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## Thyroidectomy during Pregnancy and Correlated Complications

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## **Abstract**

Thyroid cancer the most serious endocrine malignancy mostly diagnosed in young people and more commonly in females. The managing of the pregnant female with thyroid cancer is inescapably linked with substantial concern for both clinician and patient principally for any recommended treatment. The aim of this study was to analyze unanimously diagnostic and surgical outcomes in the patients with thyroid cancer treated with minimally invasive techniques. 13 patients were suspected thyroid cancer were treated at the at the Department of Surgery of Liaquat University of Medical & Health Sciences, Jamshoro, Sindh, Pakistan. The average age of the pregnant females at the time of diagnostics was 35 years (ranges 31-39 years). In three patients, the thyroid cancer was recognized during first trimester, in six patients during second trimester and in the four patients during third trimester of pregnancies. The diagnostics of all tumors were made by expert pathologists by means of recognized criteria. After surgical procedure, the treatment of thyroxine accomplished to the patients in the sufficient doses for suppressing the level of thyrotrophin (TSH). Average follow-up was 6.5 years (4–9 years). In total, 12 of 13 patients are alive and completely cured with normal level of serum thyroglobulin. Seven babies have been born then among eight of those patients. The excellent outcomes expected for both follicular or papillary differentiated thyroid cancer in young cases. Thyroid surgery during pregnancy is verified to be secure though it is linked with enlarged fatal loss in more widely surgery such as neck dissection.

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

## **Introduction:**

Thyroid cancer the most serious endocrine malignancy which is mostly diagnosed in young people and more commonly detected in females. The average age of diagnostics is less than 40 years in most of the people. For such motives, the differentiated thyroid cancer (DTC) is one of the most challenging tumors in females during reproductive ages and pregnancy intervals with an occurrence of 3.6 to 14 per 100,000 live births (1). The thyroid cancer during pregnancy is frequent in patients and approximately 10% of thyroid cancers incidences during reproductive ages are detected during gestation or in the primary post-partum periods. The finding of a tumor during pregnancy perceptibly roots anxiety about the optimum timings of indorsed treatments and about both neonatal and maternal morbidities. Meanwhile, thyroid cancer in young patients has usually an exceptional prognosis and persistence among females with diagnosed thyroid cancer within pregnancy might not differ from similar aged non-pregnant females with common illness (2).

In oncology, the pregnancy is considered a specific situation and prerequisite to control two lives simultaneously which both are susceptible. Furthermore, every condition must be deliberated in development nobody is static mostly in the first trimester. Meanwhile, the patients of thyroid cancer mostly endure complete thyroidectomy and hence require sufficient supplementations of both thyroxine and calcium. The main problems in the thyroid cancer patients need to control for both mother and baby include: 1) the maintenance of maternal levels l-thyroxin to evade probable spread or recurrences of tumor and 2) the stability of sufficient balance of maternal thyroid hormones which is undeniably compulsory for the central nervous system of fetal till normal maturations (2).

The managing of the pregnant female with thyroid cancer is inescapably linked with substantial concern for both clinician and patient principally for any recommended treatment. Recent evidences suggest that the diagnosis of such thyroid cancers during pregnancy is comparable to that occur in non-pregnant females. Few researches advocated that the surgery is appropriate during the middle trimester while some acclaim to wait till after delivery (3). In this study, the aim was to analyze unanimously diagnostic and surgical outcomes in the patients with thyroid cancer treated with minimally invasive techniques.

## **Material and Methods:**

The total 13 patients were suspected thyroid cancer were treated at the at the Department of Surgery of Liaquat University of Medical & Health Sciences, Jamshoro, Sindh, Pakistan. The approval of the research was taken from the ethical committee of the institution. All patients diagnosed with thyroid cancer during pregnancy between Nov 2010 to Feb 2011. The average age of the pregnant females at the time of diagnostics was 35 years (ranges 31-39 years). In three patients, the thyroid cancer was recognized during first trimester, in six patients during second trimester and in the four patients during third trimester of pregnancies. The thyroid asymptomatic nodule was identified by the doctors during a regular antenatal checkup in the seven patients while the remaining six patients had testified the lumps in the neck regions (4).

In all patients the nodule was confirmed to about double sized during pregnancies. Not a single patient was reported in prior neck and head regions exposure to radiations. In all cases, the fine needle aspiration was established malignancy (5). Two patients underwent subtotal thyroidectomy during their second trimesters of pregnancies while the remaining were operated after delivery later to four to eleven months. Three patients had reported the lumps in their neck regions during first pregnancy which persisted eighteen months later in their second pregnancy and examined furtherly. In these patients, the prearranged treatment had been late by the prevailing pregnancy and was started 24 months after the nodules had first been perceived.

## **Results:**

The diagnostics of all tumors were made by expert pathologists by means of recognized criteria. Overall, the thyroidectomy was performed in seven cases, lobectomy or subtotal thyroidectomy in six patients. The resection of complicated lymph nodes was made in five cases while in rest of the tumor was restricted to the thyroid glands. In all patients, the thyroid cancer was well differentiated as eight were papillary and six follicular. The size of tumor was within the range of 1-5cm. According to the standard thyroid cancer protocols, all patients were followed at specified intervals from six months to one year.

On every visit, patients were evaluated clinically and values of serum thyroglobulin were assessed. The four patients were administrated with radioiodine ablation (3 GBq) two of those received more two therapeutic doses (14 GBq) due to involvement of lymph nodes. After surgical procedure, the treatment of thyroxine accomplished to the patients in the

sufficient doses for suppressing the level of thyrotrophin (TSH). Average follow-up was 6.5 years (4–9 years). Throughout this interval, thyroid cancer reverted in the lymph nodes of neck in two patients and they were treated with modified dissection of neck following radioiodine and three years after they become completely cured. The three patients with delayed treatment had bone metastases developed 1.5 years after thyroidectomy and died after 5 years. In total, 12 of 13 patients are alive and completely cured with normal level of serum thyroglobulin. Seven babies have been born then among eight of those patients.

## **Discussion:**

Follicular and papillary tumors of the thyroids are most serious in females during childbearing ages. Several surveys of population-based studies have recommended that about 10% of thyroid cancer incidences in females during their reproductive age are diagnosed during pregnancies or in the first year after birth (6). In random studies of this series, about 4.4% of young female's thyroid cancers have been diagnosed during pregnancy (7). There have not been involved females whose thyroid cancers were detected after one year after pregnancy because of particular interests of the influences of pregnancies on the progression of disease as well as treatment outcomes.

It is recommended that higher levels of serum regarding chorionic gonadotrophins that has alike homology with TSH stimulating malicious thyroid tissues and might lead to speedy progress of thyroid cancer during pregnancy (8). In current study of thirteen patients, all reported growth in the size of tumor. In four cases the tumor was estimated more than 3.5 cm and two patients had limited blowout to cervical lymph node. Outcome was virtuous in overall except in the patient in which planned treatment was delayed up to 2 years after early presentation and she died with metastatic illness. The excellent outcomes are expected for both follicular or papillary differentiated thyroid cancer in young cases.

In the large number of females with thyroid cancer, the most significant independent factor of prognostic was diagnostics age, size and histology of tumor which were far less important and included in univariate analysis. It is recommended that during middle trimester, the thyroidectomy for thyroid cancers found to be good in early pregnancy. While, the prognosis found after pregnancy can be delayed safely till after delivery (9). In all patients, more investigations such as whole-body radioiodine therapy and scan can be delayed until after the pregnancies and complete breast-feedings. Thyroid surgery during pregnancy is verified to be

secure though it is linked with enlarged fatal loss in more widely surgery such as neck dissection (10).

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**Roles and Contribution of Authors:**

- Dr. Jabeen Atta collected the data, references and did the initial writeup
- Dr. Zubair Ahmad Yousfani as a corresponding author helped in collection of data, and also helped in introduction writing
- Dr. Khenpal Das critically review the article and made the useful changes
- Dr. Ghullamullah Rind collected the references, and helped in discussion and conclusion writing
- Dr. Amir Iqbal Memon review the article finally

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