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Inspection Computed Tomography Scan (Ct Scan) Whole Abdomen on suspicion Hepatomegali General Hospital Haji Adam Malik

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Abstract*-Inspection Computed Tomography Scan (CT Scan) Whole Abdomen on suspicion Hepatomegali General Hospital Haji Adam Malik Medan. The purpose of writing this paper is to determine the location, type, and size of hepatomegaly and describes the inspection technique in getting a picture with good resolution in a CT scan of the abdomen with suspicion whole hepatomegaly. Type examination is conducted whole-abdominal CT scan which examines techniques using multislice CT scan plane with helical technique that produces 16 slice / slice each one scan. By using this type of thermal blue movie film and using the system to record the movie dryview object shadow of the film and used pieces of axial image capture. Patients should also make preparations beforehand fasting gastrointestinal function to see the patient free of air and feces. Patients also must perform urea and creatinine lab tests to see kidney function, and patients also do skintest to see the patient's immune system to a substance of contrast media that will be provided. Then the preparation of tools and materials that include CT scan plane is ready to use, tool for injection of contrast agents such as syringes, alcohol cotton, plaster, nierbekken, torniquet, and oxygen. The materials needed are koontras iodine media to be injected intravenously. The resulting picture is a picture CT Scan of Tn.saragih abdominal cavity, where the picture liver enlarged shapes and sizes, regular edges, partial liver parenkhim density appears to be increasing and it can be concluded from an examination of the abdominal CT scan whole Tn, saragih that he suffered hepatomegaali / enlargement of the liver. Therefore the whole abdominal CT scan can provide more accurate diagnostic information to the physician to diagnose pathology kususnya contained in the cavity of the liver in cases of hepatomegaly and can give a decision for examination and further treatment.*

Keywords: Interest, examination, and radiographic images

1. Introduction

The abdomen is the largest in the body cavity is illustrated in two parts, the upper cavity (upper abdominal) cavity is larger and lower (lower abdomen) smaller. This is because in the abdominal cavity cover more areas and organs of the anatomy that has the function of each, some of them such as the digestive system, urinary system, pangcreas and spleen, liver and biliary system. In the abdominal cavity are also often encountered many pathological disorders caused by many risk factors. Liver (hepatic) located on the right upper abdomen below the diaphragm precisely is the largest gland in the body serves as the production of red blood cells as well as toxic compounds breaker / detoxification and liver also serves as a means of excretion.

Risk factors such as smoking, fungal, viral hepatitis infection and alcohol resulting in liver cells damaged and cause a reaction that causes neoplastic hyperplastic deadly hepatoma cells of the liver and lead to liver enlargement. Hepatomegaly may result in vascularization deteriorate, resulting in tissue necrosis. Hepatomegaly may also result in the process chamber insisted, urging the lungs, causing shortness of, the process of removing the space urged inflammatory mediators that stimulate pain.

According Bontranger 2001 Examination of the abdomen on Conventional radiography with hepatomegaly cases are not easily identified clearly as it will superposition with the surrounding tissue and every organ tissues do not have good characteristics. However, with the advent of computed tomography (CT) ability to diagnose abnormalities in the abdomen in particular has increased with good hepatomegaly. Therefore the process faster and more accurate results, a CT scan is more effectively used for checking abnormalities in the abdomen, especially in the case of hepatomegaly.

Set Many organs can have a unified system that is closely related to both the anatomy and the function of each organ, resulting in the need for state clean colon is free of fases and air, which requires special preparation so that an image GI is not a superposition of the artefac in the liver to be examined and abnormalities can be visualized well. But because of the general state of patients who are weak due urged lung space and make the patient's chest tightness and pain make special preparations that fasting is recommended for patients not carried out to the maximum,

The liver is also very closely linked to the surrounding organs especially be true in the process of making the body ekresi liver is closely related to the kidneys, where in the case of break down toxic compounds. The occurrence of liver hepatomegaly result does not function normally associated with kidney function especially be true in the production of urea and creatinine were not normal. The situation became contraindicated in examination ct scan of the abdomen because this examination using contrast agent media that also are toxic to the body, which must soon remove it through the urine function is to increase the density of picture of the organ to be examined by injection under subcutan on intravenous eventually toward the kidney.

2. Research methods

A. Types of research

This research uses descriptive qualitative method. Qualitative Methods is a research procedure that produces descriptive data in the form of words written or spoken of people and behaviors that can be observed as well as observations by directly observing and following examination procedures and examination results and soft gathers COFI image. Qualitative research is also an inductive approach to the preparation of knowledge using research and emphasize the subjectivity and meaning of the experience for ibdividu (Karyono 1993).

Application of qualitative methods to determine what efforts were made to obtain Ct Scan whole abdomen with hepatomegaly allegation so as to provide optimal diagnostic information.

B. Time And Place Research

The time and place of this research was the one who was doing the examination Ct Scan Whole Abdomen On General Hospital Haji Adam Malik Medan. Information retrieval technique used is purposive sampling / judgmental namely by taking the research subjects who meet the criteria which the criteria according to Inspection Results Ct Scan Whole Abdomen on suspicion Hepatomegali (Expresisastra 2013)

C. Data collection technique

1) Interview
   Conducting the interview by asking questions to patients and families of patients in terms of disease patterns, as it also authors consult with the radiographer, radiology specialist physicians, surgeons, and other parts that relate to the case of hepatomegaly.
2) Observation
   Data obtained by observing and following firsthand how the technique of whole abdominal CT scan at the General Hospital Haji Adam Malik Medan.
3) Documentation
   Data obtained by collecting the results of CT scan as well as soft cofy image of whole abdominal CT scan is normal and who have abnormalities on archival photo storage hepatomegaly in General Hospital Haji Adam Malik Medan.

3. Analysis Results

In this study the validity or authenticity of data checked by tiangulasi method. Triangulation is a technique that utilizes data validity checking something other than the data for the purposes of checking the data or as a comparison to data (Karyono 1993).

Triangulation by patton divided into 4 parts:

a. Source triangulation that is comparing and checking the degree of confidence behind the information gained through time and different tools in qualitative methods

b. Triangulation method, by using two strategies, namely checking the degree of confidence in discovery research results with some of the techniques of data collection and checking of the degree of confidence multiple data sources using the same method.
c. Researcher triangulation, by utilizing other researcher or analyst for the purposes of re-checking the degree of confidence.
d. Triangulation Theory, which is doing research on the same topic and the data were analyzed using several different theoretical perspectives.

In this study the variation of the technique used is triangulated Source Model. This is done because the retrieval of data in this study using interviews, observation, documentation on a patient who checks Ct Scan Whole Abdomen on suspicion Hepatomegali at the General Hospital Haji Adam Malik Medan. The measures taken include:

1) Comparing the observed data with data from interviews.
2) Comparing the results of interviews with different contents of the document.

4. Results and Discussion

A. Result

1) patient identification
   Name: Mr Saragih
   Male gender
   No. MR: 00.63.49.49
   Examination: WITH ABDOMINAL CT SCAN WHOLE IV contras
2) Examination procedure
   CT Scan Whole Abdomen General Hospital Haji Adam Malik
   a. patient preparation
      In a CT scan of the abdomen wole need to make special preparations, namely fasting.
      1) The day before the examination the patient is advised to consume only soft foods (porridge + soy sauce)
      2) 19:00 pm Last meal
      3) 21:00 pm English were made to drink salt 30 g or 3 tablets Dulcolax orally.
      4) At 22:00 pm (evening), the patient's last drink to reduce dehydration.
      5) Fasting until completion inspection
      6) The next day, precisely at 05.00 am (morning), patients enter as many as 2 tablets Dulcolax suppositories through anal.
      7) 09.00 am (tomorrow) patients and their families came to the CT scan with a 2 aqua glass and bring the contrast media as much as 50 cc iopamiro
      8) Patients were given a drink of contrast media iopamiro (10 cc) were mixed with distilled water up to 200 cc, approximately 90 minutes before the examination.
      9) Patients entered the examination chamber and positioned the patient is given a drink before returning iopamiro 10 cc contrast media that are mixed with water (distilled water) by 200 cc.
   b. Preparation tools and materials
      Preparation tools and materials used in the whole abdominal CT scan in cases of hepatomegaly in General Hospital Haji Adam Malik is as follows:
      1) Tools preparation
         Preparation tools used for inspection Ct Scan whole abdomen with hepatomegaly case Radiology at General Hospital Adam Malik Aircraft CT scan ready (stand-by) with specification:

1)	brands	: GE
2)	Model	: 51437-2
3)	Type	: Bright Speed 16
4)	No.Seri Tubes	: 2AA06X3002
5)	Input Power Max	: 55 kVA
6)	output	: 140Kv / 440 mA
7)	generation Tool	: III / Development

8) Scan mode : Helical
9) Tools - other tools required adalh syringes, alcohol cotton, plaster, nierbekken, and tourniquet.

Fig 1. Aircraft CT General Hospital Haji Adam Malik

2) preparation Materials
The materials needed are iodine contrast media to be injected intravenously ± 100 cc and 400 cc of distilled water.
3) Mechanical Inspection
a. patient position
The patient is positioned supine sleep (supine) on the examination table, the upper limb of the patient and then lifted in place on both the head and lower extremities straight on the examination table. Adjust the position of the patient to the midline of the body (MidSagital Plane) patients parallel / parallel to the longitudinal positioning lights.

Fig 2. The position of the patient on the examination table.

b. position of the object
Abdominal area is positioned in the area that will be in the scanning by arranging the examination table and light indicators to determine the upper limit and lower limit.
4) Procedure checks on Computer

a. Enter the personal data of patients include: name, age, gender, number RM (Medical Records), and select for scanning the abdomen in the available space on the screen to fill in the patient data.
b. Click exam protocol by choosing Abdomen Helical group.
c. Click the "Go", waiting for the hold and manually sign appears and press.
d. Then the image appears on the monitor scannogram
e. Arrange the pieces of axial start processus xypoideus the upper limit to the lower limit of the pubic and draw a line syimpisis FOV (field of view) to the middle of the object and set the area to be scanned and then press the OK button.
f. Click the option to hold the breath hold during the X-ray, then a picture of each slice will appear until the last slice.
g. Shrink picture per slice and then click OK, wait for the picture in the record.
h. Inject contrast medium that had been prepared beforehand in the 50 cc syringe via intravenous.
i. After the injection of contrast media is done, press the button expose (X-Ray) to capture scans with contrast media.
j. Scan will run automatically until the last slice.
k. Press and rotate the stop, then press Exam Quit on control and patient table is derived from the examination table.
l. After setting the picture is complete, then selected and prepared images that show abnormalities perslice hepatomegaly to be printed on cleaning view imager.

5) printing pictures

The printing system using the image in this examination dryview sony imager and the film UPT 517-BL including blue thermal film types are specifically designed for the Sony UP-DF500 dry film imager films station and packed 125 pieces in one package. Sony blue thermal films have been designed specifically for the movie stations that provide high contrast, high density images with higher durability, and the film can be handled in a bright place so that all procedures can be handled with ease.

6) Results Ekpertise

Patient's name : Mr. Saragih
Age / JK : 40 Years / Man
Date. Examination : February 2016

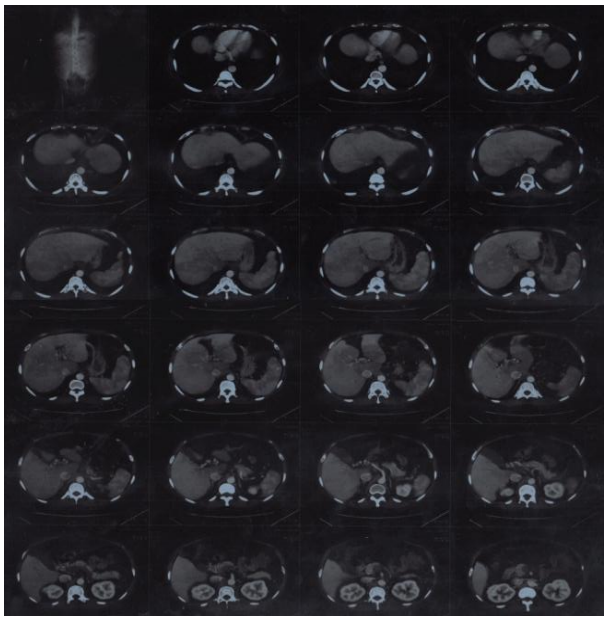

Fig 3. Results CT Scan Abdomen

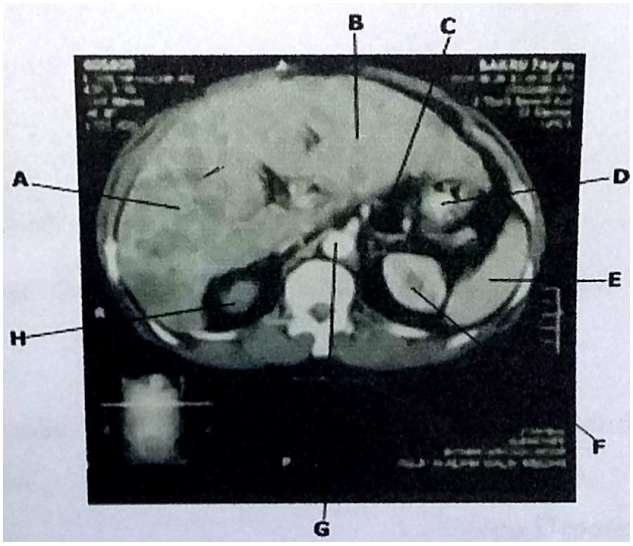

Fig 4. Scan Abdomen axial section

Caption :
A = left hepatic lobes of the liver lobes of the right B = C = D = duodenum Gastric lymph E = F = G = Right Kidney Abdominal aorta Left kidney H.

Here CT Abdomen image slices (Slice) which to 9. Where in the images are visible abdominal organs, among others: the right hepatic lobe, the left lobe of the liver, stomach, spleen, abdominal aorta, right kidney and left kidney. In the picture also seen the size of an enlarged liver and multiple nodules of the biggest picture on the right lobe and a left lobe of the liver.

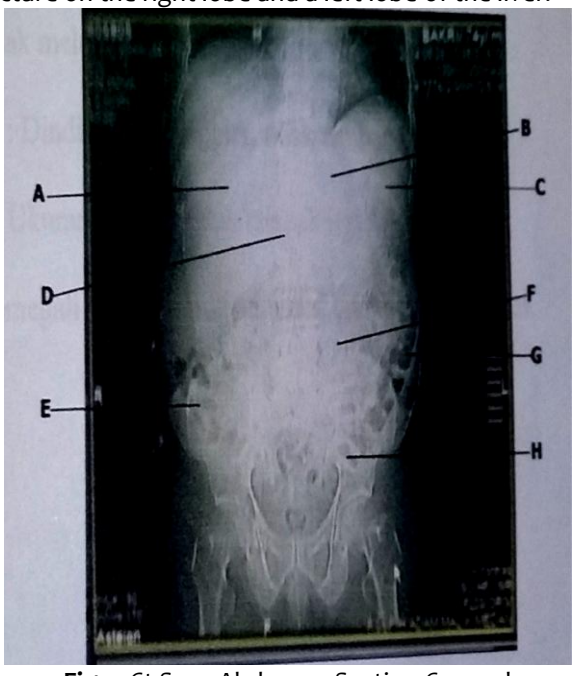

Fig 5. Ct Scan Abdomen Section Coronal

Caption :
A. Right hepatic lobe E. Colon Ascendens
B. Left hepatic lobe F. duodenum
C. side G. Colon Descendens

D. Lumbar vertebrae 1 H. Colon Sigmoid

7) Examination Results CT Scan Whole Abdomen
Multislice CT scan examination of whole abdomen + contrast IV, axial pieces with the following results:
hepatic : Bentuk and size looks larger, regular edge, some liver parenkhim density appears to be increasing, intrahepatic biliary system and good impression, vascular structures intact.
Gall Blader : The shape and size of a good, regular wall
Pancreatic and Spleen:The shape and size of a good impression, parenkhim homogeneous.
Both Kidneys:The shape and size of a good, regular edges, cortico-medullary differentiation clearly. Do not look any widening of PCS and ureter, not visible stones.
Vesica urinary: The shape and size of a good, regular wall.
lungsLung: Invisible presence of pleural effusion or ascites.
impression:
- hepatomegaly
- Other intra-abdominal organs within normal limits.

In pemerilsaan ct scan using media kontas substance function so that shows the firm boundaries shown organs and blood vessels found in the liver can show clearly and also can show the channels found in the liver organ as clearly as gallbladder channel.

B. Discussion

1) Formulation of the problem
Taking into account the problem identification and formulation of the problem, the authors formulate the problem is "What efforts made to get an idea of whole-abdominal CT scan with suspicion hepatomegaly so as to provide optimal diagnostic information?
2) Cause of the problem
The cause of the problems that arise in the implementation of whole-abdominal CT scan that is optimal with suspicion hepatomegaly are:
a) Patients were less cooperative during the investigation Ct Scan progress.
b) The use of multislice CT scan plane is less precise and the magnitude of the amount of radiation received patients
c) Patients do not perform well fasting procedure, in which patients do not take laxatives in accordance with prescribed procedures so that an image is less than optimal because the air and feces envisaged in the gut area.
d) In this test also uses a contrast agent media which has the disadvantage that are toxic which can not be tolerated by the body and result in allergic patients.
3) Efforts Carried
The efforts made to get an abdominal CT scan with suspicion hepatomegaly whole so as to provide optimal diagnostic information and picture quality are:
a) Before the exam begins officer must explain to the patient about the procedure to be performed, using restraining straps / seatbelt minimize the movement of the object, and then provide sedation for patients who are not cooperative (anxiety) as recommended by your doctor. besides, the officers use a scan / scan a short time because the scan time has an influence on image blur due to movement of the object. The smaller the scan time then the less blurring due to movement of the object.
b) Aircraft CT scans were used in the examination of whole abdomen at the General Hospital Haji Adam Malik is using the best CT scan multislice that can produce 16 slices each one scan, so that less revealing details of the image abnormality in the abdomen is more optimal and less time short as well as a large radiation dose. To improve the quality of the CT scan, according to the authors recommend using multislice CT scan that can produce one hundred twenty-eight slice each one scan, because it can increase the number of images and slice thickness thinner so that more carefully for any pathology in the body. It can also speed up the scanning time is short enough so that the speed of inspection and yield fairly accurate picture and a good resolution.
c) Before the inspection is done should the officer ask the patient whether it is doing preparation (fasting) in accordance with the procedures recommended by the doctor or in

which they also have to explain the benefits and purpose of giving laxatives, expected patient should have to properly prepare, if the patient does not carrying out these preparations, the authors expect the implementation of the examination should be considered.

d) Patients are required to consume contrast media and willing to perform the injection through an intravenous line with the amount / dose recommended in accordance with the examination, if the patient does not consume as directed, and not willing to do the injection then it will greatly affect the outcome of a picture that is less than optimal for revealing abnormalities and be sure before the test officer must explain the weakness of the contrast agent and provide informed consen media after the endurance test was conducted in patients with a do skintest advance to avoid allergy symptoms that can lead to death of the patient.

5. Conclusion

After the authors follow and observe the Whole abdominal CT scan with suspicion hepatomegaly in installation Radiology General Hospital Haji Adam Malik and based on the results of the discussion of the problems that have manifested in this scientific paper, then grab some conclusions and suggestions are:

a) On CT scan whole abdomen with suspicion hepatomegaly, needs to be done in collaboration with the patient using the restraining strap / seatbelt to minimize movement and provide sedation for patients who are not cooperative (agitated) for the smooth running of examinations and to avoid blurring the shadow due to the movement of patients on check up result.

b) The abdomen is a large cavity in the body and are mostly found in the gastrointestinal tract which there are remnants of food, air and feces (stool). To reduce that remains of food, air and feces are then made preparations so that the abdominal cavity is fasting looks clean and easy to diagnose a disease.

c) Whole abdominal CT scan at the General Hospital Haji Adam Malik Medan using multislice air that produces 16 slice each one scan, so the results are less than the maximum picture and scan time is slightly longer creates large amount of radiation received by the patient.

d) In a CT-Scan whole abdomen with hepatomegaly allegation requires a contrast medium which is very important to be able to reveal the shape and anatomy clearly state, as well as revealing abnormalities that occur in the abdominal cavity.

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