The Journal of Laryngology & Otology
December 2004, Vol. **118,** pp. 951–954

Transpalatal endoscopic resection of residual nasopharyngeal carcinoma after sequential chemoradiotherapy

JONG-LYEL ROH, M.D., PH.D.

Abstract
Residual or recurrent nasopharyngeal carcinoma (NPC) is usually managed by re-irradiation or salvage surgery. This case presented a residual NPC with limited extent and an accessible location in the nasopharynx after completion of sequential chemoradiotherapy. The lesion was completely resected via the transpalatal route under endoscopic visualization with no significant post-operative morbidity. This is the first report of NPC successfully treated by this type of surgery.

Key words: Nasopharyngeal Neoplasms; Neoplasm, Residual; Palate/Surgery; Endoscopy

Introduction

Nasopharyngeal cancer (NPC) is treated primarily by radiotherapy or chemoradiotherapy. Radiotherapy reveals a local control rate of more than 80 per cent in patients with NPC but local failure of the nasopharynx occurs in 10.5 to 39 per cent of the patients.[1–3] Persistent or recurrent carcinoma in the nasopharynx after radiotherapy presents a challenge to treatment. Re-irradiation is sometimes beneficial for patients with such an occurrence but can increase the risk of osteoradionecrosis or other significant complications. Chemotherapy alone is also disappointing in achieving complete remission of recurrent or persistent NPC.

Recently, salvage surgery has been successfully applied for the treatment of residual or recurrent NPC. Various surgical approaches have been developed such as the transpalatal, transmaxillary, transmandibular, transpterygoid, facial translocation, maxillary swing, or infratemporal fossa approach depending on the extent and site of NPC.[4–6] However, achieving surgical access for these approaches is difficult for complete resection of NPC located in the centre of the head and post-operative morbidity is inevitable. Therefore, the treatment goal of salvage surgery for residual or recurrent NPC depends on the selection of the optimal surgical approach, avoiding significant surgical morbidity as well as achieving adequate exposure for complete tumour resection.Occasionally, residual or recurrent NPC with limited extent and in an accessible location is found after completion of chemoradiotherapy. Conventional salvage surgery can cause post-operative morbidity with respect to the tumour extent. The following report is a case of residual NPC successfully treated by transpalatal resection under endoscopic guidance. This is the first report of NPC cured by this type of surgery.

Case report

A 49-year-old man presented a right multiple neck mass with a three-month history. On endoscopic examination, a mass was found in the right posterior and lateral walls of the nasopharynx. A biopsy revealed that the lesion was a non-keratinizing squamous cell carcinoma, WHO type 2. Distant metastasis of the tumour was not found and the initial TNM stage of AJCC (5th edition, 1997)[7] was $T_1N_1M_0$, stage IIB.

The patient underwent induction chemotherapy followed by external beam radiotherapy. The regimen of chemotherapy consisted of three cycles of docetaxel (75 mg/m^2 on Day 1) and oral capecitabine (1.25 g/m^2, t.d. for two weeks). Radiotherapy was performed for the primary tumour with a total dose of 7 560 cGy in 42 fractions over eight weeks delivered in a daily fraction of 180 cGy using X-ray, and for the bilateral neck with 6 480 cGy over seven weeks. The neck lesion showed complete remission but the primary tumour showed only a partial response after sequential chemoradiotherapy. Further chemotherapy for the residual primary lesion was carried out. The regimen consisted of two cycles of docetaxel (75 mg/m^2 on Day 1) and cisplatin (60 mg/m^2 on Day 1). Even though additional chemotherapy was performed, the

From the Department of Otolaryngology-Head and Neck Surgery, Cancer Research Institute, College of Medicine, Chungnam National University, Daejeon, Korea.
Accepted for publication: 13 September 2004.

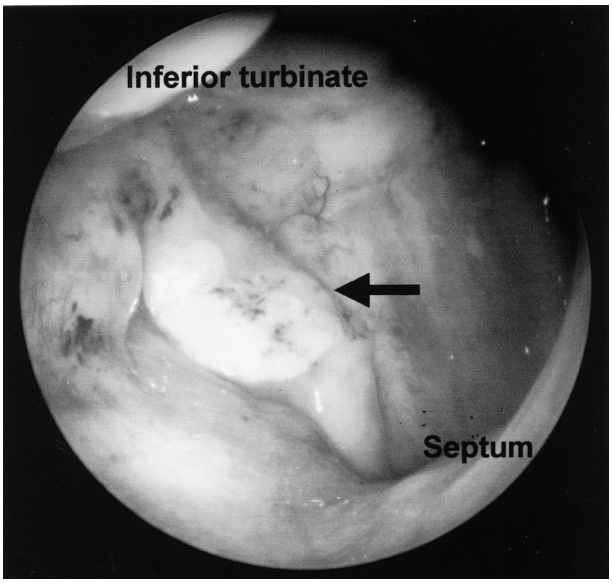


FIG. 1
An endoscopic photograph showing a residual NPC (arrow) in the right Rosenmüller fossa after completion of sequential chemoradiotherapy.

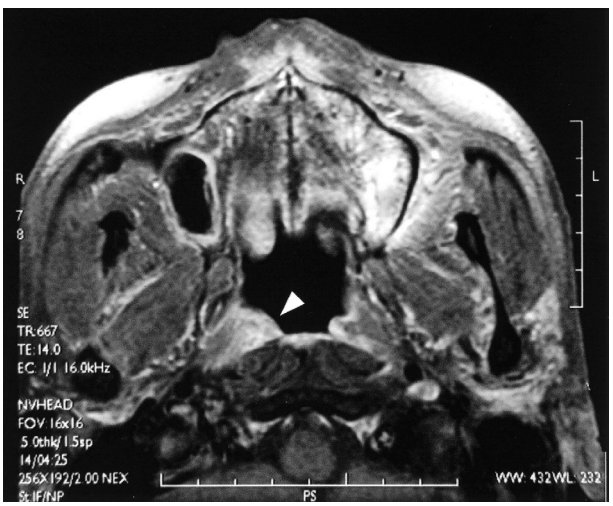
nasopharyngeal lesion was still present in the right Rosenmüller fossa on endoscopic examination (Figure 1) and on magnetic resonance imaging (MRI) (Figure 2). Therefore, it was planned to remove the residual NPC via the transpalatal endoscopic approach under general anaesthesia.

A Dingman mouth gag was inserted and the soft palate was laterally retracted after making an L-shaped incision along the right posterior margin of the hard palate (Figure 3(a) and (b)). The extent of the primary tumour was easily defined by the use of 70^0 and 30^0, 4-mm Hopkins® endoscopes (Karl Storz GmbH and Co., Tuttlingen, Germany) (Figure 3(c)). Under endoscopic visualization, tumour-free margins of approximately 1.5 cm from the lesion were marked and incised to the mucoperiosteum. The whole tumour was resected en bloc with the mucoperiosteum and a part of the cartilaginous eustachian tube by using elevators, fine scissors, and electrocautery via the transpalatal route under endoscopic visualization. The 15 x 11 mm tumour was well demarcated and slightly infiltrated the adjacent eustachian tube orifice and muscles. Frozen biopsy confirmed the resection margin and bed of the tumour were tumour-free. The bony exposure of the resection bed was not covered with mucosal grafting and the mucosal incision of the soft palate was closed. After cleansing the wound, a Foley catheter, with the balloon inflated, was packed into the resected nasopharynx for one day after operation.

After surgery, the patient underwent tympanotomy with a tube because of right middle-ear effusion. Granulation tissue developed on the bony exposure with no evidence of tumour recurrence confirmed by pathological report. The wound was cleaned after repeated removal of the granulation. The patient has been followed two years after the salvage surgery with no evidence of tumour recurrence, metastasis or dysfunction of the soft palate.

Discussion

Treatment of local persistent or recurrent NPC can be accomplished by repeated irradiation or salvage surgery. Both treatment options have been reported to be very promising,[4-6,8,9] but were accompanied by significant morbidity caused by complications such as severe xerostomia, osteoradionecrosis, trismus and neurological sequelae. Development of various techniques of salvage surgery and radiation delivery has slightly increased the chance of cure in these patients but still failed to alleviate worries about post-operative or post-irradiational morbidity. Therefore, the goal of treatment for patients with non-extensive residual or recurrent NPC seems to be the selection of an appropriate treatment option that can provide a maximum chance of cure as well as avoid complications.



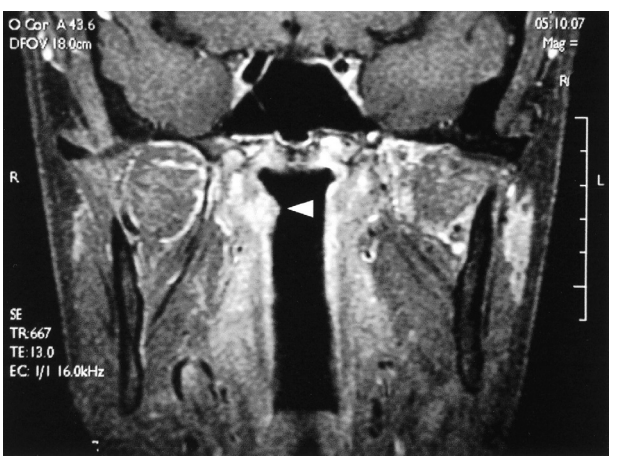


FIG. 2
Axial and coronal MRI scans showing a residual NPC (arrow head) with limited size and extent in the right posterolateral wall of the nasopharynx.

https://doi.org/10.1258/0022215042790628 Published online by Cambridge University Press

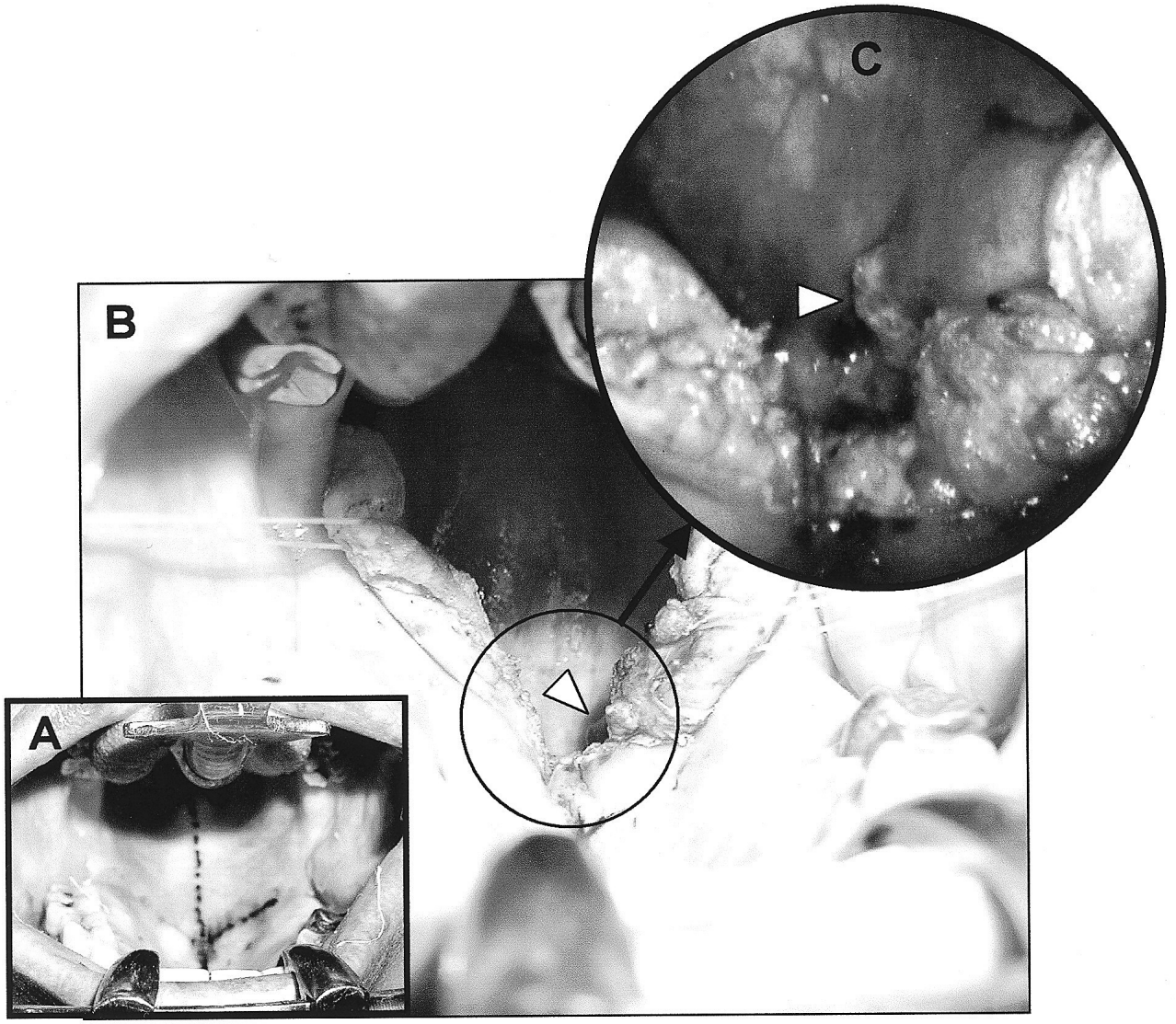


FIG. 3

Photographs showing surgical procedures including an L-shaped incision (A) and lateral retraction (B) of the soft palate, and endoscopic visualization (C). The nasopharyngeal lesion (arrow head) is easily defined by using endoscopes.

The present case was treated by transpalatal resection under endoscopic visualization. Although the lesions of the nasopharynx and neck were primarily treated by induction chemotherapy, high-dose radiotherapy, and adjuvant chemotherapy, the lesion still remained in the right Rosenmüller fossa. Re-irradiation can cause post-irradiational morbidity as well as a questionable chance of cure to the patient who has already received irradiation of more than 75 Gy. Salvage surgery seems to be the ideal choice of treatment. However, the surgical approaches reported previously may be so radical in the treatment of the residual NPC that they cause inevitable post-operative complications. The transpalatal approach has minimal morbidity and excellent results in the selected cases compared with other types of salvage surgery for recurrent NPC.[4] The surgical approach, however, needs removal of the posterior bony palate and mobilization of the greater palatine neurovascular pedicle for macroscopic visualization of the nasopharyngeal lesion.[4] In the present case, the patient had to wear a palatal obturator due to a large palatal defect and dysfunction of the soft palate post-operatively. For preventing post-operative morbidity and obtaining clear visualization of the surgical field, the surgical technique was modified by making an L-shaped incision only on the soft palate and by using a rigid angle endoscope. Although simple incision and retraction of the soft palate provided only limited visualization of a part of the nasopharynx, this was successfully overcome by using the endoscopes. In addition, it did not cause palatal dysfunction after surgery.

The use of rigid angle endoscopies in this surgery can provide several advantages compared with conventional salvage surgery. Endoscopic visualization brings an excellent view of the surgical field and helps localize the extent of the lesion. This direct visualization approach leads to excision of the

https://doi.org/10.1258/0022215042790628 Published online by Cambridge University Press

pathologic lesions more completely even under the macroscopically limited exposure of the surgical field. In addition, pinpoint bleeding during the operation can be easily controlled by using direct endoscopic visualization and electrocautery. Despite several advantages of this endoscopic surgery, this technique has been applied mainly in the treatment of benign tumours, such as juvenile angiofibroma. However, review of this case suggests that residual or recurrent NPC with limited extent and an accessible location in the nasopharynx can be completely resected by this approach. A larger NPC with a wider spread has to be treated by conventional radical surgery or radiotherapy. As well as NPC, other malignant tumours may possibly be cured by this type of surgery, if the lesions are superficially located in the posterior, superior or lateral walls of the nasopharynx and surgery is indicated.

- **Residual or recurrent nasopharyngeal carcinoma (NPC) is usually managed by re-irradiation or salvage surgery**
- **This case of NPC was treated with sequential chemoradiotherapy. A residual lesion was completely resected endoscopically via a transpalatal route**

In conclusion, residual or recurrent NPC after chemoradiotherapy can be resected by the transpalatal approach under endoscopic visualization without significant morbidity, if the primary lesion has a limited extent and an accessible location. Although there are many arguments about the oncological safety of treatment and long-term survival of the patient with such an occurrence, this type of surgery seems to provide a clearer visualization of the surgical field and less frequent post-operative morbidity than conventional salvage surgery without compromise of the patient's survival. This is the first report of residual or recurrent NPC treated by transpalatal endoscopic resection. Further studies are needed to confirm the effectiveness of this surgery.

References

1 Hsu MM, Tu SM. Nasopharyngeal carcinoma in Taiwan. Clinical manifestations and results of therapy. *Cancer* 1983;**52**:362–8
2 Zhang EP, Lian PG, Cai KL, Chen YF, Cai MD, Zheng XF, *et al*. Radiation therapy of nasopharyngeal carcinoma: prognostic factors based on a 10-year follow-up of 1302 patients. *Int J Radiat Oncol Biol Phys* 1989;**16**:301–5
3 Lee AW, Poon YF, Foo W, Law SC, Cheung FK, Chan DK, *et al*. Retrospective analysis of 5037 patients with nasopharyngeal carcinoma treated during 1976–1985: overall survival and patterns of failure. *Int J Radiat Oncol Biol Phys* 1992;**23**:261–70
4 Hsu MM, Ko JY, Sheen TS, Chang YL. Salvage surgery for recurrent nasopharyngeal carcinoma. *Arch Otolaryngol Head Neck Surg* 1997;**123**:305–9
5 Shu CH, Cheng H, Lirng JF, Chang FC, Chao Y, Chi KH, *et al*. Salvage surgery for recurrent nasopharyngeal carcinoma. *Laryngoscope* 2000;**110**:1483–8
6 Hao SP, Tsang NM, Chang CN. Salvage surgery for recurrent nasopharyngeal carcinoma. *Arch Otolaryngol Head Neck Surg* 2002;**128**:63–7
7 AJCC Cancer Staging Manual, 5th edn. Philadelphia PA: Lippincott–Raven, 1997
8 Lee AW, Foo W, Law SC, Poon YF, Sze WM, O SK, *et al*. Reirradiation for recurrent nasopharyngeal carcinoma: factors affecting the therapeutic ratio and ways for improvement. *Int J Radiat Oncol Biol Phys* 1997;**38**:43–52
9 Chua DT, Sham JS, Kwong DL, Wei WI, Au GK, Choy D. Locally recurrent nasopharyngeal carcinoma: treatment results for patients with computed tomography assessment. *Int J Radiat Oncol Biol Phys* 1998;**41**:379–86

Address for correspondence:
Jong-Lyel Roh, M.D., Ph.D.,
Department of Otolaryngology-Head and Neck Surgery,
College of Medicine,
Chungnam National University,
640 Daesa-Dong,
Chung-Gu, Daejeon, 301-040,
South Korea.

Fax: +82-42-253-4059
E-mail: rohjl@cnu.ac.kr

Dr J-L. Roh takes responsibility for the integrity of the content of the paper.
Competing interests: None declared