

Introduction: Evidence for radical neck dissection as the standard of care for recurrent or residual neck disease in nasopharyngeal carcinoma (NPC) is based on observations made in the era before intensity-modulated radiotherapy (IMRT)¹. Whether selective neck dissection as salvage treatment is adequate in patients treated by IMRT is unclear.

Material and Methods: We retrospectively analyzed the pathological nodal pattern in all adult patients with non-keratinizing NPC who received 70Gy of IMRT with or without chemotherapy between 2007 to 2016 in Tan Tock Seng Hospital, a tertiary general hospital in Singapore. All patients underwent a comprehensive neck dissection after detection of recurrent or residual nodal disease.

Results:

Patient characteristics

Male:female	18:1
clinical TNM at diagnosis (AJCC 7th Edition)	cT1: 3 (15.8%) cN1: 6 (31.6%) cM0: 17 (89.5%) cT2: 2 (10.5%) cN2: 10 (52.6%) cMx: 2 (10.5%) cT3: 8 (42.1%) cN3: 3 (15.8%) cT4: 6 (31.6%)
Initial treatment	IMRT alone: 3 (15.8%) Concurrent chemotherapy and IMRT: 11 (57.9%) Induction chemotherapy + concurrent chemotherapy and IMRT: 5 (26.3%)
Time to neck recurrence (median/range)	36.5 months (14.7 to 200.7 months)
clinical rN classification	rN1: 18 (94.8%) rN2: 1 (5.2%)
Neck recurrence after neck dissection	none (median follow up of 74.3 months, range 6.5 to 224.5 months)

Pathological nodal pattern

Pattern of involvement	Frequency of involvement
level 1	1 (5.3%)
level 2	8 (42.1%)
level 3	1 (5.3%)
level 1, 2	1 (5.3%)
level 2, 3	1 (5.3%)
level 3, 4	1 (5.3%)
level 3, 5	1 (5.3%)
level 2, 3, 4	1 (5.3%)
level 1,2,3,4	1 (5.3%)
level 2, 3, 4, 5	1 (5.3%)
pN0	2 (10.6%)



Discussion: In the last 2 decades, IMRT has been shown to improve the locoregional control of patients with NPC². Therefore, residual or recurrent disease in the neck following IMRT may be less severe than those observed in the era before IMRT. Recently, selective neck dissection has been proposed as an alternative to radical neck dissection in the salvage of neck disease in NPC³. Our data shows that about 53% of patients had single level disease, predominantly in level 2. This raises the possibility of a selective neck dissection if preoperative imaging, typically MRI and PET-CT, can identify the level of disease with sufficient sensitivity and specificity. This remains to be investigated. Another concern with selective neck dissection is the incidence of extranodal extension in nodal recurrences of NPC, which was present in 70% of the dissected nodes in the era before IMRT¹. This frequently necessitated radical neck dissection for gross total resection. Whether the incidence of such extranodal extension has decreased after IMRT also needs to be ascertained before selective neck dissection can be established for the salvage of neck failures in NPC.