

## Clinicopathological Evaluation of Thyroglossal Cyst

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### ABSTRACT

**Introduction:** Thyroglossal cyst is a common congenital anomaly of the thyroid gland. Though malignant transformation is rare one case was a papillary carcinoma in my series.

**Methods:** Retrospectively thyroglossal cyst who underwent surgery during the period of January 2004 to March 2009 were evaluated.

**Results:** Age incidence of the cysts in the present series varied between 4 and 41 years. 12 (63%) patients were male and 7 (37%) patients were female. The sites of the lesion were as: thyrohyoid in 13 (68%), suprasternal in 1 (5%) and suprahyoid in 5 (27%) cases. Twelve patients had painless swelling on the neck and 7 had discharging sinus. Pre-operative cytological evaluation showed non-malignancy in all cases. Postoperative histological result turned out to be papillary carcinoma in 1 female patient of 33 years old and the remaining 18 had non-malignancy. This patient with papillary carcinoma had her thyroid gland in its normal position.

**Conclusions:** Malignant transformation should be ruled out in all cases of thyroglossal cyst and fistula. Post-operatively specimen should be sent for histological examination.

**Keywords:** papillary carcinoma; thyroglossal cyst; thyroid.

### INTRODUCTION

Thyroglossal duct cyst is a common lesion in the neck accounting for 70% of congenital neck abnormalities.<sup>1</sup> It results from retention of the epithelial tract between the thyroid gland and the foramen cecum. Formation of the cyst is likely due to continuous mucous production from the glands found in the duct. Some authors regard the lesion as a developmental anomaly. Thyroglossal duct cyst is most often associated with young age. Two thirds of cases presenting in the first decade of life.<sup>2</sup> The lesion usually presents as a painless swelling in

the midline or para- midline of the neck. The classic description of the lesion is that of a painless swelling in a young child along the midline of the neck which rises with deglutition or tongue protrusion. The lesion is compressible and may fluctuate in size.

First case was reported in 1915 and through 1981, 100 cases are added.<sup>2,6</sup> Histopathological report of one case

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of papillary carcinoma in our series was compared with remaining benign thyroglossal cysts.

## METHODS

Retrospectively 19 cases of thyroglossal cysts undergone surgery in Bharatpur Hospital Chitwan Nepal during the period of January 2004 to March 2009 were evaluated. Hospital permission was taken before conducting research. Preoperative cytological and postoperative histopathological evaluation was done. Demographic and other relevant and related information were studied in detail. Statistical analysis were done using Microsoft Excel 2003.

## RESULTS

Age incidence varied between 4 and 41 years, 12 patients were male and 7 patients were female. The sites of the lesion were as following: thyrohyoid in 13 (68%) cases; suprahyoid in 5 (27%); cases and suprasternal in 1 (5%) case.

12 (63%) patients had painless swelling on the neck and 7 (37%) had discharging sinus. Thyroid glands were normal in all cases. No rapid progression in size of the cyst noted in any case. Pre-operative cytological evaluation showed Non-malignancy in all cases. Thyroid tissues not seen in the specimen. Postoperative histological result showed Papillary carcinoma in a female patient of 33 years old and the remaining 18 had non-malignancy.

In the case of malignancy, the cyst lining revealed columnar epithelium in some areas; in other areas, the lumen was filled with papillary processes covered with cuboidal to columnar epithelium in double or multilayer's. The cells were irregularly arranged with one loss of polarity. The nuclei were ground glass type. The epithelium rested on a thin or broad fibrovascular connective tissue cone. Bluish purple laminated calcific structures, the psammoma bodies, were seen at the base of papillae, outside the mucosa of the cyst and in the walls of blood vessels. The tumor was infiltrating into the cyst beyond the mucosa. This patient with papillary carcinoma had her thyroid gland in its normal anatomic situation. Thyroid imaging in the case with papillary carcinoma and thyroglossal cyst was not done. Postoperative follow-up examination did not show any abnormality in the thyroid gland and at the operation site (Figure 1).

## DISCUSSION

In this study the male are outnumbered by the female. In one study done by Ranadive the male to female ratio in 16 cases of thyroglossal cyst was 1:22.<sup>1</sup> The female preponderance in thyroglossal cyst as well as in papillary carcinoma cases was also reported by others.<sup>3-5,9</sup> Papillary carcinoma was seen in a 33 year old female carcinoma of the thyroid gland. Slowly increase in size was the only warning symptom in case of malignant transformation. Otherwise papillary carcinomas usually present as occult cancers.<sup>1</sup>

Histology in the majority of thyroglossal cysts showed columnar epithelium. The ectopic thyroid tissue was not found in any case as compared to the study done by Ranadive NU et al.<sup>1</sup>

Judd's study on 381 cases of thyroglossal cysts did not reveal either ectopic thyroid gland or a malignant change.<sup>5</sup> Yet, in another series of 371 cases of thyroglossal cysts, ectopic thyroid tissue was present in 45% and in 1.8% of these, there was a malignant transformation.<sup>6</sup> Eightyfive per cent of cancers in relation to thyroglossal cysts were papillary carcinomas.<sup>1</sup> Papillary carcinoma is one of the common type of malignancies affecting the anatomical normal thyroid gland. This is one of the reasons why papillary carcinomas are more commonly seen in ectopic thyroid tissue.<sup>1</sup> Yet, as to why follicular carcinoma which is another common histological type is much rarer in the thyroglossal duct carcinomas is difficult to explain. Literature review indicates that prognosis of papillary carcinoma arising in the median ectopic thyroid appears to be very good.<sup>6</sup> Presence of ectopic thyroid in a thyroglossal duct, a symptomless normal thyroid gland indicates that the papillary carcinoma originated from the ectopic gland in the wall of the cyst.<sup>8</sup> Nuttall had put forward three objections to this theory. His first objection was lack of adequate microscopic documentation of normal thyroid or thyroglossal duct remnants in the neck which is not so in the present case. His second objection was that all documented cases were papillary. But currently, other histological types including follicular, squamous, basal cell, and anaplastic carcinomas were reported.<sup>3,5,8</sup> His third objection was that the pathological examination of the main gland was sketchy or lacking.

## CONCLUSIONS

A short follow-up in my case is not substantial or conclusive. Presence of an ectopic thyroid in a thyroglossal cyst wall must be studied carefully and multiple sections be taken to rule out any malignant

change. We suggest a long term follow-up to exclude the possibility of a probable metastasis from the anatomically normal thyroid gland in such cases.

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