

Palliative Medicine Grand Round

Palliative Care in Advanced Head & Neck Cancer (HNC) – Part I

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Introduction

Patients with HNC pose a unique challenge to palliative care, because they often experience unpleasant local symptoms, difficulty in swallowing and speech, and gross disfigurement, leading to great psychological distress and social isolation. The human head and neck region serves important roles in performing the vital functions such as breathing, swallowing and communication with surrounding. The facial appearance also has essential roles in personal identity and body image.

There are a number of special features of HNC that make it of clinical importance. Firstly, the affected structures in HNC include the major airway, the digestive tract, the organs of special senses and the facial features, and all of them have anatomical importance. That is the reason why HNC can be so troublesome to our patients. The obvious disfigurement and dysfunction is especially common in advanced HNC,¹ which account for the impact and psychosocial consequences to this group of patients. The silent nature of HNC often results in late presentation. There are about 60% of patients presenting with advanced disease, classified by American Joint Committee (AJC) on Cancer categorization as Stages III or IV. Therefore, patients with advanced HNC usually carry a poor prognosis and this has remained unchanged over the past 30 years.² Besides, patients with HNC also carry high risk of developing second primary tumour which occurred in 10-30% of patients.³⁻⁴ The incidence may be greater if the patient continues to smoke following treatment.⁴

The HNC tumour can affect the structures in the head and neck region by local invasion or tumour compression. Moreover, the treatment offered to the patients such as surgical resection, local radiotherapy, or the presence of specific device can also affect the structures in this region. The coexisting medical problems such as chronic obstructive pulmonary disease can further compromise the functions of that region.

Symptom prevalence of advanced HNC

The results of two studies⁵⁻⁶ on the prevalence of clinical problems experienced by the advanced HNC patients are summarized in the following table (Table 1). Pain is the commonest problem, followed by dysphagia and airway obstruction.

Table 1 Clinical Problems in Advanced HNC Patients⁵⁻⁶

Problems	Prevalence (%)
Pain	50-85
Dysphagia	38-62
Airway obstruction	28-43
Fungating wound	14
Nausea/ Vomiting	12
Mucosal dryness	10
Conductive deafness	<5
Bleeding	<1

Specific Clinical Problems of HNC

Instead of dealing with individual symptoms, it is clinically more relevant to discuss the symptoms in the form of clinical problems, which arise from the unique anatomical and functional impact of HCN.

Hollow organ obstruction

Upper airway obstruction can be a consequence of narrowing of the airway lumen or external compression of the airway. Patients may present with dyspnoea and stridor, as characteristics of upper airway obstruction. The stridor can be inspiratory in laryngeal obstruction, but can also be biphasic in tracheal obstruction. Paradoxical breathing pattern may occur with this condition. The dyspnoea is usually worsened in recumbent position. The oxygen saturation and blood gases may be within normal limits until respiratory failure has developed.

Tumours at the base of the tongue, tonsil or retromolar trigone can result in pharyngeal obstruction; while pyriform fossa carcinoma or external compression of hypopharynx by lymph nodes in the thyrohyoid area can cause hypopharyngeal obstruction

Nasal obstruction can give rise to anosmia, headache, secondary sinusitis and facial pain. Patient with nasal obstruction may experience xerostomia secondary to mouth breathing.

Vascular obstruction, due to thrombosis or external compression, is another potential complication. Symptoms of internal jugular vein obstruction include headache, facial congestion, blurred vision, papilloedema and confusion. Carotid obstruction often presents as light-headedness, transient ischaemic attack or cerebral vascular accident. However, this condition is rare because of resistance of the vessel wall to tumour invasion.

Haemorrhage

Carotid blow-out is due to the erosion of the walls of the carotid artery causing fatal bleeding. It is more likely in patients who have undergone combination therapy with surgical removal of soft tissue cover combined with radiotherapy.⁷ Herald bleeding may precede a fatal haemorrhage. On the other hand, minor bleeding from small vessels can be distressing.

Dysphagia

Dysphagia can be due to altered anatomy by previous surgical treatment and recurrence of tumour. Tumour masses or nodal masses can cause local compression of the digestive tract. Neurological dysfunction and side effects of radiotherapy (e.g. xerostomia, mucositis) may further exacerbate dysphagia. Patient with dysmotility artifact in soft palate can have distressing nasopharyngeal regurgitation of food during swallowing.

Aspiration

Aspiration is more likely in bilateral palsy of the adductor muscles of larynx, in bilateral superior laryngeal nerve palsy due to glottic incompetence, in the presence of side tracheostomy, and in patients with cervical anastomosis following total or subtotal oesophagectomy.

Loss of Special Sensory Functions

Loss of vision can be related to direct orbital involvement in antroethmoid or sphenoid neoplasms. Anosmia may be caused by destruction of olfactory nerve endings located at the anterior nasal fossa above the superior turbinate e.g. surgical removal of cribriform plate, ethmoid malignancy, frontal lobe tumour. Hearing loss is rarely a direct result of cancer. However, hearing loss can be secondary to infective complications e.g. nasopharyngeal carcinoma can obstruct the end of Eustachian tube causing serous otitis and conductive hearing loss. The ototoxic effects of drugs e.g. cisplatin can result in hearing loss as well.

Disturbance in balance can be due to peripheral or central vestibular disorders, and such patient usually experiences vertigo. This condition can be exacerbated by other co-existing problems e.g. anaemia, drug induced postural hypotension, poor nutrition. However, tumour rarely involves inner ear directly, although the pressure on vestibulocochlear nerve or inner ear can be a cause of vertigo.

Communication Disorder

Physical barrier on communication is obvious and can be due to loss of voice or loss of special senses e.g. hearing loss, visual loss. On the other hand, psychological barriers due to visible orofacial deformity, a cervical mass, a surgical scar or an offensive ulcer will significantly reduce personal confidence, self-esteem and the desire to contact the outside world. Communication disorders can be classified into expressive and receptive disorder. For expressive communication disorder, dysarthria is common in patients with restricted mobility in the oral cavity due to tumour, surgery, or oedema. Dysphonia is due to laryngeal disease or resection of the larynx. Some patients may have hypernasal speech due to vagal palsy affecting the motor supply to pharyngeal plexus. Patient may have to speak with a breathy voice and bovine cough that is due to unilateral or bilateral adductor paralysis secondary to recurrent laryngeal or vagal trunk compression or division. Deafness is the usual cause of receptive communication disorder.

Facial Nerve Palsy

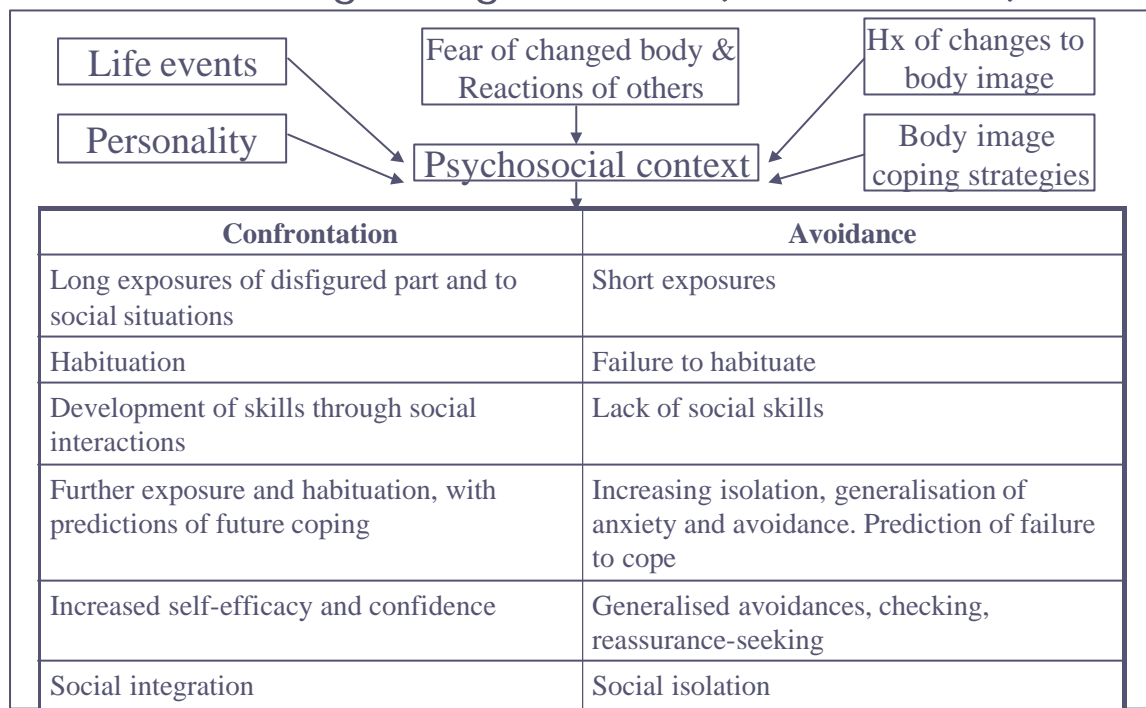
Facial nerve palsy is another common problem in patients with HNC. It has both functional and cosmetic implications to the patient. Facial nerve palsy can result in drooling and dysphagia because of the loss of lip occlusion during swallowing. It can also lead to corneal exposure and facial ache. Facial asymmetry can result in marked cosmetic disturbance.

Disfigurement and Related Psychosocial Consequences

Most studies on psychosocial disturbance related to disfigurement were performed on patients with burn and port wine stain. The domains of disturbance can be physical, social and psychological. The psychosocial difficulties in patients with disfigurement include anxiety syndromes, reduced social interaction without specific mental illness and possible organic psychosyndromes e.g. depression. There are difficulties in examining the psychosocial issues of head and neck cancer patients in relation to disfigurement, because many other factors contribute to their difficulties (e.g. difficulties with speaking and eating, fear of life-threatening conditions).

The following diagram showed the Fear-Avoidance model of psychosocial difficulties following disfigurement⁸

Fear-Avoidance Model of Psychosocial Difficulties Following Disfigurement (Newell 1999)



Predictors of Psychosocial Disturbance - Severity and Location

A study by Cassileth⁹ of the impact of different levels of disfigurement on melanoma patients' perceptions of the cosmetic impact of their operations showed that the length of scar did not distinguish between the high and the low impact individuals. The highest impact group was distinguished from the lowest impact group by the degree of indentation, the type of closure (graft) and whether there is lack of correspondence between the expected and the actual scar size. Another study by Baker¹⁰ attempted to examine the effect of the differences in the level of facial disfigurement on rehabilitation in the HNC patients. The study found no correlation between the level of facial disfigurement and rehabilitation in terms of the total score of activities of daily living or its physical or psychological dimensions. In yet another study, Gamba¹¹ tried to compare groups of HNC patients with minor and severe disfigurement. Those with extensive disfigurement reported greater change to self-image, worse relationships with partners, reduced sexuality, and increased social isolation. The rate and severity of psychosocial problems increased with the level of severity of disability.¹² and the level of distress described by sufferers is sometimes out of proportion to the extent of the disfigurement.¹³ There is lack of concordance between the level of injury and the level of psychological disturbance.¹⁴ However, the visibility and particularly the facial involvement are associated with worse adjustment.¹⁵

Other Predictors of Psychosocial Difficulties

For the gender, females suffer greater psychosocial disturbance than males, possibly because of greater emphasis on female appearance by the society.¹⁵ Female patients with disfigurement were found to have more negative body image, depression, and lower self-esteem than males.¹⁶ However, the study by Brown¹⁷ showed that the variables which were associated with better psychosocial adjustment were different in men and women, although the overall effect of disfigurement on adjustment was not different. However, the incidence of post-traumatic stress disorder (PTSD) and the severity of burn were not predictors of psychosocial difficulty, whereas personality had moderate correlation.¹⁸ Social support was found to be related to life satisfaction, self-esteem and social and recreational participation in post-burn patients.¹⁹ Therefore, identification of the patient's social network is important in facilitating rehabilitation.

(part II to be published in next issue of newsletter)

References

1. Dropkin MJ, Malgady RG, Scott DW, Oberst MT, Strong EW et al. Scaling of disfigurement and dysfunction in post operative head and neck cancer patients. *Head Neck Surg* 1983;6:559-70.
2. Silverberg E, Borring CC, Squires TS. Cancer statistics. *CA cancer J Clin* 1990;40:9-26.
3. Munro AJ, Sebag-Montefiore D. Opportunity cost: a neglected aspect of cancer treatment. *Br J Cancer* 1995;19L153-65.
4. Jones AS, Morar P, Philips DE, Field JK, Husband D, Helliwell TR. Second primary tumours in patients with head and neck squamous cell carcinoma. *Cancer* 1995;75:1343-53.
5. Aird DW, Bihari J, Smith C. Clinical problems in the continuing care of head and neck cancer patients. *Ear, Nose and Throat Journal* 1983;62:10-30.
6. Shedd DP, Carl A, Shedd C. Problems of terminal head and neck cancer patients. *Head and Neck Surgery* 1980;2:476-82.
7. Francfort JW, Gallagher JF, Penman Fairman RM. Surgery for radiation-induced carotid atherosclerosis. *Annals of Vascular Surgery* 1989;3:14-19.
8. Newell R. Altered body image: a fear-avoidance model of psychosocial difficulties following disfigurement. *Journal of Advanced Nursing* 1999;30:1230-8
9. Cassileth BR, Lusk EJ, Tenaglia AN. Patients' perceptions of the cosmetic impact of melanoma resection. *Plastic and Reconstructive Surgery* 1983;74:73-5.
10. Baker CA. Factors associated with rehabilitation in head and neck cancer. *Cancer Nursing* 1992;15:395-400.
11. Gamba A, Romano M, Grosso IM, Tamburini M, Cantu G, Molinari R, Ventafridda V. Psychosocial adjustment of patients surgically treated for head and neck cancer. *Head and Neck cancer* 1992;14:218-23.
12. Malt U. Long-term psychosocial follow-up studies of burned adults: review of the literature. *Burns* 1980;6:190-7
13. Kalick SM, Goldwyn RM, Noe JM. Social issues and body image concerns of port wine stain patients undergoing laser therapy. *Lasers in Surgery and Medicine* 1980;1:205-13.
14. Pruzinsky T. Social and psychological effects of major craniofacial deformity. *Cleft Palate – Crniofacial Journal* 1992;29:578-84.
15. Andreason N, Norris A. Long-term adjustment and adaptation mechanisms in severely burned adults. *Journal of Nervous and Mental Disease* 1972;154:352-62.
16. Orr DA, Reznifoff M, Smith GM. Body image, self-esteem and depression in burn-injured adolescents and young adults. *Journal of Burn Care and Rehabilitation* 1989;10:454-61.
17. Brown B, Roberts J, Browne G, Byrne C, Love B, Streiner D. Gender differences in variables associated with psychosocial adjustment to a burn injury. *Research in Nursing and Health* 1988;11:23-30.
18. Tucker P. Psychosocial problems among adult burn victims. *Burns* 1987;13:7-14.
19. Davidson TN, Bowden ML, Tholien D, James MH, Feller I. Social support and post-burn injury. *Archives of Physical Medicine and Rehabilitation* 1981;62:274-8