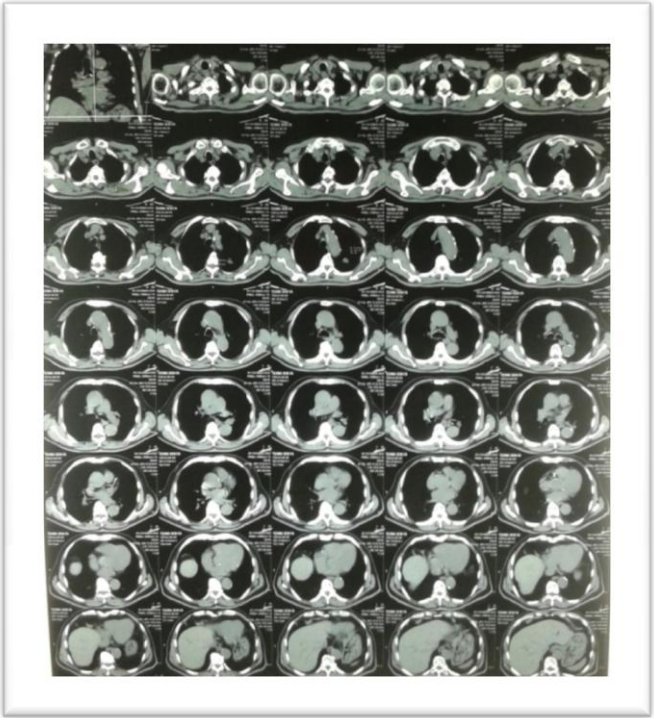

Fig 3. Computed tomography Thorax without contras

patients II
Name : Mr. HT
Age : 71 years
Date of inspection : January 2016
Examination : CT-Scan Thorax IV Contras

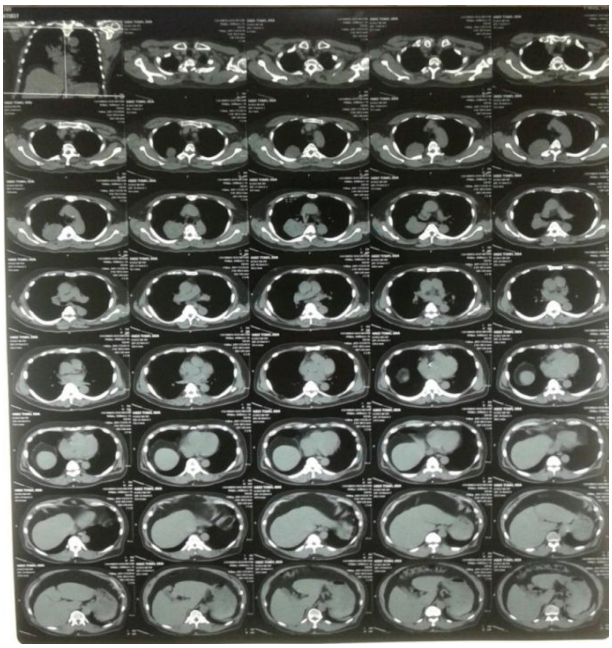

Fig 4. Computed tomography Thorax without contras

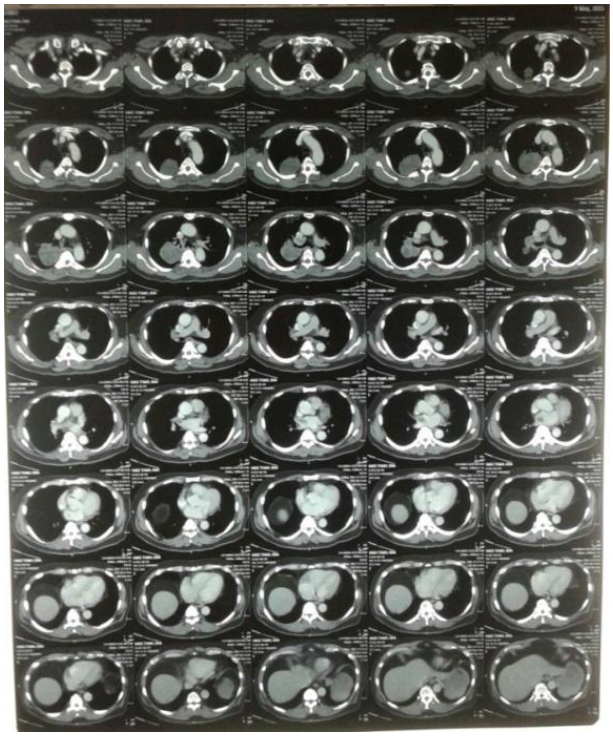

Fig 5. CT-Scan Thorax with contras media

Fig 6. CT scan of the thorax pieces Axial

Caption :

1) The sternum
2) Left lung
3) trachea
4) esophagus
5) scapula
6) Right lung
7) Mass

8) thoracic vertebrae

The interpretation of CT scan picture with suspicion Thorax Lung Tumors of Radiology Physicians are as follows:

patient 1

Examination thoracic CT scan, axial and coronal cuts, without the administration of contrast, with the following results:
Looks homogeneous lesions, soft tissue density (HU 38) accompanied spiculae ½ segment of the left lung, +/- lesion size of 1.6 x 2.1 cm, spicula to the posterior wall.
Nothing seemed infiltrates in segment 6 left right lung.
Invisible superior mediastinal mass.
Looks dilatation and calcification in the aorta diameter thorakalis.
Nothing seemed effusion / pleural thickening.
Trachea, main bronchus karina and both left and right, not visible narrowing
Nothing seemed pembrsaran KGB paratracheal, tracheo-bronchial, subkarina and hilar
Enlarged heart size, with calcification in a.coronaria
The bones intact, nothing seemed destruction.
Concl:

- Soft tissue mass in the left lung ½ segment, with surrounding infiltrates, suggestive of malignant (T3NOMx)
- Cardiomegaly + Bronkhopneumonia.

patient 2

Dilakuan probes CT scan of the thorax, axial and coronal cuts, without and with the contras by IV administration, with the following results:
Looks homogeneous lesions, soft tissue density, bounded not firm, irregular, segmented 6 right lung, which is attached to the posterior wall and main bronchus kanan.pasca Award penyengatan contras without strong intra-lesion.
Lesion size of 6.3 x 6.5 cm.
ARCHUS aorta, aortic and pulmonary trunchus left right either.
Invisible effusion / pleural thickening
Trachea, main bronchus karina and both left and right, not visible narrowing.
Invisible paratracheal lymphadenopathy, tracheo-bronchial, subkarina and hilar
Good heart and pericardium. The bones intact, invisible destruction.
Concl:
Stinging right lung tumors diintra lesion contrast, demarcated, irregular suggestive of malignant (T3NOM1).

3.2 Discussion

From the results of thoracic CT scan performed on Tn.TS and Mr. HT at Columbia Asia Hospital Medan found to the right and left lung tumors. Lung tumors is a collection of abnormal cells that grow and develop in the chest cavity and usually in the airways or alveoli.
These tumors caused by cells that divide and grow uncontrollably on pulmonary organs. Lung tumors if left unchecked could develop into lung cancer.
Thorax 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. Contras resolution 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 thorax on suspicion of lung tumor carried by plane for the brand Philips CT 16 slice with helical techniques. Routine examination of the thorax can be done

in two ways, with a reduced axial and coronal pieces, with a slice thickness used in CT scan of the thorax 5 mm.

Thorax CT scan on suspicion of lung tumor are used to determine the extent of tumor spread to other organs in the thoracic cavity. Slice thickness 5 mm is used to describe the axial and coronal cuts of the thorax, it is because it can provide an assessment of Lessi soft tissue and can help to see the limits of the bony walls of the thorax.

4. Conclusion

After the authors follow and observe a CT-Scan Thorax on suspicion of lung tumors at Columbia Asia Hospital Radiology field and based on the discussion of the problems that have manifested in a scientific paper is then drawn some conclusions and suggestions are:

a. Thorax CT scan on the suspicion of lung tumors is done with pieces of axial slice and slice thickness of 5 mm.
b. The aircraft used on the CT Scan Thorax on suspicion of lung tumor carried out by using 16 slice CT scan plane with helical scanning technique.
c. Thorax CT-Scan examination on suspicion of pulmonary tumors using contrast medium that is injected intravenously.

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