

Total thyroidectomy: the treatment of choice in differentiated thyroid carcinoma

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Abstract

Introduction: Clinically detectable thyroid carcinoma constitutes less than 1% of human cancers. Ninety percent of all thyroid malignancies are differentiated papillary and follicular carcinoma. Surgery plays a key role in differentiated thyroid carcinoma as it carries excellent prognosis, lower recurrence rate and low mortality rate but controversy persists for extent of surgery and optimal surgical management of lymph node metastasis. **Patient and Method:** A retrospective analysis was done for the cases that underwent total thyroidectomy with lymph node dissection for differentiated carcinoma of thyroid in Kathmandu Medical College during two year periods (Oct 2001 to Oct 2003). **Result:** In our experience with 18 cases of Differentiated Thyroid Carcinoma (DTC) treated with total thyroidectomies and lymph node dissection, papillary carcinoma was predominant with 83% incidence. Disease was prevalent in 50 to 60 year age group. Except two cases of transient hypocalcaemia and few wound related complications, there have been no other complications. **Conclusion:** Total thyroidectomy with lymph node dissection is safe and effective, so, the treatment of choice in cases of differentiated thyroid carcinoma.

Although thyroid nodules are common, differentiated thyroid carcinoma are relatively rare. Clinically detectable thyroid carcinoma constitutes less than 1% of human cancers. Differentiated thyroid carcinoma (papillary and follicular) are among the most curable cancers, however, some patients are at high risk for recurrent disease or even death¹. The median age of onset is between the 4th and 5th decade of life. The cause of thyroid cancer is not entirely clear².

Thyroidectomy is the main form of initial treatment for thyroid gland cancer. However, the extension of resection performed in the treatment of differentiated thyroid carcinoma remains controversial, particularly because the incidence of post-operative complication is directly related to the type of thyroidectomy (lobectomy, near total or total)³. At the beginning of the history of thyroidectomy, the major complications were haematoma and post-operative infection and most of the pioneer authors reported some post operative mortality^{3,4,5,6}. Currently, the main post-operative complications are vocal cord palsy because of recurrent laryngeal nerve dysfunction and hypocalcaemia^{4,5,6,7,8,9}. Post operative death is now rare or event unrecorded^{10,11,12,13,14,15}.

Nodal involvement is frequently found at the first clinical presentation (35% to 83%), and pulmonary metastases are detected relatively more often at the time of diagnosis (5% - 16%)^{16,17,18,19,20,21,22,23}.

We have tried to present our limited experience on surgical treatment of differentiated thyroid carcinoma.

Patients and Methods

This is a retrospective study of 18 cases of differentiated thyroid carcinoma who received surgical treatment at our centre from Oct 2001 to Oct 2003. All patients were evaluated with history particularly for related symptoms with duration, irradiation of head and neck in infancy and family history of papillary thyroid carcinoma. Findings related to size and site of lesion, hoarseness of voice and chronic cough were noted. Thyroid function test and indirect laryngoscopy (IL) for vocal cord examination carried out routinely. USG of the neck was performed in all cases to see size, site, character and multifocality of the lesion. Diagnosis was established by Fine needle aspiration cytology (FNAC) in cases who presented for the first time and by confirmation of previous histopathology in cases who came for completion thyroidectomy.

All patients underwent total thyroidectomy under general anaesthesia. Total thyroidectomy was combined with functional lymph node dissection (FLND).

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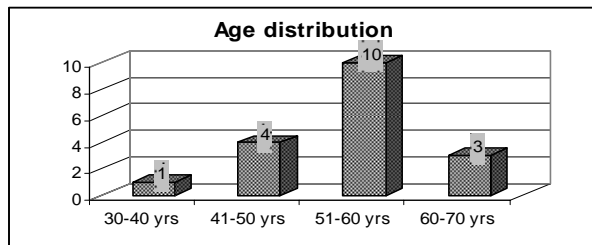
Radical Neck dissection (RLND) was carried out in cases having clinically palpable cervical lymph nodes. Recurrent laryngeal nerve and parathyroid glands were identified in all cases.

Vacuum drain was kept in all cases for 1-3 days. Oral feeding started next day. Patients were kept at hospital until they were found to be fit for discharge. All patients were referred to Bhaktapur cancer hospital for adjuvant therapy from where they were advised to consult Rajiv Gandhi cancer care centre for further treatment with radioactive iodine (RAI). They were advised to come for follow up after 1 week then after 1 month followed by 6 months, 1 year and then 2 yearly.

Results

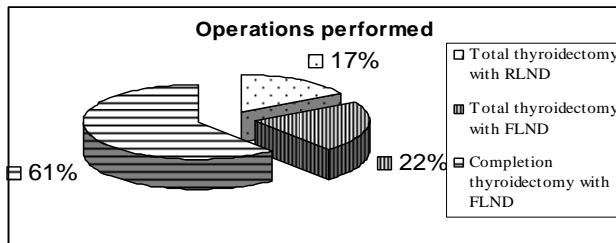
There were total 18 cases including 11 referred cases from Bhaktapur cancer care centre for completion thyroidectomy. Male to female ratio was 2:1. Age ranges from 35 to 67 years. Most prevalent age group was 5th decade (Fig. 1). All patients were euthyroid. Pre-operative evaluation revealed no distant metastasis in any of the cases.

Fig 1. Age distribution.



All patients underwent total thyroidectomy. Total thyroidectomy was combined with Radical neck dissection (RLND) in three cases. They all were papillary carcinoma with clinically palpable nodes. Four cases underwent total thyroidectomy with functional lymph node dissection (FLND). Remaining eleven cases were referred cases for completion thyroidectomy and all of them underwent completion thyroidectomy with functional neck dissection (Fig. 2).

Fig. 2 Numbers of operations performed.



Total hospital stay was 2-5 days. Post operative complications are shown in table 1. Two patients developed hypocalcaemia post operatively. One in 4th POD and another after two wks. Both of them recovered after few days' treatment with calcium.

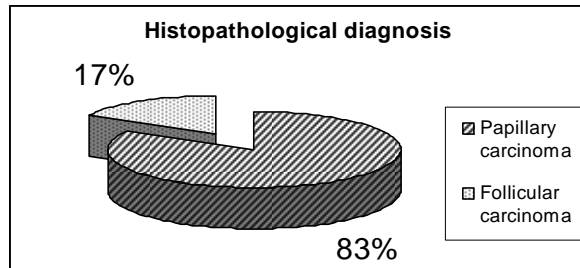
Table 1. Post operative complications.

Complications	No. of Cases
Seroma	1
Wound infection	1
Hypocalcaemia	2
Vocal cord paralysis	0.
Chest infection	1
Cannula site infection	1
Mortality	0
Recurrence for 6months	0.

Histopathological examination revealed papillary thyroid carcinoma in 15 cases whereas follicular carcinoma in 3 cases. One had Hurthle cell variety of follicular carcinoma. (Fig. 3).

All patients were prescribed lifelong oral thyroxine. group and absence of regular follow up. There were

Fig. 3 Histopathological diagnosis.



Follow up

Two patients who developed hypocalcaemia in immediate post operative period improved subsequently and needed no further treatment for the same. All 18 cases were referred to Rajiv Gandhi Cancer Care Centre Delhi through Bhaktapur Cancer Hospital for T⁹⁹ whole body scan followed by radioactive iodine (RAI) uptake. Out of 18 cases, 9 cases are in regular follow up. Eight cases have no recurrence but one has developed recurrence in right tibia after two years.

Discussion

Most studies in adults have demonstrated that total thyroidectomy for large, aggressive thyroid cancer is associated with reduced tumour recurrence rates over time compared with unilateral surgery. However, for small, early stage tumours, the rationale for total thyroidectomy is less certain because most patients will

do well for many years regardless of initial surgical choice. In recent review from Mayo clinic of the influence of surgical management on outcome in patient with stage 1 or 2 papillary thyroid cancer, Hay et al.^{24,25} reported a significant reduction in local recurrence over 30 years in patients treated with total thyroidectomy (4%) as compared with patients treated with subtotal thyroidectomy (17%).

Similarly, Mozzaferrri et al²⁶ also noted an advantage for adults with either follicular or papillary treated with a bilateral, rather than a unilateral operation with respect to tumour recurrence. However, in a study by Newman et al.²⁷ the recurrence rate after total or subtotal thyroidectomy was identical to the result of limited resection i.e. lobectomy. Generally, the recurrence rate of 2% to 33% in the group with a more aggressive approach^{22,23,28,29,30} was lower, compared with the results in the less aggressively treated patients (15% to 45%)^{17,18,19,20} whereas the complication rate does not seem to be higher in these patients, i.e. permanent hypoparathyroidism in 0% to 21% and laryngeal nerve palsy in 0 to 17% of the patients.

There are several arguments in favour of total thyroidectomy. First, differentiated thyroid carcinoma is often bilateral and multifocal. However, in our study, we did not observe any multifocal lesions. When surgical intervention was limited to hemithyroidectomy alone, a recurrence with re-exploration is inevitable offering higher rate of complications^{22,30}. Second, it permits ¹³¹I scanning and treatment, because of the absence of normal thyroid tissue. Third, it allows the use of serum Tg as a sensitive marker of recurrence.

Arguments against total thyroidectomy are mainly based on the fear of high complication rates. Generally, groups in which treatment is limited to hemithyroidectomy do not experience fewer complications^{31,32}. Our experience shows total thyroidectomy with functional neck dissection, eventually combined with modified radical neck dissection in selected patients has some encouraging results. Disease is found to be predominant in male and common in fourth and fifth decade. This is similar to other international reports. In our study, we did not encounter any permanent complication. Most feared complications like recurrent laryngeal nerve palsy and hypocalcaemia were not observed in follow up. Recurrent laryngeal nerve could be dissected safely in all cases and hypocalcaemia observed in two patients was temporary. However this very low complication rate is probably due to small study group (only 3 cases of papillary carcinoma with palpable cervical nodes). Modified radial neck dissection was done in all of them with no additional complications.

Conclusion

Total thyroidectomy with selective lymph node dissection is found to be acceptable and encouraging however, the study involving large number of cases for long term follow up is needed to draw a definite conclusion.

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