

## Cancer of the Hypopharynx

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하 인 두 암

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*Review of Twenty Years' Experience in Southwest Korea*

### □ 국문초록 □

하인두암은 거의 대부분 이상동(Pyriiform Sinus)에서 발생하며 상당한 정도 진행  
시까지 별다른 증상을 나타내지 않는다. 저자들은 1966년부터 1985년까지 만 20년간  
하인두에서 발생한 암환자 63명을 중심으로 임상 관찰 및 문헌고찰과 함께 발표하  
는 바이다.

원발병소로는 전체 중 58명에서 이상동, 하인두벽(hypopharyngeal wall) 3명, Post  
-cricoid hypopharynx와 pharyngopalatine fold에서 각각 1명씩의 발생빈도를 보였다.  
저자들은 설저(base of tongue)암, supraglottic Ca. 및 경부 식도(cervical esophagus)암  
경우는 모두 제외시켰다. 임상증상으로는 경부 종괴(lump)가 33예로써 가장 현저  
했으며 또한 첫증상으로써 연하곤란(dysphagia) 또는 sore throat를 나타낸 경우는 32  
예 이었다. 그 외에 hoarseness가 20예, bloody sputum 4례 및 호흡곤란 2예의 순  
이었다. 내원까지의 증상기간은 대부분 4~6개월 이었다. 흡연관계는 1일 1값 이상  
의 중등도 흡연 경우는 전체의 58%이었으며 흡연 사실이 있었던 경우는 전체의 88  
%이었다. 연령별 발생빈도는 50대~60대에서 48명으로서 현저히 높았다. 완치 목  
적의 수술적 치료는 24명에서 시행하였으며 치료 거절은 16명이었다. 치료 거절하  
였던 환자들 중 81%가 임상적 제4병기였으며 보조적 치료 요법을 실시한 환자들  
의 78%에서 제4병기였다. 또한 완치 목적의 치료 실시 경우의 67%에서 제4병기  
였다. 수술요법은 일반적으로 "후두·인두 적출술 및 양측 경정맥 임파관 광청술"  
(laryngopharyngectomy with bilateral jugular dissection) 또는 후두·인두 적출술 및 동  
측의 표준 광범위 경부 광청술(standard radical neck dissection)과 반대측의 경정맥  
임파관 광청술을 시행하였다. 3년 이내와 3년 이상무병 상태(free of disease)경우가  
각각 4명씩이었다. 마지막 예후 추적 조사시까지 무병 상태였던 환자를 포함하여  
예후 추적 조사기간 중 추적 실패 경우는 7명이었다. 확정된 3년 생존율(determi-  
nate 3-year survival rate)은 31%이었다. 수술 사망이 1명 있었으며 재발경우는 9

명이었다. 재발부위로는 원발병소 재발이 7명, 경부 재발 1명 및 원격전이가 1명이었으며, 저자들은 이에 대한 실패 원인을 규명코저 하였다.

Cancer of the hypopharynx arises most often in the pyriform sinus and produces few symptoms until the disease is moderately advanced. This paper summarizes twenty years' experience with 63 cases arising in the hypopharynx. Of these 58 were of pyriform sinus origin, three arose in the hypopharyngeal wall, one developed in the post-cricoid hypopharynx, and one in the pharyngopalatine fold. Cancers of the base of tongue, supraglottic larynx, and cervical esophagus were excluded. A lump in the neck was a presenting symptom in 33 cases, sometimes in association with dysphagia or sore throat, which also was an initial complaint in 32 patients. Hoarseness occurred in 20 cases, bloody sputum in 4 and respiratory distress in 2 cases. Symptoms were most often of 4-6 months duration. Tobacco exposure was heavy (1 pack a day or more) in 58% of patients, but when the smoking history was recorded this rose to 88%. Forty-eight of the 63 patients were in the fifth and sixth decades of life, and the male:female ratio was approximately 30:1.

Sixteen of the patients refused therapy and only 24 patients underwent surgical management with curative intent. The proportion of patients with Stage IV disease was 81% among those who refused treatment, 78% among those undergoing palliative therapy only, and 67% among those managed with curative intent. Surgery generally consisted of a laryngopharyngectomy with bilateral jugular dissection or with standard radical neck dissection on one side and jugular dissection on the other. Four patients are free of disease less than three years, and four for more than three years. Seven patients are lost to follow-up, including patients who were disease-free when last seen. The determinate three-years survival (free of disease) is 31%. There was one operative death. Of the 9 patients who developed recurrences, 7 were in the primary cancer site, one was in the neck, and one was distant. The causes of recurrence or failure are analyzed.

Cancer of the hypopharynx is rather uncommon, comprising 3.7% of head and neck cancers in our registry, and less than 0.4% of all cancers in the Korean population. Due to its relative infrequency and due to the fact that the primary lesion is relatively "silent" in terms of symptoms, it is diagnosed late and too often treated inadequately.

The hypopharynx is defined as that part of the pharynx which lies below the aperture of the larynx. This mucosa-lined passage is customarily divided into the posterior pharyngeal wall, the pyriform sinus, and the post-cricoid area. Perhaps because food, alcohol, and tobacco smoke have contact with the side-pocket known as the pyriform sinus longer than other surfaces of the hypopharynx, this area is the most prone to the development of cancers.

During the years between 1966 and 1985, 63 patients were found to have primary cancer of the hypopharynx. Of these, 58 or 92% arose in the pyriform sinus. All but one of these cancers was an epidermoid carcinoma, the single exception being a case of non-Hodgkin's lymphoma. (See Tables 1 and 2) Males predominated in this series, the male to female ratio being over 30:1. The vast majority of these cancers (76%) presented during the fifth and sixth decades of life. This information correlates with the prolonged tobacco exposure generally thought to be the main carcinogenic factor, the second being heavy use of alcohol. Unfortunately, our records were somewhat incomplete regarding these factors; nevertheless, 88% of those with information

**Table 1.** Cancer of the hypopharynx

Anatomical site	
Pyriform sinus	58
Hypopharyngeal wall	3
Post-cricoid	1
Pharyngopalatine fold	1
Total	63

**Table 2.** Cancer of the hypopharynx

Histopathologic data	
Epidermoid carcinoma	62
Non-Hodgkin's lymphoma	1
Total	63

**Table 3.** Cancer of the hypopharynx

Age and sex distribution			
Decade	Cases	Sex	
		Male	Female
20-29			
30-39	1	1	
40-49	10	10	
50-59	27	26	1
60-69	21	20	1
70-79	3	3	
over 80	1	1	
Total	63	61	2

Male:Female Ratio - >30:1

**Table 4.** Tobacco and alcohol exposure

	Tobacco		Alcohol	
None	2	3.2 %	None	2
Moderate or 1/2 pack/day	3	4.8 %	Occasional	0
1 pack/day	22	35.5 %	Moderate	7
over 1 pack or heavy	14	22.5 %	Heavy	19
Unknown	22	34.0 %	Unknown	35
Total	63	100.0 %		63

58 % heavy smokers. 42 % mod to heavy drinkers.  
88 % of those with smoking information heavy smokers.  
93 % of those with alcohol information were mod. to heavy drinkers.

**Table 5.** Cancer of the hypopharynx

Presenting symptoms	
Cervical lump	33
Dysphagia or sore throat	32
Hoarseness	20
Bloody sputum	4
Resp. distress	2

**Table 6.** Duration

Months		
1 ~ 3	17	27 %
4 ~ 6	30	47 %
7 ~ 12	10	16 %
12 ~ 18	3	
18 ~ 24	2	10 %
over 24	1	
Total	63	

regarding tobacco use were heavy smokers, and 93% of those with information describing alcohol use were heavy drinkers(see Tables 3 and 4).

More than half of the patients had a mass presenting in the neck at the time of first examination, and for many of the patients this was the first indication of disease. Thus we were faced with a large proportion of patients with advanced disease which further added to the threat of a cancer arising in a location richly supplied with lymphatics and prone to tumor spread nearly three-fourths of the patients(74.6%) were found to be in Stage IV(see Tables 5 and 6). Sixteen of the 63 patients refused treatment, and for 18 only palliative therapy could be offered. Only 24 were candidates for treatment with intent to cure(Tables 7 and 8). Table 9 outlines

**Table 7. Stage at presentation**

Stage	Refused Treatment	Palliative Treatment	Curative Treatment
I	—	—	—
II	1	1	—
III	2	4	8
IV	13	18	16
Percentage of Stage IV	81 %	78 %	67 %

**Table 8. Overall management**

Management of hypopharynx cancer	
Refused therapy	16
XRT and chemotherapy only	7
XRT only	6
Chemotherapy only	7
Palliative surgery and XRT	2
Palliative surgery XRT and chemotherapy	1
	39
Surgery with curative Intent	24
Total	63

**Table 9. Surgical management with curative intent**

	Recurrences and complications			Mortality
	Cases	Recurrence	Major complication	
Widefield Lxphx	2	1		1
Widefield Lxphx +RND	12	4	2	
Widefield Lxphx + DP flap	1	1		
Widefield Lxphx + en bloc	1			
Widefield Lxphx +RND + colon + bypass	2		1	
Partial phx + RND	1			
Lxphx +RND	4	2		
Bilateral RND + Lxphx	1			
Total	24	8	3	1

the various procedures employed, and also lists the recurrences, major complications, and mortality.

Of the 24 patients who underwent surgery and radiotherapy with curative intent, seven are lost to follow-up, eight died of cancer, and one died post-operatively of a carotid blow-out due to a pharyngeal fistula. The remaining 8 are living free of disease, but of these only four underwent surgery more than three years ago. The determinate survival rate is thus 31%(Table 10). An effort was made to discern cause of failure in the 9 patients who developed recurrence. This analysis is shown in Table 11.

### Discussion

The basic or minimum management for cancers of the hypopharynx is removal of the larynx and that part of the hypopharynx which is involved, plus removal of the jugular nodes and strap muscles on either side. This procedure is called a "widefield laryngopharyngectomy".

**Table 10.** Disease-free survival in relation to procedure

	Cases	Locoregional recurrence	Major complication	Mortality	Disease-free survival 3 yrs. (<3 yrs.)
Widefield Lxphx	2	1			2 (3)
Widefield Lxphx + RND	12	4	2	1	2 (3)
Widefield Lxphx + DP flap	1	1			(1)
Widefield Lxphx + en bloc	1				
Widefield Lxphx + RND + colon bypass	2		1		1
Partial phx. + RND	1				
Lxphx + RND	4	2			
Bilateral RND + Lxphx	1				1
Total	24	8	3	1	4 (4) 31 %

**Table 11.** Causes of failure in management of hypopharynx cancer

Inadequate neck lymph node management	0
Inadequate margins	2 (one salvaged)
Delayed postoperative radiation	1
Inadequate postoperative radiation	3
Biological aggressiveness of tumor or second primary lesion	2
Patient failure	1
Surgical complication	1 (carotid blow-out)
Total	10

However, if nodes are clinically present prior to surgery, or found by frozen section during surgery, a standard neck dissection should be done on the involved side. Occasionally bilateral nodal disease is present. Although we may employ a bilateral neck dissection we prefer not to remove the jugular vein and sternocleidomastoid muscle on the least involved side. Sacrifice of both jugular veins is associated with troublesome facial edema in most cases, and removal of both sternomastoid muscles also creates difficulties in that the neck becomes brick-hard after the necessary post-operative radiation therapy.

When the primary lesion is circumferential or nearly so, necessitating removal of the entire hypopharyngeal circumference, reconstruction must be done by use of a deltopectoral flap, or by employing a pectoralis myocutaneous flap, or by use of a colon by-pass, or by a gastric pull-up.

Virtually every case, other than early T<sub>1</sub> lesions, will require post-operative radiation. The on-

ly exceptions in this series were one patient who had received pre-operative radiotherapy in Seoul prior to his first visit; and the patient who died of surgical complications.

It is important to determine the cause of failure to control cancer when a major combined therapeutic effort has been employed. Nine patients sustained recurrences. Of these, five were at the primary site, two in the retropharyngeal nodes, one in the neck, and one a distant re-resection of the cervical esophagus. Table XI lists the cause of failure: The surgical margins were inadequate leading to primary site recurrence in two patients. A retropharyngeal node dissection should have been done in two patients whose tumor involved the pharyngeal wall; this would have prevented later recurrence in the nodes of Rouvier. Postoperative radiation therapy was of inadequate dosage in two cases, allowing neck recurrence to occur despite adequate neck dissection. The three remaining causes of recurrence were patient failure, a second primary site, and an aggressive tumor causing distant metastasis.

### Conclusions

1) Early diagnosis is imperative if results of treatment for hypopharyngeal cancer are to be improved. Any patient with mild throat discomfort and who is also a heavy smoker and alcohol user must have careful examination and biopsy of suspicious mucosal lesions.

2) A policy of widefield laryngectomy with prophylactic removal of jugular nodes, when the neck is clinically negative; with therapeutic removal of all ipsilateral nodes, when the neck is clinically positive; and with removal of retropharyngeal nodes of Rouvier when the lateral or posterior pharyngeal walls are involved offers the best chance for cure in this disease.

3) Postoperative radiation therapy is indicated in all but early T<sub>1</sub> lesions, and should include the posterior pharyngeal wall to the nasopharynx, as well as the entire neck.