Primary hyperparathyroidism is caused by a single hyperfunctioning adenoma in about 75% of cases.[1] Surgical cure rates for this disease exceed 95% in experienced hands.[1, 2] Causes of failure commonly include multi-gland disease and ectopically located glands.

An understanding of parathyroid embryology is critical in cases of ectopic parathyroid adenomas. This understanding combined with modern imaging techniques allows for the localization and treatment of ectopic adenomas. In rare cases of adenomas located in or adjacent to the pharynx, endoscopic techniques and laser technology allow for transoral resection.

A 40 year-old male presented with primary hyperparathyroidism and associated osteopenia. Laboratory evaluation showed a PTH level of 150 and calcium greater than 11. A Tc99m sestamibi scan showed a focus of increased activity just inferior to the right submandibular gland consistent with an enlarged undescended parathyroid gland. (Figure 1)

The patient underwent right neck exploration with intraoperative localization which was unsuccessful in locating the gland. Postoperatively, SPECT/CT imaging was performed which revealed a hypermetabolic focus in the right pyriform sinus. (Figure 2) The patient was then taken to the operating room for transoral resection. Direct laryngoscopy was performed showing a bulge in the apex of the right pyriform sinus. (Figures 3 and 4) The OmniGuide CO2 fiber laser (OmniGuide Corp., Cambridge, MA) was used to incise the mucosa in the pyriform apex revealing the mass which was located superficial to the laryngeal muscles. After removal of the 1.4cm mass with the laser, the mucosa was reapproximated using a laparoscopic suturing device. Pathology confirmed parathyroid adenoma and post-operative PTH levels returned to normal. After observation in the hospital indicated no sign of pharyngeal perforation, he was discharged home. He recovered uneventfully with no complications.

Modern imaging techniques allow for the identification and localization of parathyroid adenomas in many cases. Tc99m sestamibi as used in this patient has a sensitivity of 80-88%.[3, 4] Although oblique views allow for some anterior-posterior orientation, this imaging modality lacks the 3-dimension orientation available from others such as CT and MRI.

Because the adenoma was localized to the pyriform sinus and visible on laryngoscopy, it was excised endoscopically using a laser. This approach is potentially less morbid than an external transcervical approach, particularly in a previously operated neck.

Ectopic parathyroid tissue in the pyriform sinus is rare. There have been several cases describing normal parathyroid tissue[6] and parathyroid hyperplasia[7] in this location. However to our knowledge there is only one prior reported case of a parathyroid adenoma in the pyriform sinus.[8] While that patient was treated successfully in a similar manner to the patient described in this report, he underwent 2 prior open cervical explorations with the adenoma ultimately being localized following angiography. This case was reported prior to the availability of SPECT/CT which may have allowed for less invasive localization along with more rapid treatment.

1) SPECT/CT can be helpful in cases of ectopic adenomas due to the detailed 3-dimensional localization it provides.
2) Modern endoscopic techniques and laser technology allow for transoral resection in cases of parapharyngeally located ectopic adenomas, obviating the need for potentially morbid neck exploration, particularly in revision cases.

REFERENCES