

Unilateral Benign Thyroid Lesion Management with Histopathology Results Following Surgery Was a Malignancy

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ABSTRACT

Benign thyroid lesions are cellular differentiation into enormous sizes that can be seen from the outside without interfering with thyroid hormone. The FNAB and USG were used to diagnose thyroid lesions. Unilateral benign lesions may be treated with lobectomy or isthmus lobectomy. Case report: A 40-year-old female patient presented with a lump in front of her neck that was enlarging to the left since seven years ago. Physical examination showed a firm lump in the front of the neck enlarging to the left. Multiple isohypoechoic lesions with internal calcification and inhomogeneous nodules on the isthmus were seen on left thyroid ultrasound. A CT scan revealed left thyroid enlargement with several solid masses, one of which was cystic, and calcification. Impression of a benign lesion from FNAB. Isthmus lobectomy was performed on the left lobe. Thyroid papillary adenocarcinoma was discovered as histopathology result. Methods: Evidence search was carried out through medline, pubmed and manual searches. Result: Isthmus lobectomy is a safe and effective treatment for benign thyroid lesions. Conclusion: A case with an initial diagnosis of benign thyroid lesions who underwent a left isthmus lobectomy and postoperative histopathological findings of papillary adenocarcinoma will be evaluated for re- assessment for thyroid malignancies.

Keywords: Benign Thyroid Lesions, Isthmus Lobectomy, FNAB, Histopathology, Papillary Adenocarcinoma Of The Thyroid

1. INTRODUCTION

Benign thyroid lesions are changes in the structure of the thyroid tissue or the tissue around the thyroid. It is asymptomatic without a toxic thyroid condition. Based on a study conducted by The American College of Surgeons National Surgical Quality Improvement Program, thyroid lesions were diagnosed by systematic examination in 13% -67% of the population, of which approximately 50% had a history of previous nodules based on biopsy results. The number of patients with benign lesions is 90%, while the rest are malignant.

In clinical practice when finding patients with benign thyroid lesions, it is necessary to do regular observation and monitoring through targeted follow-up in order to reduce morbidity and mortality due to disease and reduce the incidence of thyroid carcinoma from benign lesions due to cellular differentiation. [1,2]

The incidence of benign thyroid lesions in the world reported 44,670 new cases with a death rate of up to 1,690 people, data compiled from the World Health Organization. Data in Asia shows that 50% of the population has thyroid lesions, either tumor or goiter type. Tumors occur in 40% of the population which are benign or malignant, while the rest are goiters, both toxic and non-toxic. [3,4]

Based on research on the difference in the accuracy of the FNAB results before surgery and the results of postoperative histopathology for thyroid nodule diagnostics at RSUP M. Djamil Padang, the FNAB accuracy was low, namely 62.2% with a sensitivity of 61.2%, specificity of 62.5%, predictive value positive 75%, negative predictive value 47.6%. Compared with histopathological examination as the gold standard diagnostic of thyroid nodules it can be concluded that FNAB can be used as a preoperative diagnostic tool for

thyroid nodules, but it cannot replace a histopathological result for diagnosis. [5]

Management of thyroid lesions is indicated according to the Bethesda classification, a classification system that refers to the nature of lesions from non- diagnostic, benign, to malignant. [4]

The goal and postoperative evaluation is to confirm the removal of tissue suggestive of differentiation based on the results of histopathological examination. Another evaluation using ultrasound to evaluate the remaining tissue in a calm condition or experiencing enlargement causing a recurrence of the disease. [6]

2. CASE REPORT

A 40 years old woman presented with a complaint of a lump in front of the neck enlarging to the left that had been experienced 7 years ago, initially a small lump as big as a bullet and easy to move, getting bigger and painless over time (Figure 1)

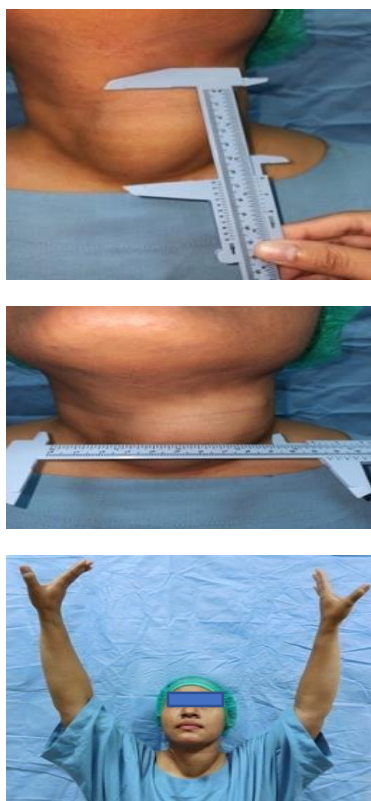


Figure 1 Clinical presentation of a patient with benign thyroid lesions

Heart palpitations, trembling hands, profuse sweating, weight loss were denied. Swallowing disorders and shortness of breath were denied. The patient has a history of hyperthyroidism and is regularly taking PTU. Patients routinely consume unfortified salt and birth control pills and use injection birth control. No history of exposure to radiation.

The general examination revealed that the patient was healthy, was conscious and cooperative, and that her vital signs were within normal. The lump in front of the neck appears to be enlarging to the left, with the following dimensions: 9 cm x 6.5 cm x 5 cm until it reaches the upper third of the sternocleidomastoid muscle, with firm margin, mobile, solid consistency, flat surface, no discomfort, no evidence of inflammation, no other lumps can be felt, and the lump moves when swallowed and the pamberton's sign was negative. (See Figure 1c).

Laboratory tests had a slight decrease in FT3 and FT4 hormones, while Tshs and complete blood tests were still within normal limits as well as chest radiograph results.

Thyroid ultrasound examination results, obtained multiple anechoic lesions with calcification in the right colli region, left colli enlargement accompanied by multiple isohipoechoic lesions and calcifications, inhomogen nodules in isthmus, lymphadenopathy without central hillar, right colli region level 2 and left colli region level 2 and 5 with central lymphadenopathy.

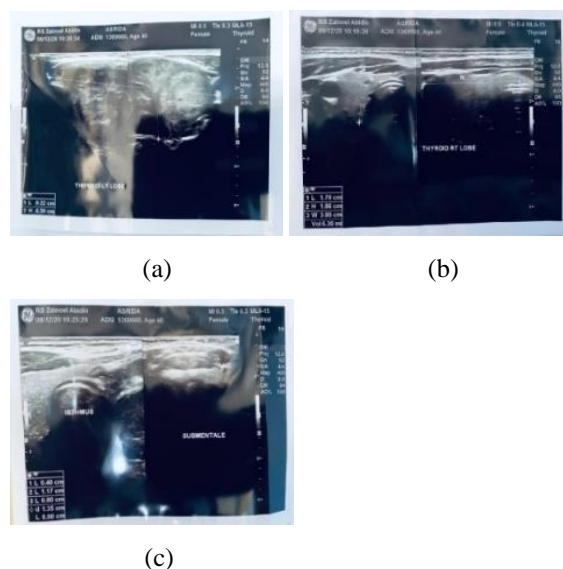


Figure 2 Ultrasound shows (a) multiple lesions of the right thyroid, (b) enlargement of the left thyroid and multiple lesions of the left thyroid (c) Multiple nodules of the isthmus.

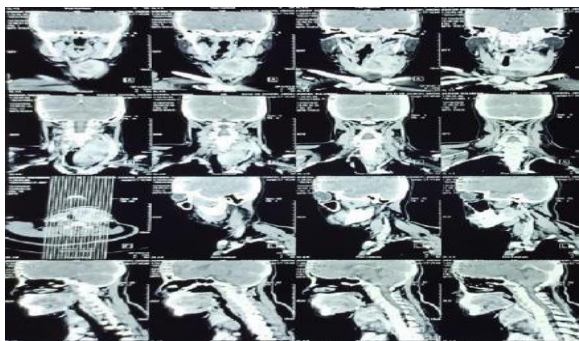


Figure 3 Neck CT scan showing multiple right thyroid lesions, left thyroid enlargement and multiple left thyroid lesions, multiple nodules in the isthmus, and multiple lymph nodes in the colli, submental, and submandibular regions bilaterally.

An enlarged left thyroid with several masses, several cystic lesions in the right thyroid, multiple lymphnodes in the right and left colli, and bilateral submental and submandibular lymph nodes are found on CT scans of the neck in axial, coronal, and sagittal sections with contrast and non-contrast.

FNAB examination showed benign thyroid lesions. The patient was diagnosed initially as a benign left thyroid lesion, then prepared for the left isthmus lobectomy.

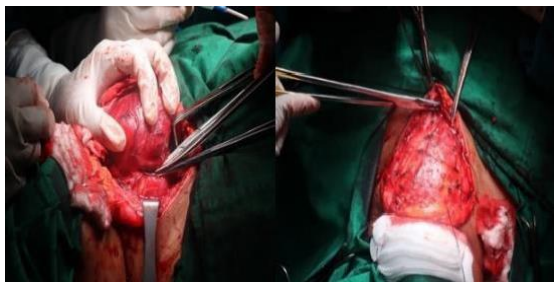


Figure 4 Left isthmus Lobectomy.

After surgery, the patient's condition was good, the wound was dry and the patient discharged on the second postoperative day with a production of 15 cc of drain.



Figure 5 Postoperative follow-up follow up, 12 days after surgery

3. METHODS

A literature search was conducted since 12 January 2021 with the keywords “benign thyroid lesion”, AND “ithsmus lobectomy”, AND “FNAB”, AND “histopathology”, Searches were performed on Medline, PubMed, and manual searches for evidence.

4. RESULTS

Thyroid nodules are isolated lesions inside the thyroid gland that are radiographically different from the surrounding parenchyma. They are becoming more frequent in clinical practice, with up to 65 percent of the general population having them. Among the large number of detected nodules, most of them are benign, clinically insignificant, and safely managed by the surveillance program. However, approximately 10% of patients presenting thyroid nodules are at risk of malignancy.[7]

The histopathological sensitivity value was superior than the FNAB, according to Kakudo and Cameselle-teijeiro, hence it became the gold standard for diagnostic tests. Because the thyroid is close to the source of the major arteries and the vagus nerve, the procedure must be followed with ultrasound guidance to determine the exact placement of the thyroid. FNAB sensitivity rates are high, but can be very low in cystic thyroid tumors.[8,9]

Sutton et al said that the main invasive approach is surgery, which is indicated for large lesions with suspected malignancy. Surgical options are lobectomy, isthmus lobectomy or total thyroidectomy. The population aged over 55 years has a tendency for thyroid lesions to be more malignant than younger people, but once a benign lesion has formed, the potential for malignancy decreases with age. Patients with thyroid lesions under 55 years of age had a false negative rate of thyroid malignancy up to

3.7 times compared to those over 55 years of age. The peak age for patients with thyroid lesions is 75 years, if the patient does not have comorbid thyroid disease, the incidence of thyroid carcinoma can be prevented. [10]

5. DISCUSSION

A 40-year-old woman presented with a lump in her neck that spreads to the left and has a solid substance while swallowing motions, which she has had for the past seven years. The patient denied any toxic complaints such as shaking hands, palpitations, profuse sweating, decreased appetite and others. The patient uses birth control pills and injections, as well as unfortified salt. The elderly, women, iodine shortage, and having been exposed to radiation are all risk factors for benign thyroid lesions, with women outnumbering males by 6.4 percent

to 1.5 percent. On palpation the enlarged thyroid gland in the early stages is usually not hard and moves along with swallowing, on the contrary in the advanced process it will feel hard and not mobile.[11] Starting with the laboratory data, the diagnostic modality employed in the diagnosis of benign thyroid lesions in this patient showed a modest drop in FT4 and FT3 and normal TSHs. Hypothyroidism and hyperthyroidism are more prone to cause thyroid functioning problems, such as benign thyroid lesions. TSH testing is a blood test that measures TSH levels in order to assess thyroid function. TSH stimulates thyroid hormone release. The thyroglobulin test is solely used as a diagnostic tool. Benefits of thyroglobulin testing to see whether there is any metastatic tissue that hasn't been removed or if there is a recurrence.[12]

Ultrasound features showed calcification within the left thyroid gland, as well as increased thyroid gland tissue and several isohypoechoic lesions with ambiguous borders. Calcification of thyroid nodules appears to occur in both benign and malignant nodules, and the risk of malignancy in many thyroid nodules is comparable to that of a single thyroid nodule.[13]

US features can be utilized to differentiate malignancies from benign thyroid nodules. For example, a cystic or spongiform appearance usually suggest a benign nodule only needed a long-term follow-up, whereas the solid composition, hypoechogenicity, infiltrative or irregular margins, and micro-calcifications are generally considered to be risk factors of malignancy which may need further treatment, such as resection. Some studies demonstrated that a combination of US features provided certain diagnostic accuracy. However, many other studies indicated a considerable overlap of US features appearing in both benign and malignant nodules. The sensitivity and specificity of using US for thyroid cancer diagnosis varied from 27% to 63% and 78.0% to 96.6% in various studies. This is likely due to interobserver variability in assigning sonographic features to nodules and that US is highly operator dependent. Different examiners, different US instruments, and different definitions of US features will eventually affect the diagnostic accuracy. As a result, US remains highly subjective and depends on clinical experience.[7]

The CT scan revealed enlargement of the left thyroid gland as well as several lymph nodes ranging in size from 0.4 to 1.6 cm in the left colli, 0.7 to 1.1 cm in the right colli, and 0.8 cm in the submental, 1.1 cm in the right submandibular and 0.8 cm in the left submandibular, although no palpable lymphnode was discovered during intraoperative examination. This is possible because traditional CT and MRI can reveal pseudo-lymphnode metastases (almost 70 percent of all events) [12]. The diagnosis of benign lesions is controversial because it often overlaps with the incidence of thyroid carcinoma.

Physical examination confirms benign lesions in 2% to 6% of cases, ultrasound diagnosis in 19% to 68% of cases, biopsy in 8% to 65% of cases, and CT scan in 8% of cases. The FNAB results reveal a benign lesion, and the patient is diagnosed with a benign thyroid lesion.[14,15]

The FNAB results before surgery, which show benign lesions, differ with the postoperative histological results of left lobe tissue and thyroid isthmus, which show papillary adenoma carcinoma thyroid. Although many lesions are benign, some have differentiated into papillary carcinoma, the most frequent type of carcinoma. According to research conducted at RSUPM. Djamil Padang, the FNAB accuracy was 62.2%, with a sensitivity of 61%, specificity 62.5%. While Cameselle-teijeiro et al reported the results of histopathological accuracy, namely sensitivity of 92.31% and specificity of 83.33% so that it became the gold standard for diagnostic examinations.5 The incidence of malignancy after the patient is diagnosed with benign lesions is less than 2%, so there is a possibility of thyroid carcinoma.[9]

Surgical lobectomy or isthmus lobectomy is required for patients with benign thyroid lesions; the distinction is that lobectomy eliminates only one lobe of the thyroid gland, whereas isthmus lobectomy also removes the isthmus. The goal is to prevent recurrence of the lesion or a more severe form of malignancy. Patients under 55 years of age with a lesion larger than 4 cm had a 3.7 times higher false negative rate of malignancy from biopsy than those over 55, hence surgery to remove the gland in question is essential to prevent thyroid carcinoma after benign lesions.[10]

Based on histological findings, this patient was diagnosed with papillary thyroid cancer after surgery. A more thorough examination is carried out (Thyroid and neck ultrasound including lateral and central compartments) or Biopsy of enlarged lymph nodes or contralateral lesions.

Papillary carcinomas can be solid, cystic, or mixed cystic and solid on gross examination. They may be encapsulated and exhibit calcification on cut sections. The thyroid gland sometimes presents as a completely black gland, the so-called "black thyroid".[16] If found: (1) Tumor > 4 cm; (2) Massive positive margin of resection (3) There is multifocal macroscopic (> 1 cm) (4) Metastatic lymph nodes (5) Vascular invasion (6) Extensive extrathyroid extension, then, according to the National Comprehensive Cancer Network 2020 thyroid cancer guidelines, a total thyroidectomy can be performed and therapeutic neck dissection along with compartments already associated with biopsy-confirmed metastases. It is considered giving levothyroxine therapy to maintain normal TSH levels.[16]

6. CONCLUSION

In the case of benign thyroid lesions diagnosed before surgery and obtaining postoperative histopathological results as a malignancy in the thyroid, it takes time to re-evaluate the contralateral thyroid lobe and lymph nodes in the neck. As well as to make further observations. If the evaluation results in the contralateral thyroid gland indicate a malignancy and there are signs of metastases in the cervical lymph nodes, a total thyroidectomy should be considered.

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