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THYROID ULTRASONOGRAPHY MANAGEMENT OF THYROGLUSUS DUCT CYST IN CENGKARENG HOSPITAL JAKARTA

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ABSTRACT

Ultrasound in the medical field aims to examine the organs of the body in order to determine their shape, anatomical size, movement, and their relationship with other surrounding tissues. Thyroglossal duct cyst is one of the most common asymptomatic congenital masses found in the neck area (7%). Most of the symptoms that often occur are a lump in the midline of the neck. Thyroid ultrasound is an examination of the thyroid gland using ultrasound to evaluate and detect abnormalities in the area around the thyroid gland. So that ultrasound is an effective diagnostic modality as a supporting examination for thyroglossal duct cysts in the patient's thyroid. This study aims to evaluate the procedure and technique of thyroid ultrasound examination in cases of thyroglossal duct cysts at Cengkareng Hospital, Jakarta. Patient Male, 35 years old with complaints of an enlarged lump in the middle of the neck, the lump was noticed ± 2 years before entering the hospital and ± 2 weeks of hoarseness. The patient comes to the radiology installation carrying a request letter for thyroid ultrasound from the oncology surgery poly. The results of an ultrasound examination of the thyroid are right and left thyroid not enlarged, homogeneous echo structure (normal), no solid/cystic nodular lesions seen in both thyroid lobes, nodular lesions seen, cystic in the midline as high as thyroglossus size: 3.5 x 3.5 x 2.2 cm, impression: suggestive of a thyroglossal duct cyst.

Keywords: *Ultrasound, Thyroid, Thyroglossal Duct Cyst*

INTRODUCTION

Ultrasound (USG) is an examination in the field of diagnostic support that utilizes ultrasonic waves with high frequency in producing imaging, without using radiation, painless (non-traumatic), does not cause side effects (non-invasive). Ultrasonography is relatively inexpensive, the examination is relatively fast, and the preparation of the patient and equipment is relatively easy. This ultrasound utilizes ultrasonic waves which are electromagnetic waves, to help health workers (doctors or sonographers) in diagnosing diseases or detecting those in the patient's body. (1)

Ultrasound in the health sector aims to examine the organs of the body so that it can be known the shape, anatomical size, movement, and relationship with other tissues around it. (2)

Tirolose duct cysts are one of the most commonly found asymptomatic congenital masses in the neck area (7%).Tyrolose duct cysts can occur along the tyrolose duct, with 70% arising in the anterior midline of the neck, can be located from the lower border of the hyoid bone to thyroid height. Cases of thyrolose duct cysts are usually diagnosed at a young age but are also not uncommon in adults. (3,4,5)

There are several theories that can cause a thyrolose duct cyst. These cysts form as a result of failure of the involution of the thyroglossus duct. In the process of development, the thyroid gland develops beginning in the fourth week of fetal life by forming endoderm in the medial, growing downward from the base of the tongue. This downward growing process quickly forms a channel called the thyrolose duct. This duct empties into the tongue in connection with the foramen of the cecum. The lower end splits into two lobes and finally lies in contact with the trachea by about the seventh week. The thyrolose duct then disappears, but the lower part often remains in the form of the pyramidal lobe of the thyroid gland descending into place through a duct called thyroglossus. Normally, this duct will involution and disappear. The patency of this duct raises a great potential for the formation of thyroglossus duct cysts, sinuses or fistulas. (6,7,8)

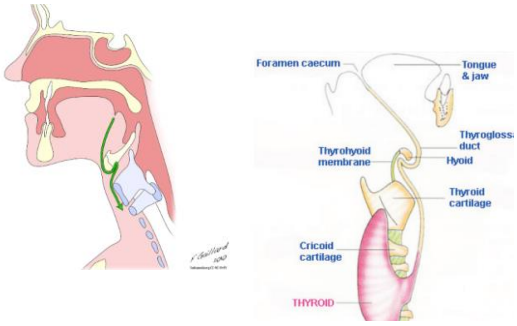


Figure 1. Image channels of the thyrolose and embryology of the thyroid gland. (12)

Most of the symptoms that often occur are lumps in the midline of the neck. The lump is enlarged and does not cause pressure at the site of cyst incursion. The consistency of the cystic palpable mass, firmly bordered, rounded, easy to move, painless, the same color as the surrounding skin and moves when swallowing or sticking out the tongue. The diameter of cysts ranges from 2-4 cm, sometimes larger. Most cases of thyrolose duct cysts go unnoticed and are not diagnosed until adulthood. This patented duct can remain for several years or more so that something stimulus occurs that can result in an enlarged cyst. (7,8,9)



Figure 2. Patients with a triglossal duct cyst lump in the middle of the neck. Image A is seen from the front. Image B is shown from the side. (12)

Cysts that appear usually do not cause any symptoms other than enlargement but in some cases can cause thyroid disorders. This ductal cyst can result in excessive production of oral secretions where this condition can cause the cyst to become infected. When infected, the lump will feel painful and become larger. (10)

Thyroid ultrasound is an examination of the thyroid gland using ultrasound to evaluate and detect abnormalities in the area around the thyroid gland. So that ultrasound becomes one of the effective diagnostic modalities as a supporting examination of thyrolose duct cysts in the patient's thyroid.

Therefore, the author is interested in writing a scientific journal on thyroid ultrasound management in cases of thyrolose duct cysts at RSUD Cengkareng Jakarta aimed at obtaining information about these examination techniques and procedures.

RESEARCH METHODS

1. Research Design

   The study was conducted using descriptive qualitative methods with a case study approach on patients. (11)

2. Place and Time

   This research was conducted at the Radiology Unit Service of Cengkareng Hospital Jakarta on November 14 – December 24, 2022.

3. Data Collection Methods

   a. Observation by direct observation at the hospital, to find out the procedures and techniques for thyroid ultrasound examination in patients with cases of thyrolose duct cysts at the radiology unit of RSUD Cengkareng Jakarta.

   b. Literature study by looking for references and literature as a theory obtained from online libraries and browsing the internet related to the research discussed.

RESULTS AND DISCUSSION

Male patient, age 35 years with complaints of a lump in the middle of the neck that enlarged, the lump was noticed since ±2 years before admission to the hospital and ±2 weeks hoarseness. The patient comes to the radiology installation with a request letter for thyroid ultrasound from the oncology surgery poly.

A literature review has been conducted based on several literature that is used as a reference to find out the procedures and techniques for thyroid ultrasound examination of patients with the following details:

1. Inspection procedure

   a. Use a 7.5 MHz linear transducer,

   b. Supine patients with the neck extended on a pillow placed under the patient's shoulder. Pillow thickness ± 10 cm.

   c. Sprinkle jelly on the patient's neck



Figure 3. Illustration of the patient during an ultrasound examination of the thyroid neck is extended and sprinkled with jelly. (1)

d. During the examination it may be necessary to rotate the head from right to left or from left to right, especially if you want to do a vascular examination (doppler), apply a little pressure.

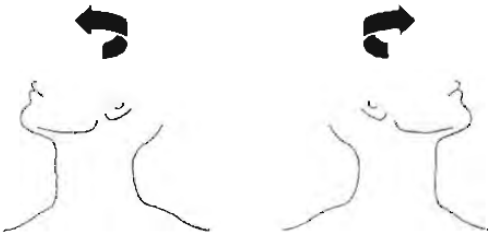


Figure 4. Illustration of the patient during the thyroid ultrasound examination performed head rotation. (1)

2. Examination Techniques and Sonoanatomy

Perform a scan with a transducer directly placed on the neck around the thyroid. Transverse and longitudinal scans of the thyroid are performed.

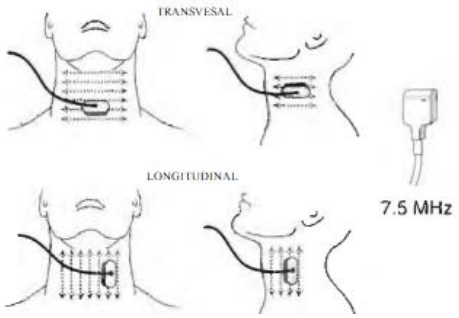


Figure 5. Illustration of the patient during thyroid ultrasound examination transverse and longitudinal scans. (1)

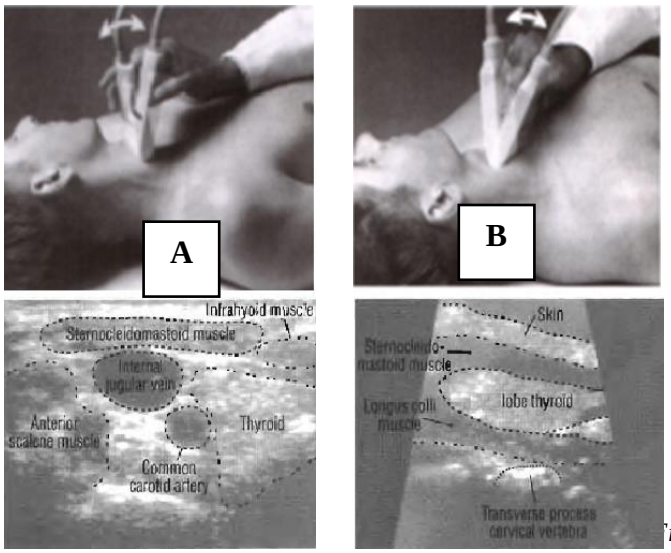


Figure 6. Perform slice by slice scanning of transverse A and longitudinal B planes, with oblique projection if needed. Observe on the monitor and save the image obtained abnormalities or that you want to file. (1)

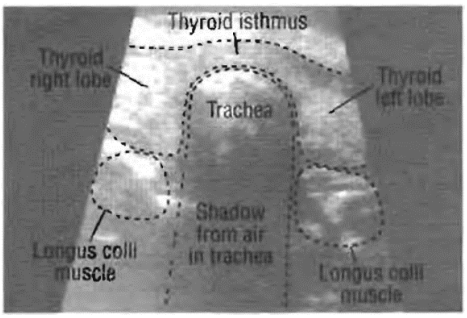
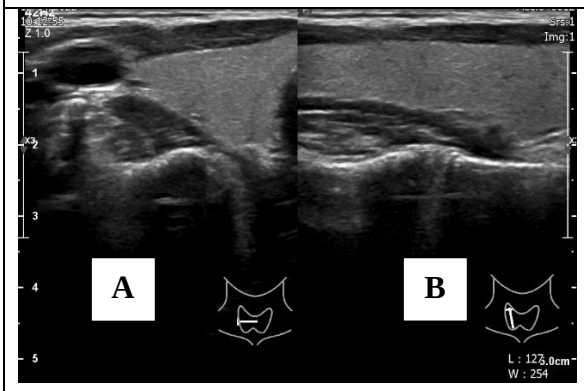
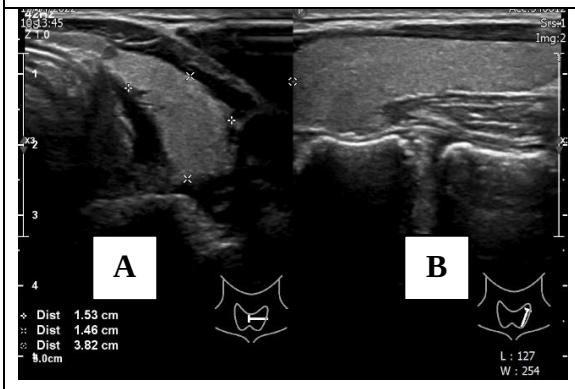
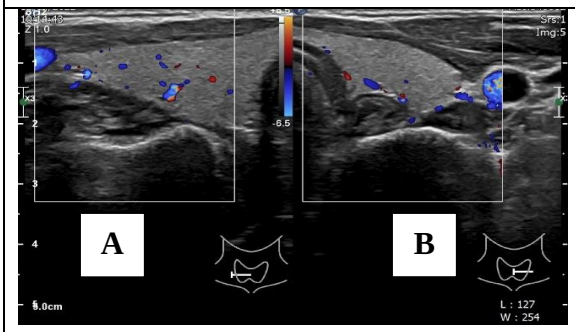
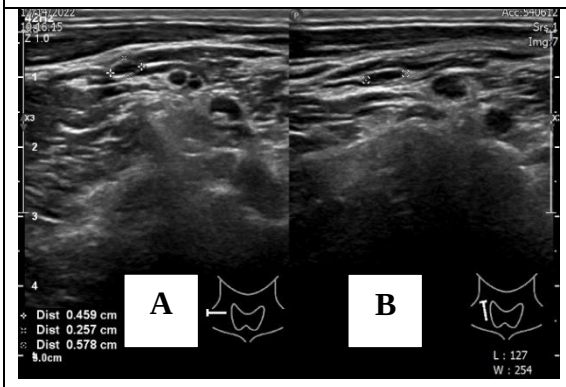
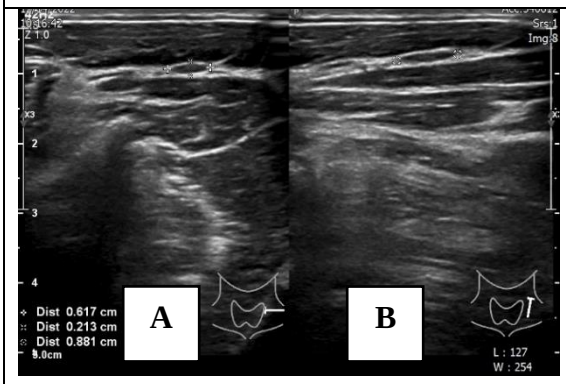


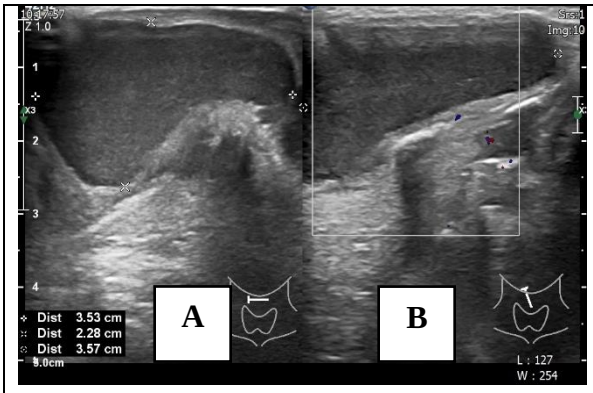
Figure 7. For thyroid isthmus do slice by slice scanning in the transvesal plane. Observe on the monitor and save the image obtained abnormalities or that you want to file. (1)

3. Examination Results

Table 1. Results of Ultrasound Examination with Patients with Thyrolose Duct Cyst Cases

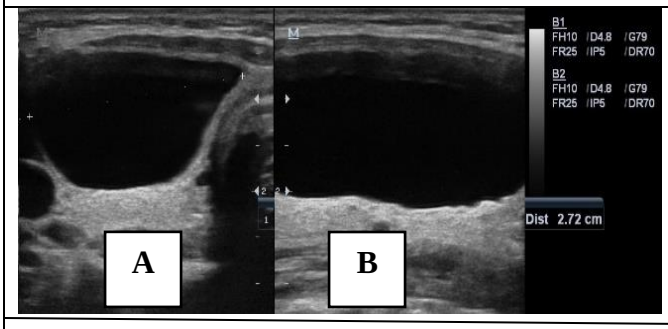
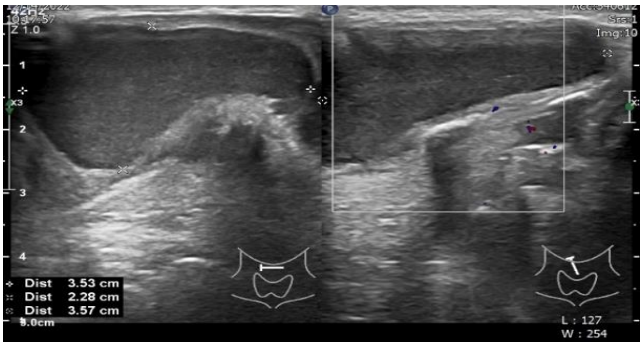
Picture	Information
	Right lobe of thyroid picture with A)transverse, B)longitudinal scan. The right thyroid is not enlarged. The echo structure is homogeneous,normal. There is no visible solid nodulary lesion in the right lobe of the thyroid.
	Left lobe of thyroid picture with A)transverse, B)longitudinal scans. The left thyroid is not enlarged. The echo structure is homogeneous,normal. There is no visible nodulary solid/cystic lesion in the left lobe of the thyroid.

	Thyroid isthmus picture with transverse scan.
	Doppler picture with transverse scan A)Right lobe of the thyroid, B)Left lobe of the thyroid.
	Lymph nodes (KGB) around the right thyroid with longitudinal A)transverse, B)scan.
	Lymph nodes (KGB) around the left thyroid with A)transverse, B)longitudinal scans

	Thyrolose duct cyst Overview with scanning A)transverse, B)longitudinal result nodulary, cystic lesion in midline at thyrolose height size: 3.5 x 3.5 x 2.2 cm.
	Thyrolose duct cyst picture with transverse scan

4. Differences in the Picture of Thyroid Cysts and Thyrolose Duct Cysts

Table 2. Differences in the Picture of Thyroid Cysts and Thyrolose Duct Cysts

Picture	Information
	Thyroid cyst: Anecoic with regular walls. The walls are thin without internal vascularity. Internal fluid no components identified.
	Thyrolose duct cyst: Hypoecoic with regular walls. The walls are thick without internal vascularity. Internal fluids may contain debris and septa or internal echoes of protein material. This is even in the absence of infection, especially the case in adult patients in which the cyst may be a complex heterogeneous fluid.

CONCLUSION

Thyroid ultrasound management in cases of thyrolose duct cysts at RSUD Cengkareng Jakarta includes the first examination procedure, namely using a linear transducer, supine patients with the neck extended on a pillow placed under the patient's shoulder, use jelly during the examination, during the examination it may be necessary to rotate the head from right to left or from left to right, especially if you want to do doppler do a little pressure.

Both examination and sonoanatomy techniques are transverse and longitudinal scans to get a picture of the right lobe of the thyroid or left lobe of the thyroid, for the image of the thyroid isthmus perform a transvesal scan.

The three results of the examination are by taking pictures of the right lobe of the thyroid, left lobe of the thyroid, thyroid isthmus, doppler of the right lobe of the thyroid, KGB around the right thyroid, KGB around the left thyrothy, thyrolose duct cyst. With the results of the thyroid reading right and left is not enlarged. The echo structure is homogeneous,normal. There are no solid/cystic nodulary lesions in both thyroid lobes. Nodulary, cystic lesions appear in the midline as high as the thyrolose size: 3.5 x 3.5 x 2.2 cm. Suggestive effect of thyrolose duct cyst.

The four differences in the description of thyroid cysts with thyrolose duct cysts are cysts in the thyroid lobe: Anecoic with regular walls. The walls are thin without internal vascularization . Internal fluid no components identified. Thyrolose duct cyst: Hypoecoic with regular walls. The walls are thick without internal vascularity. Internal fluids may contain debris and septa or internal echoes of protein material. This is even in the absence of infection, especially the case in adult patients in which the cyst may be a complex heterogeneous fluid.

Patients in the case of thyrovelus duct cysts must do further evaluation with other examinations such as fine needle aspiration biopsy (FNAB) is a method or action of taking part of the tissue in lumps on the surface of the body by sucking fluid from the lump using a fine needle which aims to help diagnose the patient's disease.

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