ORIGINAL ARTICLE

Comparison of Total Thyroidectomy and Lobectomy with Isthmusectomy in Treatment of Well-Differentiated Carcinoma of Thyroid Gland

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ABSTRACT

Objective: To compare the outcomes between total thyroidectomy with lobectomy and isthmusectomy in the treatment of well differentiated carcinoma of thyroid gland.
Design & duration: This quasi-experimental study was carried out from 27th January 2007 to 26th July 2007
Setting: Department of Surgery, Mayo Hospital Lahore.
Patients and methods: Sixty patients histologically proven differentiated carcinoma of thyroid above 12 years of age were included in the study. Patients with toxic goitre and pregnant women with differentiated carcinoma of thyroid were excluded from the study. Patients were randomly divided in two groups; Group A (total thyroidectomy) and Group B (lobectomy with isthmusectomy). First follow-up visit was on first week after they were discharged from the hospital. Next three follow up visits were done at one month, two months and three months to look for any complication.
Results: In group A there were 24 (80%) patients of papillary carcinoma and 6 (20%) patients of follicular carcinoma. In group B there were 22 (73.3%) patients of papillary carcinoma and 8 (26.7%) patients of follicular carcinoma. In the distribution of complications, there were 1 (3.3%) patient of hoarseness of voice in both groups, 1 (3.3%) patient of hypocalcaemia in both groups, 1 (3.3%) patient of seroma formation in both groups and no patient of recurrence in group A and 6(20%) patient of recurrent in group B.
Conclusion: It is concluded that the total thyroidectomy is the best treatment option for differentiated carcinoma of the thyroid gland.
Key words: Well-differentiated carcinoma, Total thyroidectomy, Lobectomy with isthmusectomy, Radioactive iodine

INTRODUCTION

Cancer is a major public health problem in many parts of the world. Thyroid cancer is one of the least deadly cancers. A 5-year survival rate for all thyroid cancer is about 97%. Thyroid cancer is different from many other adult cancers in that it is commonly diagnosed in young people[1,2]. Thyroid cancer is responsible for six deaths per 1 million persons annually[3]. The thyroid cancer is the most common endocrine malignancy[4]. It is second most common site for malignancy in the head and neck region[5]. In Pakistan, thyroid cancer is responsible for 1.2% cases of all malignant tumours and male to female ratio is noted to be between 2.5 to 4.5[6]. The well differentiated thyroid carcinoma is primary managed with surgery[7]. There has been a long debate about the optimal surgical management of the differentiated cancer. It has focused on the extent of thyroidectomy, with recommendations ranging from thyroid lobectomy to total thyroidectomy[8]. There is still no evidence of global and total harmony in the appropriate surgical procedure to be applied in the approach of these tumours[9].

Having the excellent prognosis, the extension of the thyroidectomy in the surgical management of differentiated thyroid cancer is still controversial. Some authors recommend total thyroidectomy for all patients, other suggest a conservative approach that guarantee the same good prognosis but with few complications[10]. A total thyroidectomy would seem to be preferable because subtotal resection can be impressive[11,12]. Complications associated with thyroid surgery are directly proportional to the extent of thyroidectomy and inversely proportional to the experience of the operating surgeon. They occur less frequently with good surgical technique and better understanding of surgical anatomy, and include wound healing and infections (seroma, haematoma and wound infection), nerve injury, hypoparathyroidism, hypothyroidism,postoperative

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hemorrhage and respiratory obstruction[13]. This study includes two techniques to manage well differentiated thyroid tumours, which are practiced on surgical floor and effectiveness of management as reflected by the final outcome.

PATIENTS AND METHODS

This quasi-experimental study was carried out in sixty patients from 27th January 2007 to 26th July 2007 in the Department of Surgery, Mayo Hospital Lahore. The histologically proven differentiated carcinoma of thyroid and above 12 years of age were included. The patients with toxic goiter and pregnant women with differential carcinoma of thyroid were excluded from the study. Patients were randomly divided in two groups; Group A (total thyroidectomy) and Group B (lobectomy with isthmusectomy). Total thyroidectomy is a surgical procedure in which removal of the complete thyroid gland by sparing recurrent laryngeal nerve is performed and lobectomy with isthmusectomy is a surgical procedure in which one lobe of the thyroid gland with isthmusectomy is removed by sparing laryngeal nerve. Both groups were given same prophylactic antibiotic cover pre-operatively at induction and were operated under general anaesthesia. At first week after discharge from wards, the patients were examined for seroma formation. The patients were evaluated at 1st, 2nd and 3rd months of their follow up periods for the recurrence of thyroid carcinoma.

At the completion of study data was transferred to the computer and analyzed with the help of SPSS version 12. Student's 't' test was applied on hospital stay and time of operation to find out the significance between the two groups. Chi Square test was applied on complications to find out the significance between the groups. P value $\leq$0.05 was considered as significant.

RESULTS

Sixty patients were selected from the Department of Surgery, Mayo Hospital Lahore. Patients were randomly allocated in two groups; Group A (total thyroidectomy) and Group B (lobectomy with isthmusectomy), 30 patients in each group. In group A, there were 3(10%) patients in the age range of 20-29 years, 21(70%) patients in the age range of 30-39 years, 5(16.7%) patients in the age range of 40-49 years and 1(3.3%) patient of 50-59 years. In group B, there were 1(3.3.3%) patients in the age range of 20-29 years, 21(70%) patients of 30-39 years, 6 (20%) patients in the age range of 40-49 years, 2(6.7%) patient in the age range of 50-59. The mean age of the patients in group A was 35.6±6.7 years and mean age in group B was 37.6±7.3 years (Table 1).

There were 2(6.7%) patient of hoarseness of voice in both groups, 3(10%) patient of hypocalcaemia in both groups, 1 (3.3%) patient of seroma formation in both groups and no patient of recurrence in group A and 6(20%) patient of recurrent in group B of complications (Table 2).

The mean hospital stay in group A was 3.0±0.83 days and mean hospital stay in group B was 3.0±0.59 days. Statistically the difference between hospital stay was not significant. The mean operation time in group A was 89.23±9.35 minutes and mean operation time in group B was 72.63±6.35 minutes. Statistically the difference between mean operation time was significant (Table 3).

Table 1: Frequency of patients by age

Age (years	Group A (n=30)		Group B (n=30)	
	No.	%age	No.	%age
20-29	3	10.0	1	3.3
30-39	21	70.0	21	70.0
40-49	5	16.7	6	20.0
50-59	1	3.3	2	6.7
Mean±SD	35.6±6.7		37.6±7.3	

Table 2: Comparison of complications in both groups

Complications	Group A (n=30)		Group B (n=30)	
	No.	%age	No.	%age
Hoarseness of voice	2	6.7	2	6.7
Hypocalcaema	3	10.0	3	10.0
Seroma formation	1	3.3	1	3.3
Recurrence	0	0	6	20.0
No complication	24	80.0	18	60.0

χ^2: 90 P value: 0.001

Table 3: Distribution of patients by mean hospital stay and operation time

	Group A (n=30)	Group B (n=30)	t value	P value
Hospital stay (days)	3.0±0.83	3.0±0.59	0.000	1.0
Operation time (minutes)	89.23±9.35	72.63±6.35	8.04	0.001

DISCUSSION

The thyroid carcinoma is associated with very good prognosis if work up and management is under taken in a right direction and with appropriate timings[14]. Typical clinical presentation for a patient with well differentiated thyroid cancer is development of an asymptomatic thyroid nodule[15,16]. Solitary nodule in young female raises cosmetic concerns and becomes the start point of investigation of thyroid malignancy.

Surgical resection is the prime treatment for the carcinoma of thyroid. There is controversy among surgeons regarding the surgical procedure ranging from lobectomy, lobectomy with isthmusectomy, near total thyroidectomy to total thyroidectomy[7]. In our study the mean age in group A was 35.6±6.7 years and in group B was 37.6±7.3 years. As compared with the study of Akhtar et al[7] the mean age of the patients was 36.45 years, which is same and comparable with our study.

In the present study the complication of hoarseness of voice was found in 6.7% patient in A and 6.7% in group B. As compared with the study of Khan et al[17] hoarseness of voice was found in 16% patients which is comparable with our study. The complication of hypocalcaemia was found 10% patients in group A and 10% in group B in the present study. As compared with the study of Khan et al[17] hypocalcaemia was found in 28% patients which is comparable with our study. In the present study the complication of seroma formation was found 3.3% patients in group A and 3.3% in group B. As compared with the study of Khan et al[17] seroma formation was found in 8% patients which is comparable with our study. The complication of recurrence was found 20% patients in only group B in the present study. As compared with another study recurrence was found in 33-50% patients, which is comparable with our study.[18] In the present study, the mean hospital stay in group A was 3.0±0.83 days and in group B was 3.0±0.59 days and the mean operation time in group A was 89.23±9.35 minutes and in group B was 72.63±6.35 minutes. The mean hospital stay and operation time was comparable with the study of Akhtar et al.[7] This study suggests that carcinoma of thyroid is not a rarity in our setup and total thyroidectomy is the procedure of choice in differentiated of carcinomas. The postoperative complications are related with the experience of surgeon performing this procedure.

CONCLUSION

It is concluded that the papillary carcinoma is more common form of differentiated carcinoma than follicular carcinoma. Total thyroidectomy is the better treatment option as compare to lobectomy with isthmusectomy in the treatment of well differentiated carcinoma of thyroid.

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