

Extramedullary plasmacytoma of hypopharynx treated using transoral laser microsurgery and adjuvant radiotherapy

Hung Chang^a, Pen-Yuan Chu^{a,b,*}

^aDepartment of Otolaryngology-Head and Neck Surgery, Taipei Veterans General Hospital, Taipei, Taiwan, ROC; ^bSchool of Medicine, National Yang-Ming University, Taipei, Taiwan, ROC

Abstract: Extramedullary plasmacytoma (EMP) of the hypopharynx is exceedingly rare. There were only two cases reported before. A 77-year-old man was presented with a 6-month history of foreign body sensation in the throat. Nasopharyngoscopy revealed an exophytic tumor over the right pyriform sinus. Transoral laser microsurgery was performed 3 weeks later. The pathology report showed aggregates of plasma cells with eccentric nuclei and perinuclear halos (compatible with plasmacytoma). Postoperative radiotherapy was performed, and there was no evidence of tumor recurrence after an 18-month follow-up. This is the first report of transoral laser microsurgery with postoperative radiotherapy in plasmacytoma of hypopharynx, and it resulted in optimal tumor control and minimal morbidity.

Keywords: Extramedullary; Hypopharynx; Laser; Microsurgery; Plasmacytoma

1. INTRODUCTION

Extramedullary plasmacytoma (EMP) of the head and neck usually involves the nasopharynx and paranasal sinuses.¹ Hypopharyngeal invasion is extremely rare, and only two cases have been previously reported.^{2,3} To the best of our knowledge, surgical treatment with postoperative radiation has not been reported.

2. CASE REPORT

A 77-year-old man with essential hypertension and arrhythmia was first presented to our Head and Neck Department for a 6-month history of foreign body sensation in the throat. There was no dysphagia, choking, odynophagia, or dyspnea. Physical examination showed no palpable neck mass, and nasopharyngoscopy revealed an exophytic tumor over the right pyriform sinus (Fig. 1). Computed tomography of the larynx revealed a single, 15 mm × 18 mm × 10 mm, relatively well-defined and moderately enhanced mass along the posterior surface of the right aryepiglottic fold (Fig. 2).

Transoral laser microsurgery was performed 3 weeks later. The patient tolerated the operation well and was discharged 3 days after the surgery. The pathology report showed aggregates of plasma cells with eccentric nuclei and perinuclear halos (Fig. 3). Immunocytochemistry revealed that these plasma cells

were positive for kappa light chain and leukocyte common antigen, focally positive for CD138 but negative for lambda light chain and were compatible with plasmacytoma.

The patient was referred to a hematologist for further evaluation. Serum tests showed total protein: 8.5 g/dL, creatinine: 1 mg/dL, beta-2M: 1966 ng/mL, free kappa light chain: 26.26 mg/L, free lambda light chain: 16.38 mg/L, IgA: 382 mg/dL, IgG: 2353 mg/dL, IgM: 125 mg/dL, and IgG4: 27.4 mg/dL. The patient refused bone marrow examination. Because of close margins of the specimen, postoperative radiotherapy (total dose of 40 Gy, with 2 Gy/d fractions) was performed as suggested by the radiation oncologist. Nasopharyngoscopy after a 6-month follow-up showed a well-healing surgical wound without tumor recurrence. No choking or voice disturbance of the patient was reported after the surgery. Magnetic resonance image of the larynx 4, 12, and 18 months after the surgery revealed complete resolution of the lesion at the right pyriform sinus (Fig. 4). There was also no recurrence during an 18-month of outpatient department follow-up with nasopharyngoscopy.



Fig. 1 Nasopharyngoscopy before the operation. An exophytic tumor over right pyriform sinus.

*Address correspondence. Dr. Pen-Yuan Chu, Department of Otolaryngology-Head and Neck Surgery, Taipei Veterans General Hospital, 201, Section 2, Shi-Pai Road, Taipei 112, Taiwan, ROC. E-mail address: pychu@vghtpe.gov.tw (P.-Y. Chu).

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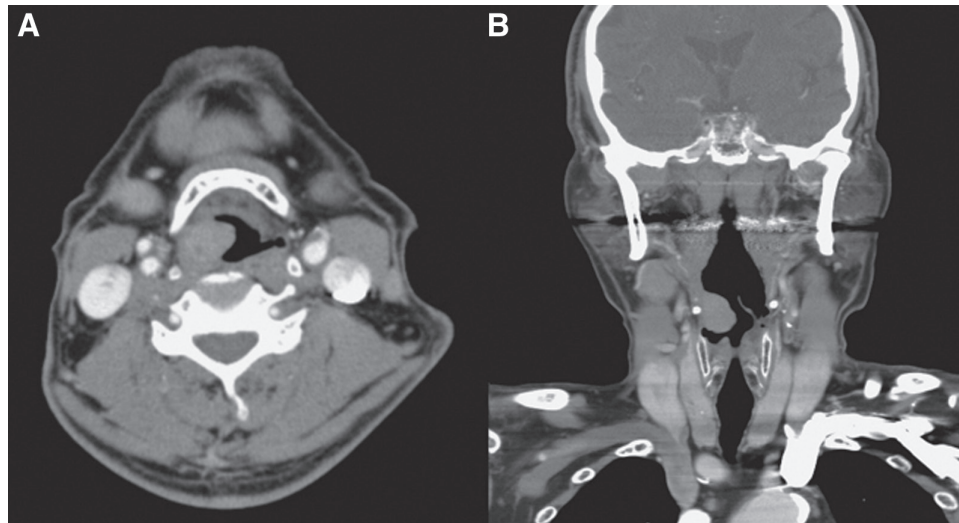


Fig. 2 Computed tomography. A and B, Computed tomography of the larynx before transoral laser microsurgery. Axial (A) and coronal (B) postcontrast. A single, 15 mm × 18 mm × 10 mm, relatively well-defined and moderately-enhanced mass along the posterior surface of the right aryepiglottic fold.

3. DISCUSSION

EMP is a plasma cell neoplasm initiating from B-cell lymphocytes; it is a monoclonal proliferation occurring in soft tissues except bone marrow without systemic symptoms.⁴ Studies have reported that the 10-year posttreatment survival is

approximately 70% in EMP, and approximately 20% to 30% of solitary EMP progress to multiple myeloma.^{5,6} Therefore, patients should be closely followed up after the completion of therapy. In 80% to 90% of cases, EMP grows within the upper aerodigestive tract and is most commonly located in the nasal

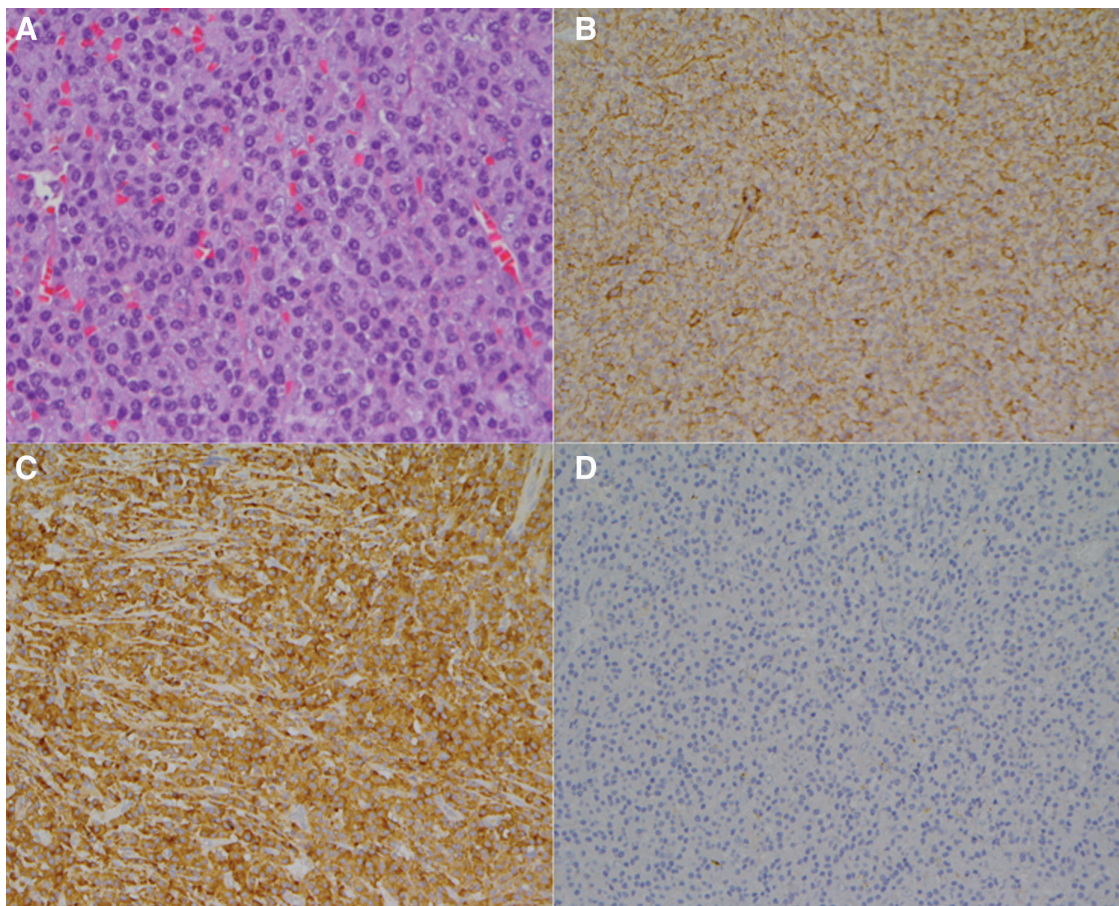


Fig. 3 Pathology. A–D, Pathology. Hematoxylin and eosin stain, 400×. Aggregates of plasma cells with an eccentric nucleus and a perinuclear halo (A), CD138, 200×, positive (B), kappa, 200×, positive (C), lambda, 200×, negative (D).

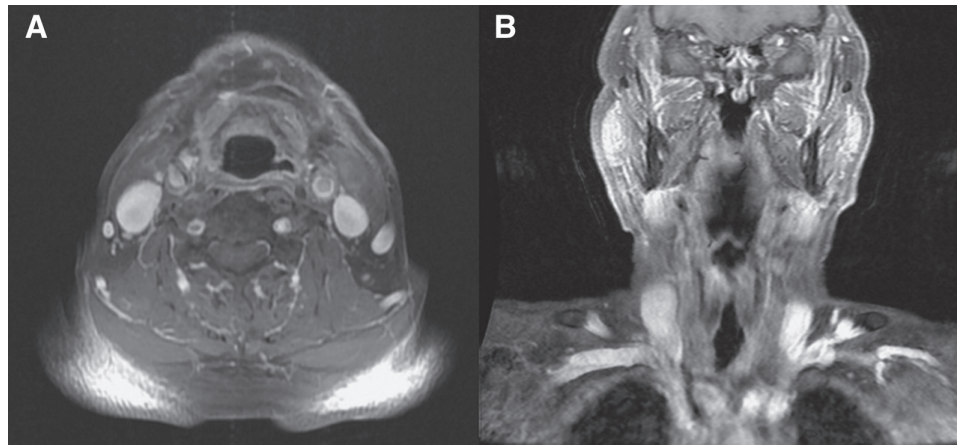


Fig. 4 Magnetic resonance image. A and B, Magnetic resonance image of the larynx 4 months after the transoral laser microsurgery. Axial (A) and coronal (B) postcontrast. Resolution of the lesion at right pyriform sinus.

cavity, nasopharynx, paranasal sinus, and oropharynx.^{5,7} EMP of hypopharynx is extremely rare. To the best of our knowledge, only two cases have been previously reported. One case was a 69-year-old female with plasmacytoma of the hypopharyngeal wall detected by fluorine-18-fluorodeoxyglucose positron emission tomography/computed tomography, and the plasmacytoma was surgically excised. The other case was revealed by endoscopy and treated with chemoradiation therapy. However, the long-term follow-up was not clearly mentioned.

Surgery, radiotherapy, and chemotherapy are currently available treatment modalities for EMP. Surgery and radiotherapy are the treatments of choice for localized disease. Surgical excision is the most common treatment modality for EMP, which is performed to confirm the diagnosis and for potentially excising a tumor of unknown nature.⁸ Postoperative radiotherapy may be indicated in patients with close or positive margins. In addition, EMP is relatively highly radiosensitive, and primary radiotherapy is the other treatment option. Previous studies have reported that the local control rate was 77% to 90% with primary radiotherapy at a radiation dose of 40 to 50 Gy.^{4,5} Chemotherapy is used only as an adjuvant treatment for patients with systemic involvement.

Here, we describe a rare case of plasmacytoma in the pyriform sinus that was detected by endoscopy. Flexible nasopharyngoscopy revealed a tumor mass with a smooth surface. It exhibited different features compared with tumors that originate in the mucosa, which generally have an ulcerative surface. Transoral laryngeal biopsy performed under flexible nasopharyngoscopy or transnasal biopsy by fiberoptic laryngoscopy through the working channel could be used to make an early diagnosis under local anesthesia before performing transoral laser microsurgery. However, there were very small pieces of specimen for examination using special stains. Otherwise, these procedures are less precise and require the patient's cooperation for diagnosing suspicious lesions.^{9,10} Excisional biopsy with transoral laser microsurgery is a preferable choice of treatment not only for confirming the diagnosis but also for removing the tumor without compromising the laryngeal functions.

This is the first reported case of transoral laser microsurgery for EMP of the hypopharynx, with postoperative radiotherapy

performed to achieve maximum tumor control. Postoperative swallowing function was well preserved. Furthermore, endoscopic and magnetic resonance image follow-ups for 18 months showed an excellent response.

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REFERENCES

1. Miller FR, Lavertu P, Wanamaker JR, Bonafede J, Wood BG. Plasmacytomas of the head and neck. *Otolaryngol Head Neck Surg* 1998;119:614–8.
2. Giorgio T, Gaetano P, Alexandra M, Luca C, Luca G. An unusual case of extramedullary plasmacytoma of the hypopharynx detected by 18F-FDG PET/CT. *Nucl Med Mol Imaging* 2014; 48:328–9.
3. Kim HS, Roh JL. A case of extramedullary plasmacytoma of the hypopharynx. *Korean J Otolaryngol* 2005; 28: 927–9.
4. Cihan YB. Place of stereotactic radiotherapy in treatment of extramedullary plasmacytoma. *J Craniofac Surg* 2018;29:e807.
5. Skořa T, Pudelek K, Nowak-Sadzikowska J, Pietrasz M, Szyszka-Charewicz B, Jakubowicz J. Effect of definitive radiotherapy on the long-term outcome in patients with solitary extramedullary plasmacytoma. *Hematol Oncol* 2017; 35:317–22.
6. Li QW, Niu SQ, Wang HY, Wen G, Li YY, Xia YF, et al. Radiotherapy alone is associated with improved outcomes over surgery in the management of solitary plasmacytoma. *Asian Pac J Cancer Prev* 2015;16:3741–5.
7. Hodgson DC, Mikhael J, Tsang RW. Plasma cell myeloma and plasmacytoma. In: Halperin EC, Wazer DE, Perez CA, Brady LW, editors. *Perez & Brady's. Principles and Practice of Radiation Oncology*. Philadelphia: LWW; 2013, p.1599–608.
8. Sharpley FA, Neffa P, Panitsas F, Kothari J, Subesinghe M, Cutter D, et al. Long-term clinical outcomes in a cohort of patients with solitary plasmacytoma treated in the modern era. *Plos One* 2019;14:e0219857.
9. Tai SK, Chu PY, Chang SY. Transoral laryngeal surgery under flexible laryngovideostroboscopy. *J Voice* 1998;12:233–8.
10. Cohen JT, Benyamini L. Transnasal flexible fiberoptic in-office laryngeal biopsies—our experience with 117 patients with suspicious lesions. *Rambam Maimonides Med J* 2014;5:e0011.