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Cervical Vertebrae Column Radiography with Suspective Fractures of the Corpus and Processus Spinosus Cervicalis at Columbia Asia Hospital Medan

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ABSTRACT

Veterbra Cervicalis is a spine consisting of seven segments which have small segment bodies and large segment openings. The function of the Veterbra Cervicalis is to cover and protect the spinal nerves, which act as support for almost two-thirds of the body's weight. As for the purpose of the work write scientific This in arrange is for show fracture and abnormality on the organ being examined, to obtain image criteria that can be appropriate to the case, for know location fracture the, for straighten up diagnosis in accordance with the case. Aircraft X-ray is Wrong One equipment installation radiology which has an important role in producing X-rays and providing images of objects on X-ray film. Radiographic techniques to show the anatomy of the Cervical Vertebral Column and its abnormalities, including cervical fractures, can theoretically be done with several projections, namely AP (Antero - Posterior), Lateral, Hyperextension and Hyperflexion. After carrying out a radiographic examination of the Cervical Vertebra Column with a suspected fracture in the Anterior part of the Cervical Vertebrae Corpus -5 and Cervical Spinous Process -2 at Columbia Asia Hospital Medan, the author concluded that the projections used were Anterior Posterior (AP) and Lateral projections. In the AP projection carried out at Columbia Asia Hospital Medan, a fracture appeared in the anterior portion of the Cervical Corpus -5, and in the lateral projection, a fracture appeared in the spinous process. Cervical -2.

Keywords:

Vetebrae - Cervicalis, Fracture, Computed Radiography (CR)

1. INTRODUCTION

Veterbra Cervicalis is a spinal column consisting of seven segments that have small segment bodies and large segment holes. Function of Veterbra Cervicalis that is function; cover And protect nerve - nerve bone behind; acts as support for almost two-thirds of the body weight [1]. A fracture (broken bone) is a break in the continuity of bone or tissue. Fracture No always caused traumatized Which heavy, traumatized light also causes fractures [2].

The result of a fracture in the cervical vertebra is that the patient will experience severe pain, there will be swelling around the fracture area and sometimes the patient will become unconscious. Fractures can occur due to past accidents cross, traumatized heavy nor traumatized light Also can cause fracture if his bones Alone experience abnormality. For show These abnormalities require x-rays in the field of radiology. Therefore, a radiographic examination is needed to show the fracture in the affected area injury [3].

There are restrictions on the problem of writing scientific papers "Radiographic Examination Columna Vertebrae Cervicalis with guess fracture on Anterior part of the Cervical Corpus Vertebrae- 5 and Cervical Spinous Process- 2" author will discuss projection Which done is Anterior Posterior and Lateral. The X-ray aircraft used is an X-Ray aircraft. The shadow recording process uses CR (Computerd Radiography).

Based on the background and discussion of the problems above, in the implementation the researchers found several problems in Cervical Vertebrae Column Radiography with suspected fractures in the Anterior part of the Cervical Vertebrae Corpus- 5 and the Cervical Vertebrae Process- 2 researchers [4].

Radiography of the Cervical Vertebrae with suspected fractures in the Anterior part of the Cervical Vertebrae-5 and Processus Spinous Cervical-2 is a radiographic examination of the Vertebrae-cervicalis to show abnormalities that occur in the Cervical Vertebrae-5 including fractures in the Anterior part of the Cervical Vertebrae-5 Corpus and Cervical Spinous Process-2 using x-rays [5]. Radiological examination depends on the patient's condition. In patients with severe trauma (unconsciousness, multiple fractures, etc.) the examination should be carried out carefully and all photographs should be made with the patient lying supine and with as little manipulation as possible [6]. The most important photos are lateral photos with the patient lying down and the light is horizontal. Usually the lower segment bone neck (C6-C7) closed by shoulder [7]. For overcome matter This shoulders lowered with method interesting second arm sufferer to lower [8]. Oblique projection can add information about the condition of the pedicles, intervertebral foramina [9].

Computer Radiography is an image digitization process that uses sheets or photostimulable plates for image data acquisition. Image display parameters can be manipulated by the computer at a later time [10]. Computer Radiography is digital and supports the development of various computer-based diagnostic information processing systems and improves the operational and diagnostic efficiency of the radiology service [11]. Computer Radiography improves the efficiency of conventional radiography by providing consistent image quality, lowering repeat exposure rates, minimizing patient radiation exposure levels, and eliminating lost images [12]. Realizing these benefits, many departments have discovered that Computer Radiography is a long-term investment and a profitable modality. Practical [13]. In conventional radiography using cassettes, film and screen while in Computer Radiography only use imaging plate, Where like a conventional X-ray, it receives the portion of the X-ray that has passed through the patient. Imaging plates seen like intensifying screens And placed in a cassette that resembles the outer appearance of a film cassette X-ray [14].

2. METHODS

Type Study

Cervical Vertebra Column Radiography with Suspected Fractures in the Anterior Part of the Cervical Vertebrae Corpus-5 and Processus Spinous Cervical-2 This use type study qualitative and descriptive. Data collection techniques are based on the results of observations and interviews [15]. Qualitative research techniques are research about research that is descriptive in nature and tends to use analysis and emphasizes the subject's perspective. In this research, the theoretical basis is used as a guide so that the focus of the research is based on facts in the field and the theoretical basis is also useful for providing a general overview of the writing background and as material for discussing the results. Study [16].

Study type descriptive is search fact with with correct interpretation [17]. Descriptive research studies problems in society, as well as system method Which applies in public as well as certain situations, intended about connection activity, attitude, view, as well as process on going processes and the influence of a phenomenon. Descriptive research is a research method that attempts to describe the object or subject being studied according to what it is [18].

Time and place Study

Time Research : 12 to 21 June 2021
Place Research : Carried out in a Home Radiology Installation Sick Columbia Asia Medan

Collection Techniques Data

For get data data with Correct And accurate in In compiling this paper, the author did several methods as below :a. Study Literature, To obtain theoretical support for the chosen research problem, the author read a lot of literature, both in the form of texts (theories), research results of other people, journals and directions from lecturer who assisted the author in compiling a scientific paper on Cervical Vertebrae Column Radiography with suspected Fractures in the Anterior part of the Cervical Vertebral Body-5 and Cervical Spinous Process-2 . b.Observation, The author obtained data by directly observing and following the implementation of Cervical Vertebra Column Radiography with Invoice Suspect on the anterior part of the Cervical Vertebrae-5 corpus and Cervical-2 process which was carried out on the patient starting from the time the patient arrived until the patient returned home with the results at Columbia Asia Hospital Medan. c. Interviews and Consultations, Namely by contacting the patient's family regarding the illness the patient is suffering from [19]. Conduct discussions and collaborate with radiographers, and consult with specialist doctors.

Analysis Data

The data obtained from this research is qualitative data, namely data related to the categorization of characteristics or properties of variables. This data is in the form of sentences, questions and descriptions. This qualitative analysis began with direct observation of the course of the cervical vertebral column radiographic examination with suspected fractures in the anterior portion of the Cervical corpus-5 and Cervical spinous process-2 at Columbia Asia Hospital Medan. From the results of the examination carried out, a good radiographic image was obtained and is suitable to be read in making a diagnosis [20].

3. RESULTS AND DISCUSSION

Results

Identification Patient

Name : WL
Age : 45 YEAR
Type Gender : MALE Time Examination : 12-21 JUNE-2021
Type Examination : Cervical radiography in AP and lateral projections . Diagnosis : Anterior fracture of the cervical vertebrae-5 And
Spinous Process Cervical-2
Doctor Reader : dr. BUTER SAMIN, Sp. Rad

Inspection Procedure

a. The officer checks the completeness of the request form (type of examination, patient clinic, sending doctor). If it is incomplete, then confirm it back to the room of origin or to the doctor sender.
b.The officer ensures identification of patient data by asking the patient's name and date of birth patient.
c. Officer preparation :

1.Prepare complete equipment needed according to inspection requests (cassettes, films, aprons).
2.Perform appropriate hand washing procedure.
3.Equip yourself with PPE (mask, gloves, aprons).

d. Implementation of Actions :
Antero Projection Posterior

Patient Supine in table inspection, Navigate ray area C- 3/4 with 15 degrees of illumination towards the head/caudo cranial with a beam distance to the object of 100 cm.

Projection Lateral

Position the patient supine on the examination table. The horizontal beam is as high as C-3. Usage Grid Lysolm If patient No was on Bucky's desk inspection.

Preparation Patient

On examination: Vertebral Column Radiography Cervicalis With Suspect Fracture On part anterior corpus Vertebrae Cervical- 5 and Cervical-2 spinous processes do not require any special preparation [21].

tools preparation Inspection

Before carrying out the examination, the radiographer should warm up the equipment and select the required exposure factor. The preparation for the examination tool for Cervical Vertebra Column Radiography with Suspected Fracture in the anterior part of the Cervical Vertebrae-5 corpus and Cervical-2 spinous process at the Radiology Installation of Columbia Asia Hospital Medan is as follows:

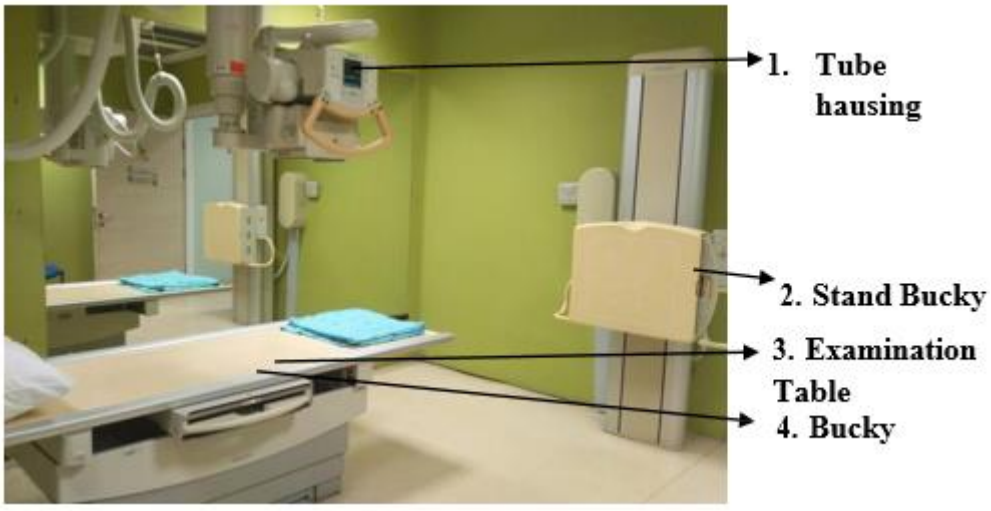

Figure 1. Philips X-ray aircraft

Figure 2. Philips X-ray Tube.

The radiographic equipment used in carrying out a radiographic examination of the cervical vertebral column with suspected fractures in the anterior part of the 5th cervical vertebral body and the 2nd cervical spinous process include:

1.Computed radiography type cassette (CR)
2.Cassette size 18 cm x 24 cm
3.Marker that functions to identify the patient and the location of the anatomy to be taken a picture.

Technique Inspection

As for projection Which in do on inspection in a way radiograph of the Cervical Vertebra Column with Suspected Fracture in the anterior part of the Cervical Vertebrae-5 body and Cervical-2 spinous process is:
a. Antero-Posterior

Objective : To show a general view of the cervical spine from a projection AP. Patient position: The patient is sleeping (supine) on the examination table and facing the light source, both extremities on position Which comfortable And second The shoulders are in the transverse plane The same [22].

Object position: Place the patient's neck in the middle of the examination table in circumstances AP, field middle body perpendicular to the examination table, mid sagittal plane of the patient's body ocusal to the cassette. The chin is extended sufficiently so that the occlusal plane and mastoid are perpendicular to the film, thereby preventing superposition of the mandible and the occusal vertebrae. Central Ray (CR) : 15 0 -20 0 Caudo Cranial Central Points (CP) : In the cervical corpus. IV FFD : 100 cm Factor Exposure : 77 kV, 16 mAs

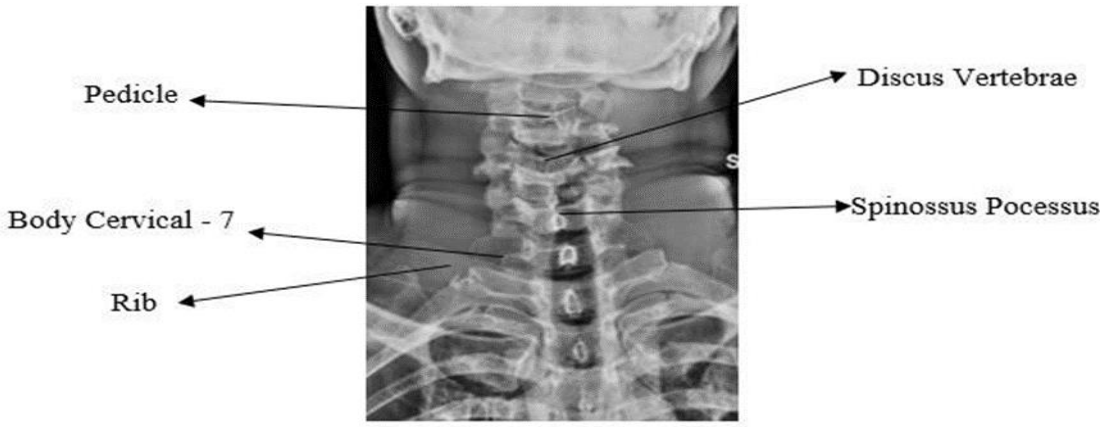

Figure 2. Antero Posterior Radiograph

Image Evaluation : After all procedures have been carried out, and the examination has been carried out by recording the image using Computer Radiography (CR), the image evaluation is as follows:

a. Cervical I and II superposition with mandible.
b. A fracture appears in the anterior part of the Cervical body-5.
c. Narrowing of the C4/C5 intervertebral disc space was seen.
d. The object is in the middle film.
e. Image Quality Good.

b. Lateral Projection

Objective : To show an image of the vertebrae cervical
generally from a lateral projection.

Patient position: The patient is sleeping (supine) on the examination table with both extremities in a comfortable position and both shoulders are in the same transverse plane [23]. Object position: Center the coronal plane until it passes the tip of the mastoid in the middle of the film, place the patient's shoulder against the cassette as support. Rotate the shoulders forward or backward according to the direction of kyposis, the shoulders are in the same position in the horizontal plane, to avoid the possibility of crushing, place a sand bag to prop so patient No shifted [24]. The object must be completely in a lateral position, chin extended to prevent superposition between the mandible and cervical spine [25].

Cental Ray (CR): Horizontal

Central Point (CP): At Cervical IV level thyroid FFD : 120 cm

Exposure Factor : 77kV, 16 mAs

Image Evaluation: After all procedures have been carried out, and the examination has been carried out by recording the image using Computer Radiography (CR), the image evaluation is as follows:

a. Visible cervical I and II with clear.
b. Fracture of the spinous process Cervical-2 .
c. Cervicals VI and VII are not visible due to superposition with shoulder [26].
d. The object is in the middle film.
e. Image quality Good.

Discussion

Cervical Vertebra Column Examination with suspected fracture in the anterior part of the Cervical Vertebrae-5 body and Cervical spinous process-2 in installation radiology House Sick Columbia Asia Medan can walk Good. The things that the author will highlight in this discussion are: :

Formulation Problem

Based on the background and discussion of the problem above, in its implementation the researcher found several problems in cervical vertebral column radiography with suspected fractures in the anterior part of the Cervical vertebral body-5 and the Cervical-2 processus [27]. The researcher formulated the problem as follows: "What efforts were made to obtain an image cervical vertebral column radiography with suspected fracture of the anterior portion of the Cervical-5 vertebral body and optimal Cervical-2 spinous process ”?

Reason Problem

The causes of problems that arise in producing optimal radiographic images in Cervical Vertebra Column Radiography with a suspected fracture in the anterior part of the body of the Cervical Vertebrae-5 and processus Cervical-2 is [28] :

a. Not all projections can be carried out according to existing theory, because the patient is unconscious self
b. Less patients cooperative.
c. Using a radiation field that is too wide can result in an increased radiation dose received by the patient Lots.

Yang's efforts Done

The efforts made to overcome this problem are: On radiographic examination of the Cervical Vertebra Column with suspected fracture of the anterior part of the vertebral body Cervical- 5 And processus spinous Cervical-2 should done additional projections [29]: Hyperextension to show the corpus clearly and Hyperflexion to show the sinous process with clear. On radiographic examination of the Cervical Vertebra Column with suspected fractures in the anterior corpus of the Cervical-5 vertebra and the Cervical-2 spinous process , we must adjust the area of the radiation field according to the object to reduce the radiation received patient [30].

4. CONCLUSION

After carrying out a radiographic examination of the Cervical Vertebra Column with suspected fractures in the anterior portion of the Cervical Vertebrae-5 corpus and Cervical-2 spinous process at Columbia Asia Hospital Medan, the author came to the following conclusions:

1. Projection used in Cervical Vertebra Column Radiographic examination with suspected fracture in the anterior part of the Cervical Vertebrae-5 body and Cervical-2 spinous process namely the anterior posterior (AP) projection and lateral.
2. On examination of the Cervical Vertebral Column Radiograph with AP projection, the images of cervical III, cervical I and cervical II will appear superposed with the mandible , intervertebral surface open.
2. On examination of the Cervical Vertebra Column Radiograph with Lateral projection, the seventh cervical image appears , it appears that cervical I and II do not coincide with the mandibular ramus. Both mandibular ramus coincide.
3. In AP and lateral projections, if the image obtained is not optimal, for example because the position of the object is not good and not cooperative, you have to use additional projection.

4. When examining the Cervical Vertebra Column, images are recorded using computed radiography (CR).

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