

Presentation, Management and Outcome of Surgery PF Thyroid Swellings by ENT & Head and Neck Surgeons at Civil Hospital Karachi

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ABSTRACT

OBJECTIVE: To assess the presentation, management and outcome of surgery of thyroid swellings.

DESIGN: Retrospective study

PLACE AND DURATION OF STUDY: Department of Otorhinolaryngology-Head & Neck Surgery, Dow Medical College and Civil Hospital Karachi (CHK), from Jan 2004 to June 2010.

PATIENTS AND METHODS: Retrospective review of 184 consecutive cases of thyroid swellings admitted and operated, irrespective of age, sex and socioeconomic status. Physiological goiter and previously operated thyroid swellings were excluded from the study. Demographic data, clinical features, investigations, surgical management details and complications were assessed.

RESULT: Among 184 cases of thyroid swellings 62.5% were between 21 to 40 years of age, with female preponderance (79.9%). Majority (71.7%) cases belonged to lower socioeconomic status. Right lobe was involved in 32.60%, left in 15.7% while both lobes were involved in 51.5% cases. Multinodular goiter were seen in 54.8% cases while 39.1% cases had solitary nodule. Total thyroidectomy was performed in 23.3% cases, near total thyroidectomy in 9.8%, subtotal thyroidectomy in 31% and lobectomy (with isthemectomy) in 35.9% cases. In postoperative period, hoarseness was seen in 0.5% cases; while other complications like bleeding due to slipping of ligature, wound infection and hypoparathyroidism was seen in 1.6%, 2.2% and 2.2% cases respectively.

CONCLUSION: With female preponderance and low socioeconomic status, thyroid swellings are mostly seen between the ages of 21 to 40 years. Solitary nodule and multinodular goiter are common findings. Surgical management performed by ENT - Head and Neck surgeons ranges from total thyroidectomy to lobectomy, gives good results and few complications.

KEY WORDS: Thyroid swellings, Goiter, Thyroidectomy, Thyroid, Multinodular goiter, Solitary nodule.

INTRODUCTION

Thyroid gland is a key endocrine organ located in the head and neck region.¹ Thyroid nodular lesions are common clinical problem. In the United States, 4% to 7% of adult population has a palpable thyroid nodule. The incidence of thyroid cancer in a clinically solitary thyroid nodule or in a multinodular goiter is equal and is about 5% in non-endemic areas.² The prevalence of nodules in autopsy series approaches 50%, a figure that is approximated by patients undergoing modern high-resolution, real-time ultrasonography of the thyroid.³ The incidence of thyroid nodules has been on the rise in recent decades, mainly due to the wider use of neck imaging and therefore, the incidental finding of a thyroid nodule in an asymptomatic patient is not rare.⁴ Iodine deficiency is the most common cause of goiter world wide.⁵ WHO reported 5% of world's

population suffers from goiter and that 75% of these people live in iodine deficient areas. Pakistan being a developing country faces a number of health and nutritional problem and about 50% of population is at risk of iodine deficiency disorders.⁶ Thyroid swellings are amongst the most commonly encountered disorders in hospitals. Thyroid enlargement is most commonly seen in females.⁷ Thyroidectomy is the most common endocrine surgery done world-wide.⁸ Current indications for surgery are compression-induced symptoms, malignancy, suspected malignancy, hyperthyroidism and cosmesis.^{9,10} Thyroid surgery has been traditionally a general surgical practice, but recently more otolaryngologist are offering thyroid services. In UK data from department of health showed that in 1998-99, 83% thyroid surgeries were performed by general surgeons and 15.4% by ENT surgeons, with an average caseload of 19.1 per year.¹¹ No such data is available

in Pakistan. The rationale of this retrospective review is that, all the admitted cases of thyroid swellings by ENT surgeons in our setup should be analyzed for presentation, surgical treatment performed by them and to see the main outcome.

PATIENTS & METHODS

This retrospective review was conducted at the department of ENT - Dow Medical College and Civil Hospital Karachi from January 2004 to June 2010. In this retrospective review 184 consecutive cases of thyroid swellings were included, irrespective of age, sex and socioeconomic status. Physiological goiter and previously operated thyroid swellings were not assessed. The assessment of the cases done by history, physical examination and their investigations including thyroid profile, ultrasound neck, fine needle aspiration cytology and thyroid scan, where needed. All patients with abnormal thyroid function (hypo- or hyperthyroidism) were rendered euthyroid with drugs. Informed consent was taken and thyroid surgery ranging from lobectomy (with isthemectomy) to subtotal, near total or total thyroidectomy was performed considering the age of the patient, size and site and cytological nature of thyroid swelling. Demographic data, clinical features, investigations, surgical management details and complications all were noted. All findings were tabulated and analyzed to draw inferences.

Statistical software SPSS-16.0 was used for data analysis. Frequencies and percentages were computed to present all categorical variables like socio economic status, clinical features, surgical treatment given to the patients, and complications observed in follow-up, ratio (M: F) for sex distribution and mean ± SD for age distribution.

RESULTS

Out of 184 cases the age ranged from 18 to 60 years with mean age of 35.45 ± 15.16 years, mode 35 years and median 34 years. In 184 cases series male to female ratio was 1:4. Out of 184 patients 132 (71.7%) belonged to lower socioeconomic. Both lobes were involved in 95 (51.6%) patients. In this review 101 (54.9%) with multinodular goiter. Out of 184 cases we found 27 (14.7%) cases of thyroid carcinoma. Details of these general characteristics are given in **Table I**. Procedures performed were 66 (35.9%) lobectomies with isthemectomies, 57 (31%) subtotal thyroidectomies, 18 (9.8%) near total thyroidectomies and 43 (23.3%) total thyroidectomies. The surgical options in multinodular goiter were 46 (45.5%) subtotal thyroidectomy, 18 (17.8%) near total thyroidectomy, 16 (15.8%) lobectomy, 16 (15.8%) total thyroidectomy in benign conditions and 05 (05%) in malignant conditions, and similarly surgical options in solitary thyroid

nodule were, 22 (30.6%) total thyroidectomy (malignant nodule) and 50 (69.4%) lobectomy (benign nodule) and in all diffuse goiter surgical options were subtotal thyroidectomy. In 15 months follow up period, complications encountered were permanent hoarseness (due to right recurrent laryngeal nerve palsy) in 01 patient (0.5%), hemorrhage (due to slipped ligature), wound infection and hypoparathyroidism seen in 03 (1.6%), 04 (2.2%) and 04 (2.2%) of cases respectively.

TABLE I: GENERAL CHARACTERISTICS AND PRESENTATION OF THYROID SWELLINGS

General characteristics	NO	%
AGE GROUPS		
Upto 20 yrs	15	08.2
21 to 40 yrs	115	62.5
41 to 60 yrs	54	29.3
> 60 yrs	00	00.0
SEX DISTRIBUTIONS		
Male	37	20.1
Female	147	79.9
SOCIOECONOMIC STAUUS		
Lower*	132	71.7
Middle**	52	28.3
Higher***	00	00.0
Presentation		
LOBE DISTRIBUTION		
Both lobes	95	51.6
Right lobe	60	32.6
Left lobe	29	15.8
GOITER DISTRIBUTION		
Multinodular goiter	101	54.9
Diffuse goiter	11	06.0
Solitary thyroid nodule	72	39.1
THYROID CA. DISTRIBUTION		
Papillary	18	66.7
Follicular	06	22.2
Medullary	03	11.1

* LOWER Income Rs Upto 5000 / Month / Person
 ** MIDDLE Income Rs > 5000–10000/Month/Person
 *** HIGHER Income Rs > 10000 / Month / Person

DISSCUSION

There is wide variation in clinical presentation and operative management of thyroid disorders. This is because of the individual perception of each particular surgeon and to some extent; another contributory factor is the lack of a uniform standard policy. For instance, some are satisfied with hemithyroidectomy for papillary thyroid carcinoma while others would not

settle for anything less than total thyroidectomy/radical surgery.¹² In our review mean age was 35.45±15.16 yrs, which is comparable to that reported by Shaikh, M S, from Larkana, Pakistan¹³ (mean age 36 yrs) while in contrast Veyseller observed mean age to be 42.6 yrs¹⁴ and Ozbas (Turkey) 43.6 yrs.⁹ The difference in mean age in other parts of the world may be due to better health facilities, more awareness, education, and life expectancy as compared to our region. Male to female ratio in our review was 1:4, which is comparable to Imran's study from Karachi (M: F ratio as 1:3.8)¹⁵. In contrast, Hussain also from Karachi reported M: F ratio of 1:6.19¹⁶ while Godara from India observed it to be 1:10.1.

In this review, the involvement of both lobes was frequently noticed, i.e. 51.5%, followed by right lobe 32.6%, which is comparable to Bekele's study (Ethiopia)¹⁷ i.e. both lobes 70% followed by right lobe 17.5%. In contrast Iqbal's study revealed 64% right lobe involvement, followed by the left lobe.

Our review revealed multinodular goiter in 55.2% cases, which was comparable to Hussain's study 61.63%¹⁶. In contrast Godara found multinodular goiter only in 15% cases with preponderance of solitary thyroid nodule in 68%.¹² We found solitary thyroid nodule in 38.8% of cases. So this means that prevalence of multinodular goiter is more in our region as compare to other parts of world.

All patients were managed surgically. In 35.9% lobectomy with isthmectomy was performed, followed by 31% subtotal thyroidectomies, 23.3% total thyroidectomies and 9.8% near total thyroidectomies. In contrast total thyroidectomy was the commonest surgical procedure performed by Akin (Lahore)¹⁸ in 48.9% of cases followed by subtotal thyroidectomy in 14.9% patients while Khanzada reported 37.1% hemithyroidectomy, 40.7% subtotal thyroidectomy, 7.8% near total thyroidectomy and 13.5% total thyroidectomy¹⁹. In one recent study of Italian surgeon Pelizzo, thyroid lobectomy was carried out in 20.8% of patients, while the remaining 79.2% underwent total thyroidectomy.²⁰ Initially the percentage of total thyroidectomy was less in our series, probably due to lack of clear cut guidelines but now trend has changed and total thyroidectomies are frequently performed with minimal complications. In multinodular goiter recurrence can be completely avoided if total thyroidectomy is performed initially.²¹

In cases of multinodular goiter we performed 45.5% subtotal thyroidectomy, 20.8% total thyroidectomy, 17.8% near total thyroidectomy and 15.8% lobectomy. In Godara's study operative procedures for multinodular goiter were Hartley Dunhill procedure (one complete lobe and the isthmus are removed with partial lobectomy of second lobe) 53.3%, subtotal thyroidec-

tomy 20%, lobectomy 20% and total thyroidectomy 6.7%.¹²

In the current review, for solitary thyroid nodule, total thyroidectomy was performed in 30.6% (for malignant nodule) and lobectomy in 69.4%. Godara performed nodulectomy in 19.1% cases for solitary thyroid nodule, partial lobectomy in 1.5%, hemithyroidectomy in 73.5% and total thyroidectomy in 1.5%. Nowadays nodulectomy is obsolete and thyroid lobectomies are common in solitary thyroid nodules and if histopathology proves malignancy then completion thyroidectomy should be done as a rule.

In this review malignancy was encountered in 14.7%, comparable to Hussain's study, reporting 14.3% malignancy¹⁶. While in contrast Godara observed 8% malignancy and Rahman (Nigeria) 9.3%²². In our review papillary carcinoma was diagnosed in 66.7%, follicular carcinoma in 22.2% and medullary carcinoma in 11.1%, while Godara encountered papillary carcinoma in 75% and follicular carcinoma in 25%. In contrast Hussain reported papillary carcinoma in 11.2% and follicular carcinoma in 1.8%.

Thyroidectomy is one of the main operations performed in surgical units. The indications for this operation include cosmetic problems, obstructive symptoms, hyperthyroidism, malignancy and clinical suspicion of malignancy. The main postoperative complications of this operation are injury to the recurrent laryngeal nerve and hypocalcaemia.²³

We compared our (ENT surgeons) postoperative complications with general surgeons. In this review, hoarseness due to recurrent laryngeal nerve injury was in 0.5% of cases, which was comparable to Barczyński (Poland) 0.7%²⁴, while in contrast, Chaudhary reported 3.2%²⁵ and Khanzada 2.8%. In current review haemorrhage occurred in 1.6%, wound infection in 2.2% and parathyroid insufficiency in 2.2% which is comparable to Khanzada, 1.4% haemorrhage, 0.7% wound infection and 3.5% parathyroid insufficiency while in contrast to Serdar Ozbas reported 0.4% haemorrhage, 0.6% wound infection & 0.4% parathyroid insufficiency and Qasaimah reported 9.2% parathyroid insufficiency (6.6% transient & 2.2% permanent hypocalcemia).

CONCLUSION

With female preponderance and low socioeconomic status, thyroid swellings were mostly seen between 21 to 40 years. Multinodular goiter, solitary nodule were common findings and malignancy observed in 14.7% cases, which alarm for proper evaluation at an earliest. There is a need to stratify and standardize the surgical management. Surgical management performed by ENT and head and neck surgeons ranges from total thyroidectomy to lobectomy gives good re-

sults and fewer complications. The formation of multidisciplinary teams including endocrinologist, general surgeons and otolaryngologists, can improve surgical skills, training and treatment outcomes.

REFERENCES

1. Clark S. The thyroid gland: function tests and imaging. In: Gleeson M, Browning GG, Burton MJ, Clarke R, Hibbert Jones NS et al, editors. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. Great Britain: Edward Arnold, 2008.p.327-37.
2. Nguyen GK, editor. Essentials of Head and Neck Cytology. Canada: Spring, 2009.p.8-39.
3. Slovik DM. Evaluation of Thyroid Nodules. In: Goroll AH, Mulley AG, editors. Primary Care Medicine: Office Evaluation and Management of the Adult Patient. Boston, Massachusetts: Lippincott Williams & Wilkins, 2008.p.736-40.
4. Polyzos SA, Kita M, Avramidis A. Thyroid nodules - Stepwise diagnosis and management. Hormones 2007;6:101-9.
5. Albon ML, Franklyn JA. The thyroid: nonmalignant disease. In: Gleeson M, Browning GG, Burton MJ, Clarke R, Hibbert Jones NS, editors. Scott-Brown's Otorhinolaryngology, Head and Neck Surgery. Great Britain: Edward Arnold, 2008.p.338-66.
6. Rehman M, Khalil J, Muhammad Aurangzeb. Total versus subtotalthyroidectomy for multinodular goiter. Pak J Surg 2010;26:192-7.
7. Reid JR. Thyroid Disease. In: Sloane PD, Slatt LM, Ebell MH, Jacques LB, Smith MA, editors. Essentials of family medicine. Baltimore, Philadelphia: Lippincott Williams & Wilkins, 2008.p.263-78.
8. Nour AM, Al-Momen AHA. Prevention of Recurrent Laryngeal Nerve Injury in Thyroid Surgery: Are Neuromonitoring Techniques Needed? [Online]. 2011 [cited 2011 April 18]; Available from: URL:<http://www.ajol.info/index.php/ecajs/article/viewFile/72490/61406>.
9. Ozbas S, Kocak S, Aydintug S, Cakmak A, Demirkiran MA, Wishrat GC. Comparison of the complications of subtotal, near total and total thyroidectomy in the surgical management of multinodular goiter. Endocr J 2005;52:199-205.
10. Pedamalla R, Pedamalla SB, Rao KV, Pedamalla C. Incidence of occult carcinoma in multinodular goiter using histopathological findings. [Online]. 2008 [cited 2008 May 19]; Available from: URL:<http://www.ispub.com/journal/the-internet-journal-of-surgery/volume-17-number-1/incidence-of-occult-carcinoma-in-multinodular-goiter-using-histopathological-findings.html>.
11. Ramsden JD, Johnson AP, Cocks HC, Watkinson JC. Who performs thyroid surgery: a review of current otolaryngological practice? Clin Otolaryngol Allied Sci 2002;27:304-9.
12. Godara R, Garg P, Singla S. Thyromegaly: Lack Of Consensus In Management. [Online]. 2007 [cited 2007 March 23]; Available from: URL:<http://www.ispub.com/journal/the-internet-journal-of-surgery/volume-10-number-1/thyromegaly-lack-of-consensus-in-management.html>.
13. Shaikh MS, Abro H, Dholia KR, Shaikh AS. Risks and complications of thyroid surgery: a 10 years experience. J Surg Pak 2007;12:19-22.
14. Veyseller B, Aksoy F, Demirhan H, Yildirim YS, Ertas B, Açikalin RM, et al. Total thyroidectomy in benign thyroid diseases. Kulak Burun Bogaz Ihtis Derg 2009;19:299-303.
15. Imran AA, Majid S, Khan SA. Diagnosis of enlarged thyroid – an analysis of 250 cases. Ann KE Med Coll 2005;11:203-4.
16. Hussain N, Anwar M, Nadia N, Ali Z. Patterns of surgically treated thyroid disease in Karachi. Biomedica 2005;21:18-20.
17. Bekele A, Osman M. Goitre in a Teaching Hospital in North Western Ethiopia. East Cent Afr J Surg 2006;11:21-7.
18. Akin M, Kurukahvecioglu O, Anadol AZ, Yuksel O, Taneri F. Analysis of surgical complications of thyroid diseases: results of a single institution. Bratisl Lek Listy 2009;110:27-30.
19. Khanzada TW, Samad A, Memon W, Kumar B. Post Thyroidectomy Complications: The Hyderabad Experience. J Ayub Med Coll Abbottabad 2010;22:65-8.
20. Pelizzo MR, Toniato A, Piotto A, Pagetta C, Ide EC, Boschini IM, Bernante P. The surgical treatment of the nodular goiter. Ann Ital Chir 2008;79:13-6.
21. Agarwal G, Aggarwal V. Is total thyroidectomy the surgical procedure of choice for benign multinodular goiter? An evidence-based review. World J Surg 2008;32:1313-24.
22. Rahman GA, Abdulkadir AY, Braimoh KT, Inikori AR. Thyroid cancers amongst goiter population in

- a Nigerian tertiary hospital: surgical and radiographic perspective. Niger J Med 2010;19:432-5.
23. Qasaimeh GR, Khader Y, Al-Mohamed FM, Omari AK, Dalalah A. Post-thyroidectomy Hypocalcemia in King Abdullah University Hospital and Princess Basma Teaching Hospital. East Cent Afr J surg 2009;14:32-7.
24. Barczyński M, Konturek A, Stopa M, Cichoń S, Richter P, Nowak W. Total Thyroidectomy for Benign Thyroid Disease: Is It Really Worthwhile? Ann Surg 2011;254:724-29.
25. Chaudhary IA, Samiullah, Masood R, Majrooh MA, Mali AA. Recurrent laryngeal nerve injury: an experience with 310 thyroidectomies. J Ayub Med Coll Abbottabad 2007;19:46-50.



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