

Incidence of occult carcinoma in multinodular goiter using histopathological findings

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Citation

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Abstract

Introduction: The purpose of the study was to determine the incidence of occult carcinoma in multinodular goiter using histopathological examination.

Materials and Methods: Ninety-eight patients with multinodular goiter underwent total thyroidectomy over a period of 4 years (2001-2004) and were included in the study. The indications for surgery were significant cosmetic deformity, compressive symptoms, thyrotoxicosis and suspected malignancy. All the specimens were sent for histopathological examination and results were analysed.

Results: The pathological findings were benign in 88 cases (89.8 percent) and malignant in 10 cases (10.2 percent). Seven patients were diagnosed with papillary carcinoma, two with the follicular variant of papillary and one with follicular carcinoma.

Conclusion: The risk of malignancy in multinodular goiters should not to be underestimated. It highlights the importance of close monitoring of conservatively treated multinodular goiters.

Note: This study was conducted by the first author in the years 2003-2004 at the Department of Surgery, Guntur Medical College, Guntur, India.

INTRODUCTION

Multinodular goiter is a benign disorder that mainly affects women. The incidence of occult malignancy in multinodular goiter varies from 4 to 17 percent¹. Careful definitive histopathology of the operative specimens is the key for diagnosis. This paper also stresses the importance of close monitoring of conservatively treated multinodular goiters for signs of malignancy¹.

The present study is an attempt to determine the incidence of occult carcinoma in multinodular goiter using histopathological findings.

PATIENTS AND METHODS

A retrospective study involving 98 cases of multinodular goiter that underwent total thyroidectomy at Government General Hospital, Guntur, India from January 2001 to January 2004 was performed. Detailed case history and examination findings were recorded.

All the patients underwent thyroid function tests and thyroid ultrasonography as part of preoperative evaluation. Fine-

needle aspiration cytology was only carried out in cases with a suspect nodule. Total thyroidectomy was performed following the identification and the preservation of the recurrent laryngeal nerves and of the parathyroid glands. All the specimens were sent for histopathological examination. The patients were closely monitored during the immediate postoperative period for complications like haemorrhage, respiratory obstruction, vocal cord paralysis, thyroid crisis and infection. Histopathological findings were documented and results analysed.

RESULTS

The prevalence of multinodular goiter was found to be higher in females (88%) compared to that of males (12%). Among the 98 patients operated on for multinodular goiter, 7 cases of papillary carcinoma, 2 cases of the follicular variant of papillary carcinoma and one case of follicular carcinoma were reported by definitive histopathological examination. Hence, the incidence of occult carcinoma for the 98 cases of multinodular goiter was 10.2 percent.

Figure 1

Figure 1

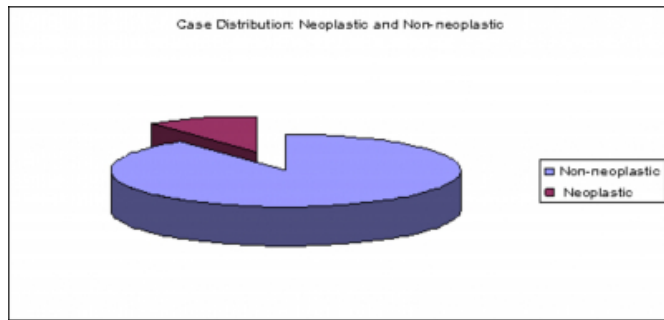
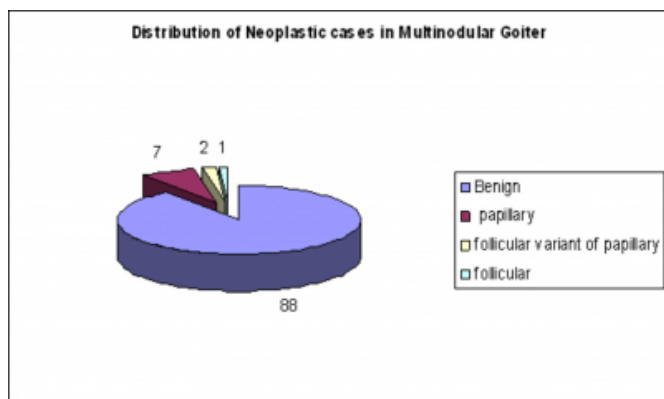


Figure 2

Figure 2



Thyroid ultrasonography was performed in all cases during the preoperative evaluation. Fine-needle aspiration cytology was done in 6 cases. In the 6 cases where fine-needle aspiration cytology was performed, no evidence of cellular atypia with benign colloid nodules was found in 5 cases and 1 case of a follicular tumor was reported.

DISCUSSION

The diagnosis of multinodular goiter is mainly clinical¹. Surgery is offered for cosmesis, compressive symptoms or toxicity^{1,2,3,4,5}. Fine-needle aspiration cytology is practically not feasible in all cases of multinodular goiter¹. Despite negative fine-needle aspiration cytology, the patient can still harbor a malignant focus due to a high sampling error with multinodular goiter. Fine-needle aspiration cytology of the dominant nodule is of some help. In our study, fine-needle aspiration cytology of the dominant nodule showed follicular change only in 1 case.

Multinodular goiter is traditionally thought to be at low risk for malignancy compared to its single-nodule counterpart. The incidence of occult carcinoma in resected multinodular goiters is reported as 4-17 percent in the literature¹. The

incidence of occult carcinoma in our study is 10.2% and most commonly being papillary carcinoma (7%). The most common variety documented in the literature is papillary carcinoma¹. The survival rates with occult and small papillary carcinoma are slightly lower than in the normal population^{1,8}.

CONCLUSION

The risk of malignancy in multinodular goiters should not to be underestimated. Due to risk of occult carcinoma, all the patients with multinodular goiters treated conservatively should be closely followed up for any signs of malignancy.

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References

1. Koh KB, Chang KW. Carcinoma in multinodular goitre. *Br J Surg* 1992; 79: 266-7.
2. Mathai V, Jdikula J, et al. Do long-standing nodular goitres result in malignancies? *Aust. N Z J Surg* 1994; 64: 180-182.
3. Abu-Eshy SA, Khan A-R, Khan GM, et al. Thyroid malignancy in multinodular goitre and solitary nodule. *J R Coll Surg Edinb* 1995; 40: 310-312.
4. Al-Saleh MS, Al-Kattan KM. Incidence of carcinoma in multinodular goitre in Saudi Arabia. *J R Coll Surg Edinb* 1994; 39: 106-108.
5. Prades JM, Dumollard JM, Timoshenko A, et al. Multinodular goiter: surgical management and histopathological findings. *Eur Arch Otorhinolaryngol* 2002; 259: 217-21.
6. Cole WH. Incidence of carcinoma of the thyroid in nodular goiter. *Semin Surg Oncol* 1991; 7: 61-3.
7. Pelizzo MR, Toniato A, Piotta A, Bernante P. Cancer in multinodular goiter. *Ann Ital Chir* 1996; 67: 351-6.
8. Veith F J, Brooks J R, Grisbgy W P, Selenkow H A. The nodular thyroid gland and cancer. *N Engl J Med* 1964; 270: 431-6.
9. Kapur M M, Sarda A K, et al. Carcinoma of the thyroid differential behaviour in solitary and multinodular tumours. *Br J Surg* 1986; 73: 894-5.
10. Brander A, Viikinkoski P, et al. Clinical versus ultrasound examination of the thyroid gland in common clinical practice. *J Clin Ultrasound* 1992; 20: 37-42.
11. Cohen-Kerem R, Schachter P, Sheinfeld M, Baron E, Cohen O. Multinodular goiter: the surgical procedure of choice. *Otolaryngol Head Neck Surg* 2000; 122: 848-850.
12. Crissman JO, Drosdowicz S, Jonson C, Kini SR. Fine-needle aspiration diagnosis of hyperplastic and neoplastic follicular nodules of the thyroid. Morphometric study. *Annal Quant Cytol Histol* 1991; 13: 321-328.
13. Gardiner KR, Russell CF. Thyroidectomy for large multinodular colloid goiter. *J R Coll Surg Edinb* 1995; 40: 367-370.
14. Lando MJ, Hoover LA, Zuckerbraun L. Surgical strategy in thyroid disease. *Arch Otolaryngol Head Neck Surg* 1990; 116: 1378-1383.
15. Ramelli F, Studer H, Brugisser O. Pathogenesis of thyroid nodules in multinodular goiter. *Am J Pathol* 1982;

109: 215-223.

16. Rojdmarm J, Jarhult J. High long-term recurrence rate after subtotal thyroidectomy for nodular goiter. *Eur J Surg* 1995; 161: 725-727.

17. McCall A, Jarosz H, Lawrence AM, Paloyan E. The incidence of thyroid carcinoma in solitary cold nodules and in multinodular goitre. *Surgery* 1986; 100: 1128-32.

18. Bondesan L, Lujenberg O. Occult thyroid carcinoma at autopsy in Malmo, Sweden. *Cancer* 1981; 47: 319-23.

19. Sokal JE. A long term follow-up of non-toxic nodular goitre. *Arch Intern Med* 1957; 99: 60-9.

20. Cole WH, Majarakis JD, Slaughter DP. Incidence of carcinoma of the thyroid in nodular goitre. *J Clin Endocrinol Metab* 1949; 9: 1007-11.

21. La Rosa GL, Belfiore A, Giuffrida D, et al. Evaluation of the fine-needle aspiration biopsy in the preoperative selection of cold thyroid nodules. *Cancer* 1991; 67: 2137-41.

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