

Thyroidectomy during Pregnancy and Correlated Complications

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ABSTRACT

Objective: to analyze unanimously diagnostic and surgical outcomes in the patients with thyroid cancer treated with minimally invasive techniques.

Methods: Between November 2010 and February 2011, all the pregnant patients diagnosed as thyroid cancer cases were included in the study. During pregnancies, the nodule doubled in size in all of the patients. The fine needle aspiration (FNA) was performed in all study subjects to detect malignancy. Overall, seven patients underwent thyroidectomy, while six patients underwent subtotal thyroidectomy or lobectomy. Subtotal thyroidectomy was performed in two patients during second trimesters, whereas other study subjects underwent surgery following 4 to 11 months of childbirth. Three patients reported lumps within their necks during their 1st pregnancy, which remained in place up to 18 months and were further investigated during their 2nd pregnancy. The planned treatment for these patients was delayed due to prevailing pregnancy, and the treatment was carried out after 24 months of first appearance of nodules.

Results: Patients were clinically evaluated and serum thyroglobulin levels were measured at each visit. Four study subjects received radioiodine ablation (3 GBq), with two of them receiving two additional therapeutic doses (14 GBq) because of lymph node involvement. Following the surgery, the patients were given sufficient doses of thyroxine for suppressing the levels of thyrotropic hormone (TSH). The average time spent on follow-ups was 6.5 years. Thyroid cancer regressed in lymph nodes of neck in 2 patients during this time, and they were handled with modified neck dissection after radioiodine and they fully cured after three years. Bone metastases formed after 1.5 years of thyroidectomy in the 3 patients who received delayed treatment, and they died following 5 years. In total, 12 of the 13 patients are fully cured and alive, with normal serum thyroglobulin levels. Then, seven babies were born to 8 of these patients.

Key Words: Pregnancy endocrine malignancy, Thyroid Cancer, Surgical Thyroidectomy

INTRODUCTION

Thyroid cancer is the most serious endocrine cancer, which affects mostly young individuals and is more prevalent in women. In most cases, the mean age of diagnostics has been reported to be < 40 years. Differentiated thyroid cancer (DTC) is among the most complicated tumors among women during childbearing age and pregnancy periods, with an incidence of 3.6 to 14 per 0.1 million live births.⁽¹⁾ Thyroid malignancy is common in pregnant women, and about 10% of thyroid malignancy cases in women of childbearing age are discovered in pregnancy or the first few months after delivery ⁽²⁾. When a tumor is discovered in pregnancy, there is justifiable concern about the best times for indorsed treatments, as well as maternal and neonatal morbidity. In the meantime, thyroid carcinoma among young patients generally has a good prognosis, and the prognosis of women diagnosed to have thyroid cancer during pregnancy may be similar to that of comparable-aged non-pregnant women with common disease. ⁽³⁾

In the field of oncology, pregnancy is viewed as a unique scenario that necessitates the simultaneous supervision of two lives that are both vulnerable. Moreover, every scenario must be considered during development because no one is static, especially during first trimester. Thyroid cancer sufferers, on the other hand, almost always have their thyroids removed, necessitating adequate

calcium and thyroxine supplementation.⁽⁴⁾ The main issues that thyroid malignancy patients must be addressed for both mothers and babies are: 1) maintaining maternal l-thyroxin levels to prevent tumor propagation or relapse, and 2) maintaining a stable balance of thyroid hormones among mothers, which is unquestionably necessary for central nervous system development in foetus until normal maturation. ⁽³⁾.

The management of pregnant women who have thyroid cancer is inextricably related to significant discomfort for both doctor and patient, particularly in the case of any suggested treatment. According to recent studies, the diagnosis of thyroid tumors in pregnant and non-pregnant women is similar. A few studies say that the procedure is feasible during the second trimester, while others believe that it should be postponed until after childbirth ⁽⁵⁾. The goal of this study was to compare surgical and diagnostic outcomes in individuals with thyroid cancer who were treated using minimally invasive procedures.

MATERIAL AND METHODS

The total 13 suspected cases of thyroid cancer were treated at the Department of Surgery of Liaquat University of Medical & Health Sciences, Jamshoro, Sindh, Pakistan. The research was granted permission by the institution's ethics committee. Between November 2010

and February 2011, all the pregnant patients diagnosed to have thyroid cancer were included. At the time of diagnosis, the mean age of pregnant women was 35 years (minimum 31 years and maximum 39 years). Thyroid tumor was discovered in 3 pregnant patients during their first trimester, in 6 pregnant women during their second trimester, and in 4 pregnant women during their third trimester of pregnancy. The asymptomatic thyroid nodule was discovered during a routine antenatal examination in 7 of the individuals, while the other 6 pregnant women were found with lumps in their necks. (6).

During pregnancies, the nodule had doubled in size in all of the patients. The fine needle aspiration (FNA) was performed in all study subjects to detect malignancy. (7) Overall, seven patients underwent thyroidectomy, while six patients underwent subtotal thyroidectomy or lobectomy. Subtotal thyroidectomy was performed in two patients during second trimesters, whereas other study subjects underwent surgery following 4 to 11 months of childbirth. Three patients reported lumps within their necks during their 1st pregnancy, which remained in place up to 18 months and were further investigated during their 2nd pregnancy. The planned treatment for these patients was delayed due to prevailing pregnancy, and the treatment was carried out after 24 months of first appearance of nodules.

RESULTS

Expert pathologists used internationally accepted criteria to diagnose all cancers. Overall, seven individuals underwent thyroidectomy, while other six patients underwent subtotal thyroidectomy or lobectomy. In 5 cases, complicated lymph nodes were excised, but the remaining tumor part was limited to the thyroid glands. Thyroid malignancy was clearly characterized in all of the patients, with 8 papillary tumors and 6 follicular tumors. The tumor measured between 1 and 5 cm in size. All the patients were monitored at predetermined intervals between 6 months and 1 year, as per established protocols of thyroid cancer.

Patients were clinically evaluated and serum thyroglobulin levels were measured at each visit. Four study subjects received radioiodine ablation (3 GBq), with two of them receiving two additional therapeutic doses (14 GBq) because of lymph node involvement. Following the surgery, the patients were given sufficient doses of thyroxine for suppressing the levels of thyrotropic hormone (TSH). The average time spent on follow-ups was 6.5 years. During this period, thyroid cancer regressed in lymph nodes of neck in 2 patients during this time, and they were handled with modified neck dissection after radioiodine and they fully cured after three years. Bone metastases formed after 1.5 years of thyroidectomy in the 3 patients who received delayed treatment, and they died following 5 years. In total, 12 of the 13 patients are fully cured and alive, with normal serum thyroglobulin levels. Then, Seven babies were born to 8 of these patients.

DISCUSSION

Thyroid papillary and follicular tumors are especially dangerous in women of reproductive age (8). Numerous population-based research studies have indicated that approximately 10% of thyroid malignancy cases in women

of childbearing age are identified during gestation or the first year following birth (9). According to a randomized study, thyroid malignancies were identified in roughly 4.4 percent of young females during pregnancy (10). Due to the particular interests in the effects of the course of disease on pregnancies and also treatment results, females who were discovered with thyroid tumors after one year following pregnancy were not included. Higher concentrations of serum chorionic gonadotrophins, which have a similar homology to TSH, are thought to stimulate malignant thyroid tissues and may exacerbate the progression of thyroid cancer in gestation (11). All of the 13 patients in this study said their tumors had grown in size. The tumor was larger than 3.5 cm in four cases, and in 2 patients lymph node rupture was limited to cervical lymph node. Except for one patient, who died of metastatic sickness after her planned surgery was delayed for up to two years after her early presentation. Both of the differentiated papillary and follicular thyroid malignancies are likely to have great outcomes in young patients. The most prominent independent predictive predictors in the huge number of women who had thyroid cancer were diagnostic size, age, and histology of tumor, which were considerably less significant that are included in univariate study. Thyroidectomy for thyroid malignancies was determined to be excellent in early gestation and has been suggested throughout the middle trimester. The prognosis discovered after pregnancy, on the other hand, may be safely postponed until after childbirth (12). More investigations, including complete-body radioiodine therapy and scans, can be postponed until after childbirth and complete breast-feeding in all of the patients. Thyroid surgery in pregnant females has been proven to be safe, yet it has been related to a higher rate of fatality in other types of surgery, like neck dissection (13).

CONCLUSION

In young cases of differentiated papillary or follicular thyroid carcinoma, favorable outcomes can be expected. The most significantly independent predictive predictor in the huge proportion of thyroid cancer female patients was diagnostic size, age and histology of tumor, which were considerably less significant and included in univariate analysis. Thyroidectomy for thyroid malignancies has been determined to be excellent in early pregnancy and is suggested throughout the second trimester.

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