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ORIGINAL ARTICLE

Techniques for Treating a Single Cold Thyroid Nodule

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ABSTRACT

Background: The goal of this article is to raise awareness of malignancy and surgical options for the solitaryinflection point of the cold nodule thyroid.

Methods: People mentioned after the community or hospitalized straight via Observational Patient Treatment Tartary care hospital kpk with a diagnosis of a single cold nodule thyroid gland were accounted for in the study.

Results: The patients' ages varied from 15 to 65, with a mean of 35 10 years, and 90% were female. Sixty-four percent of patients had problems in the right lobe of the thyroid gland, whereas only two percent had problems in the isthmus. Each patient had had surgery and was deemed euthyroid. In 50% of patients, FNAC revealed adenomatous colloid goiter, while in 5%, FNAC revealed papillary cancer of the thyroid gland. Mainly, lobectomy with isthmusectomy was done (95%), whereas complete thyroidectomy was done (5%). Adenomatous colloid goiter was found in 45% of patients, whereas 9% had thyroid cancer that forms in follicles, and 3% had cancer of the follicle based on the histopathology report. In 7% of those who needed it, complete thyroid removal was accomplished. Postoperatively, 5% of patients had an infection at the surgical site, and 3% experienced temporary hypocalcemia. People didn't die outright or anything like that.

Conclusion: Women are more likely to have a single cold nodule in their thyroid gland. The most effective surgical procedure is a combination of lobectomy and isthmusectomy. When a single cold nodule develops in the thyroid, papillary carcinoma is the most prevalent kind of cancer that may develop there.

Keywords: Techniques, Treating, Cold Thyroid, Nodule

INTRODUCTION

Thyroid tissue, which sheathes the upper aerodigestive tract and weighs 21-26 grams, has a robust vascular supply and a sizeable lymphatic network[1].

Clinical detection of solitary thyroid nodules occurs in 4-8% of the population, but ultrasonography may identify them in up to 72% of the population. Females are more likely to experience this (6% vs. 1%), while it rarely occurs in kids (1%)[2].

Thyroid cancer rates are increasing over the world[3]. Cold nodules on the thyroid gland account for 81% of all nodules, whereas warm or functional nodules account for 6% of all thyroid cancers[4].

Thyroid nodules may be either benign (smooth, soft, and moveable) or malignant (complicated,

irregular, fixed, fast developing, and associated with hoarseness of the voice) in nature. Ultrasonography is the modality of choice when investigating a single lesion on the thyroid because of its high sensitivity and lack of risk[5]. When evaluating a single thyroid nodule, CT and MRI are not the preferred first diagnostic tools Medical examinations of the thyroid[6]. Thyroid-stimulating hormone (TSH) levels may be used as a diagnostic tool to determine whether a nodule is benign or malignant.

When evaluating a single, noncancerous nodule in the thyroid, fine-needle aspiration cytology (FNAC) is a simple, cost-effective, and non-invasive option. Solitary cold nodules in the thyroid gland are often malignant papillary or follicular carcinomas, but sometimes anaplastic or medullary carcinoma or lymphoma[7].

Clinical, biochemical, radiographic, and cytological findings inform interdisciplinary management strategies2,4. The risk of local recurrence is reduced by 10 percent in patients with high-risk solitary cold nodules who get lobectomy + isthmusectomy, and by the same amount in patients with malignant solitary cold nodules who undergo complete thyroidectomy[8]. After complete thyroidectomy, individuals at high risk for recurrence or who have already developed metastases from papillary or follicular carcinomas may benefit from radioactive iodine therapy. Percutaneous ethanol injection, radiofrequency ablation, laser, and microwave ablation11 are all modern minimally invasive procedures used to treat a single, noncancerous lesion in the thyroid gland in its earliest stages[9].

METHODOLOGY

From Jan 2020 to Jan 2021, investigators at tertiary care hospital kpk examined 25 patients consecutively. Subjects were all adults and children over 15 who had been diagnosed with a single cold nodule in their thyroid and were treated at the Out Patient tertiary care hospital kpk. Only those without abnormally hot or warm nodules were included in the analysis. The ultrasonography thyroid, radionuclide scan, and TSH level all corroborated the diagnosis of the single cold nodule based on the patient's narrative and physical examination. Examining the results of tests such as complete blood count, glucose, urea/creatinine, liver function All patients were encouraged to have preoperative tests for hepatitis, chest X-rays, electrocardiograms (where indicated), thyroid ultrasound, T3, T4, TSH levels, a radionuclide scan, and a fine needle aspiration (FNAC). Each patient assented after being fully informed of the risks and benefits. General anesthesia was used for all of the surgeries. All patients had drains inserted. Each patient was given antibiotics and pain relievers. Every patient was attentively watched in the ward to pick up on any surgical issues immediately. Patients spent an average of 4.5 days in the hospital (the range was 4-7 days). All patient information was obtained using the standard proforma and analyzed using SPSS 23. Using a quantitative variable, we determined the patients' ages' median and standard deviation (SD). Frequency counts were used to determining qualitative characteristics like gender. And percentages.

RESULTS

Over 20 months, the series of 25 individuals with a single cold nodule in their thyroid was increased. Table 1 shows that the patients' ages varied from 15 to 65, with a mean of 35 10 years, and that 90% were women.

Table 1: Ratio of Key Demographic Variables

Age in years	n=25	Male	Female
15-21	5	-	05
22-35	9	2	07
36-45	7	2	05
46-60	3	01	02
>61	01	-	01

Some 25% of patients had edema for less than a year when they were diagnosed, whereas 12% had it for more than five years. Sixty-four percent had problems with their right thyroid lobe, thirty-five percent with their left, and two percent with their isthmus. Table 2 displays the results of fine-needle aspiration cytology forindividuals diagnosed with adenomatous colloid goiter (50%) or thyroid cancer that forms in follicles (5%). All the patients were considered euthyroid, and the procedures were performed while unconscious. Overall, 95% of patients had lobectomy with isthmusectomy, 5% underwent complete thyroidectomy, and 3% underwent just an isthmusectomy. Histopathology results from the resected specimens of all patients are shownin table 2, and they reveal that 44% of patients had an adenomatous colloid goiter and 9% had papillarycarcinoma of the thyroid gland.

Table 2: Histopathology and FNAC results

Result	FNAC	Histopathology
Malignant tumor		
Colloid adenoma of the thyroid	13 (50%)	10 (46%)
Cystic nodular goiter	4 (15%)	5 (28%)
Acne colloid	3 (13%)	3(10%)
Follicular lymphoma	2 (9%)	-
Hashimoto's thyroiditis	1 (3%)	1 (2%)
Lymphocytic thyroiditis	1 (3%)	1 (2%)
Acne follicular	-	1 (6%)
Hurthle's cell cancer	1 (3%)	1 (42%)
Cancerous growth		
Invasive papillary carcinoma	1 (3%)	2 (6%)
Cancer of the follicles	-	1 (2%)

Based on the data in table 3, the overall malignancy rate of the isolated thyroid cold nodule was 10%.

Table 3: Thyroid cancer incidence and mortality among various population subsets

Age group	Male	Female	Papillary carcinoma	Cancer of the follicles
15-21	-	-	-	-
22-35	-	2 (4%)	2 (4%)	-
36-45	-	1 (2%)	1 (2%)	2 (4%)
46-60	2 (4%)	-	2 (4%)	-
>61	-	1 (2%)	1 (2%)	-

Histopathology results showed that 6 percent of patients with thyroid cancer had complete thyroid removal surgery. All patients were thoroughly followed in the ward to discover and treat any postoperative issues as soon as possible. Table 4 shows that 4% of patients had an infection at the surgical site, and 2% experiencedtransitory hypocalcemia.

Table 4: treatment issues after postoperative complications

Postoperative \complication	%age	Management
Infection at the site of surgery	4	Open wound, culture/sensitivity, dressings
Transient \shypocalcemia	3	Calcium and vitamin D
Recurrent laryngealnerve palsy	2	Conventional

The Oncology Division was consulted for follow-up care on all patients who received complete or Total thyroidectomy complications for thyroid cancer. Deaths were not reported. The median length of stay in thehospital was 4.5 days, with the range being between 4-7 days.

DISCUSSION

Thyroid nodules occur in 4-7% of the population and are usually harmless, despite being a prevalent endocrine disorder Due to an increased risk of cancer, a single cold nodule of the thyroid gland remains a diagnostic problem. The malignancy rate for a single thyroid nodule that presents as cold is between 10% and 35%[10]. Surgeons, for this reason, are likely to view them with skepticism and approach therapy in an organized manner. Since Hamilton and Soley's 1939 demonstration that malignant thyroid tissue accumulates less radioactive iodine than normal thyroid tissue, a radionuclide scan has been the mainstay in evaluating the single cold nodule of the thyroid gland[11]. To distinguish between a malignant and benign solitary cold nodule of the thyroid, fine needle aspiration cytology (FNA) is a reliable and economical method1,2,9. Concerns about a single cold nodule on the thyroid gland center on ruling out cancer and doing minimal surgery It is still debatable what the best method of Assessment and management is. Women are more likely to have the clinical manifestation known as a single cold nodule of the thyroid gland. 90% of the patients were female, and their ages varied from 15 to 65, with a mean of 35 10 years The patients in the research by Akhtar N et al.13 ranged in age from 13 to 63, with a mean of 33.45 6.32 years, and 76.6% were women[12]. Single thyroid nodules are often treated with lobectomy and isthmusectomy. When compared to the research by Bhuyar SA et al.14, in which 87% of patients received lobectomy + isthmusectomy, and 12% underwent complete thyroidectomy, the series shows that 94% of patients got lobectomy plus isthmusectomy. Most (90%) of all thyroid cancers are papillary or follicular carcinomas. The research found that 10% of isolated thyroid nodules were malignant. Similar to the research by Shashikala V et al.15, where the total Malignancy in the solitary cold nodule of the thyroid gland was 12.5%, with the papillary carcinoma at 11.3% and the follicular carcinoma at 1.2%, 8% of thyroid malignancies were due to papillary carcinoma. Surgicalprocedures carry with them an inherent risk of morbidity and death[13]. Compared to research by Rahman MM, et al.16, which found a morbidity rate of 12% but no fatality, this series' rate was 8%[14].

CONCLUSION

Reproductive-aged women are more likely to have a single, chilly nodule in their thyroid gland. In the case ofa single, benign thyroid nodule, a lobectomy and isthmusectomy are recommended; a complete thyroidectomy is performed in the case of a malignant nodule. Surgical indications include cosmetic goals, pressure complaints, follicular neoplasm, and cancer. The lone chilly nodule of the thyroid gland is often malignant papillary cancer. Challenges including poverty, an absence of thyroid clinics, and a protracted wait for a definite diagnosis need attention.

Suggestions: Finding the nature of a single thyroid cold nodule is critical since invasi ve surgery may be overkill. Proper public education via media outlets and seminars, building thyroid clinics, employing a skilled pathologist, especially for FNAC, and constructing a frozen section facility inoperating rooms ensures an accurate thyroid cancer diagnosis. Prompt surgical and oncological therapy to avoid a third procedure. These methods will minimize death and reduce morbidity in isolated cold thyroid nodules.

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