**Introduction**

The development of the thyroid gland occurs during weeks 3 through 7 of embryologic development when the thyroid anlage descends from the foramen cecum to its usual pretracheal location. Failure of this process can result in ectopic deposition of thyroid tissue anywhere along the path of descent. Lingual thyroid occurs as a result of failure to complete this descent. Post-mortem studies have shown that up to 10% of the population have remnants of thyroid tissue in their tongue but only approximately 400 cases of clinically apparent lingual thyroid appear in the literature. In 70% of reported cases, the lingual thyroid is the only functioning thyroid tissue and hypothyroidism occurs in 33%. Age at time of diagnosis is from 6 to 74 years. Carcinoma of a lingual thyroid is rare and is no more likely than in a normally situated thyroid. A 2009 review of the literature found only 43 reported cases of lingual thyroid carcinoma.

Traditional surgical approaches for removal of symptomatic lingual thyroid result in significant postoperative morbidity. We describe a new modality for treatment of symptomatic lingual thyroid.

**Case Report**

A 10 year old female with an 8 year history of a base of tongue mass presented after two months of increasing size and symptoms of dysphagia (Figure 1). Diagnosis of lingual thyroid (and only functional thyroid tissue) was confirmed by thyroid scan. Resection was performed by transoral endoscopic RF ablation (Figures 2,3). Intraoperatively, the total blood loss was 20cc and time for the procedure was less than 60 minutes. The patient was extubated immediately and tolerated a regular diet and was discharged home within 24 hours. Postoperative follow-up at 3 months showed complete resolution of symptoms with no change in thyroid function.

**References**


**Discussion**

Traditional medical treatments of lingual thyroid include exogenous thyroid hormone therapy to suppress thyroid stimulating hormone-induced growth, or radioactive iodine ablation followed by thyroid hormone replacement. Surgical intervention is indicated in patients who fail or worsen on medical therapy or who have significant symptoms, such as dysphagia, airway compromise, or hemorrhage. Traditional surgical approaches include transoral resection of the tongue base mass with or without mandibulotomy or midline or lateral pharyngotomy. Splitting of the tongue is occasionally necessary to provide adequate exposure. These major surgeries carry a risk of edema, hemorrhage, permanent hypothyroidism and injury to vital structures, in addition to disfigurement and scarring. Any post-surgical residual thyroid tissue may hypertrophy and cause recurrent symptoms. RF ablation application to tissues causes coagulative necrosis, scarring and later tissue contraction without the production of excess heat. When applied correctly there is minimal intra-operative blood loss and little to no damage to surrounding tissues which results in improved wound healing and reduced post-operative pain.

Dasari et al. published the first case report of radiofrequency (RF) ablation of a lingual thyroid. In that case, a 33 year old female was treated with transoral radiofrequency ablation after failing suppressive thyroxine therapy. The patient did well postoperatively and remained symptom free with normal thyroid levels at the end of a 5 month period. Ours is the second reported case of using RF ablation to treat symptomatic lingual thyroid. As in the previous case, our patient had an uncomplicated post-operative course and has had no recurrent symptoms. Our patient was hypothyroid upon presentation and continued to require replacement thyroid hormone therapy post-operatively.

As opposed to the traditional surgical approaches mentioned above, RF ablation of lingual thyroid is a simple and effective technique with minimal morbidity that can be repeated if necessary. In our case, ablation of the lingual thyroid took less than an hour and the patient was able to resume normal activity and diet within 24 hours. In addition, RF ablation shrinks lingual thyroid tissue, allowing for reduction in symptoms without completely removing all functional thyroid tissue. Therefore patients are less likely to have postoperative hypothyroidism and consequently less likely to require life long exogenous thyroid hormone therapy post-operatively. Further studies are warranted to determine the safety and long term efficacy of this procedure.

**Conclusions**

Lingual thyroid is a rare congenital anomaly that may present with symptoms severe enough to justify surgical intervention. Radiofrequency ablation (Coblation) appears to be a safe and effective treatment with minimal morbidity. Further studies are warranted to determine the safety and long term efficacy of this procedure.