

## Spectrum of Pain in Patients of Head And Neck Cancer - An Institutional Study

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**Abstract:** The commonest distressing symptom seen in head and neck cancer (HNC) patients is pain which is consistently experienced as a moderate or severe symptom. Managing pain is one of the crucial aspects of cancer care. However, no researchers addressed this dimension of pain in cancer patients in this part of country. This study analysed the severity and spectrum of pain experienced by HNC patients in different stages of the disease encountered in this part of country. In our study the highest number of head and neck cancer patients (31.6%, n=19) were in the 41 to 50 years age group. On assessing the pain using the VAS, the prevalence of pain in our study was found to be 73.33%. 77% of our patients admitted that the pain had an impact in their daily life. We found that there is more pain as stage of the disease increased. On analyzing the symptomatic and functional aspects, laryngopharyngeal cancers (60%) reported with more symptoms and associated morbidity. Based on this knowledge, comprehensive pain management strategies could be devised in future and aid effective communication between interdisciplinary team members involved in HNC management

**Keywords:** Head neck cancer, visual analogue scale, pain

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### I. Introduction

Head and neck cancer (HNC) is a major worldwide health problem. In India, HNCA accounts for 30-40% cancers at all sites and in the North-east India its incidence is higher still, at 54.48% (A. Bhattacharjee et al 2006). Studies indicate that patients with metastatic cancer frequently identify pain as a symptom (Teumissen et al., 2007) and that the prevalence of moderate or severe pain increases in late stages of cancer (Teumissen et al., 2007, Bajwa et al., 2007). Cancer pain causes increased morbidity, reduced performance status, increased anxiety and depression, and diminished quality of life (QOL) (Caraceni et al., 1999, Portenoy RK et al., 1990a, 1990b, 1999). Blazeby et al., (2001) in their study reported that physical function had independent prognostic value in oesophageal cancer. This study intends to analyse the severity and spectrum of pain experienced by HNC patients in different stages of the disease encountered in this part of country. Besides early diagnosis and treatment of HNC patients of this region, the detailed understanding of cancer pain and its consequences on patient life needs to be studied so as to formulate appropriate pain management approaches for better clinical outcome and care.

### II. Objective

- To analyse the prevalence and severity spectrum of pain in HNC patients in relation to the stage of the disease.
- To determine the type of pain reported in such cases.

### III. Materials And Methods

This prospective study was conducted at a tertiary teaching hospital. All head and neck cancer patients attending the Department of ENT, for their treatments were interviewed and full clinical ENT examination and assessment was carried out including confirmatory diagnosis and staging of HNC disease. Patients presenting with HNC is staged using the UICC tumour node metastasis (TNM) classification. Inclusion criteria: a) over the age of 10 years, b) had a diagnosis of HNC within the last 12 months, c) conscious and able to communicate, d) all cancers in head and neck region including esophageal cancer.

Exclusion criteria: a) patients with cognitive impairment due to brain metastases or developmental problems as measured by a Mini-Mental State Exam (MMSE) (defined as a score of 20 or less) b) had surgery within one month; (c) were physically unable to complete study procedures. The MMSE is an 11-question scale designed to efficiently screen a person's cognitive functioning. Scores 19 and below represent cognitive impairment<sup>14</sup>

Patients were assessed regarding the presence or absence of cancer pain using validated measurement tool, such as the Pain Assessment Acronym O, P, Q, R, S, T, U and V (Annexure I)<sup>15</sup> and Visual Analog Scale (VAS) (Annexure II)<sup>16</sup>. Nonverbal Pain Assessment<sup>17</sup> was not required to be employed in our cases. Based on mode of origin and transmission, type of pain were classified as Somatic pain and Visceral pain under Nociceptive pain or as Neuropathic pain .

All the questionnaires were carried out in a face-to-face interview. The approval of the Ethics Committee of the institution had been before starting the study

#### IV. Results

In this study the highest number of head and neck cancer patients were in the age-group 41-50 years (Fig 1). The median age was 50. Majority of cases were males (n= 44).

##### 1) Age & Gender Distribution

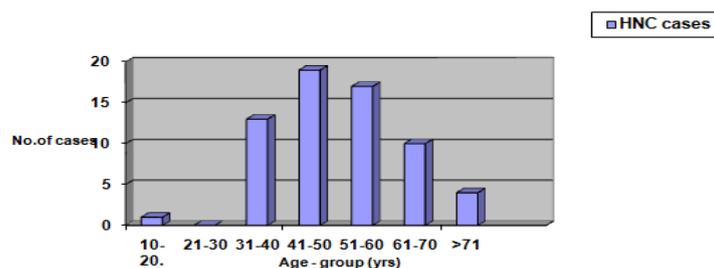


Fig 1: Age distribution

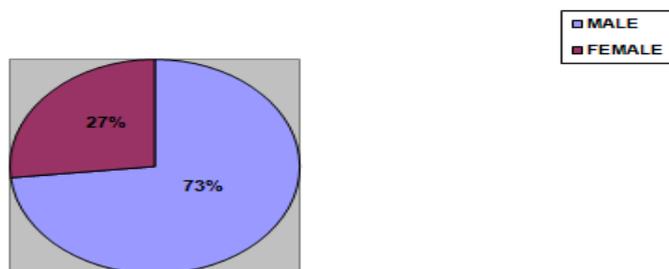


Fig 2: Gender distribution

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2) Prevalence of pain as a symptom In the study, 60 confirmed cases of head and neck cancer were treated in our department. On assessing the pain using the VAS, the prevalence of pain in our study was found to be 73.33%. This suggest that pain is a very common symptom in head and neck cancer and merits further evaluation in terms of its effect on quality of life, performance of individual and pain management.

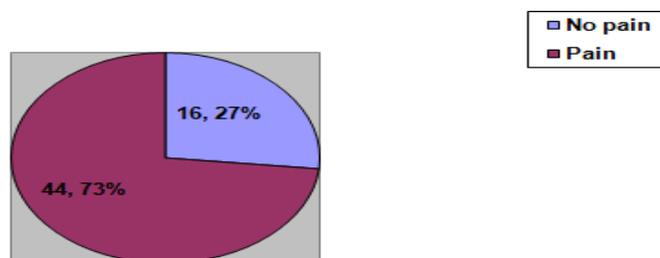
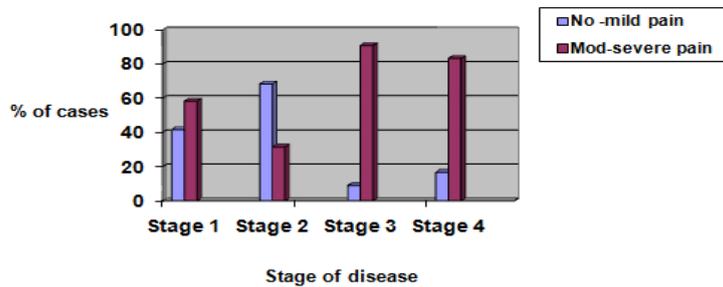


Fig 3: Prevalence of pain in HNC patients.

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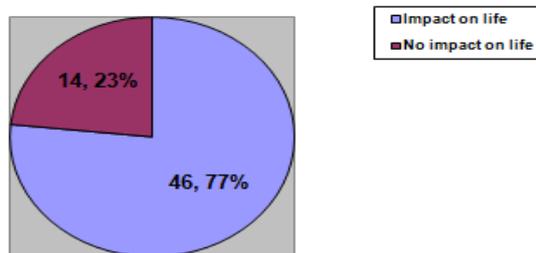
3) Relation between severity of pain with stage of the disease 90.9% of Stage 3 and 83.33 % cases of Stage 4 have moderate to severe pain. Therefore, 86.2% cases of stage 3 & 4 combined have moderate to severe pain while only 41.9 % cases of Stage 1 & 2 combined had severe pain. 58% patients of Stage 1 and 2 combined

(41.66%) had minimal pain as compared to 13.7% cases of stage 3 & 4 combined. Thus we see that in early stage disease, patients suffer from less pain than advanced stage disease.



**Fig 4:** Severity of pain for various Stages of the disease.

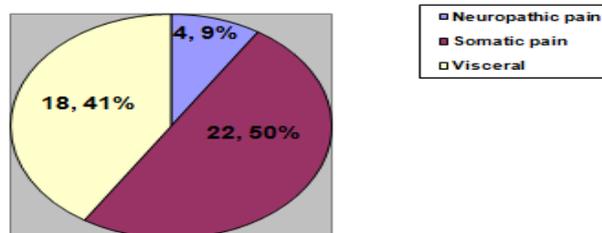
8) Impact on life from cancer pain 77% admitted that the pain had an impact in their daily life.



**Fig 10:** Patients with Impact on life from cancer pain

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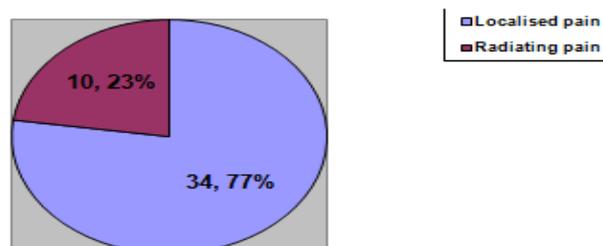
9) Spectrum of type of pain On assessing the type of pain, half of the patients had somatic type of pain followed by visceral pain (41%)



**Fig 11:** Type of pain

**Fig 11:** Type of pain

10) Localised pain v/s Radiating pain 77% cases had localized and 23 % showed radiation.



**Fig 12:** Localisation of pain

## **V. Discussion**

Pain is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage” (International Association for the Study of Pain, 1979). One of the most feared consequences of cancer is the possibility of severe and uncontrolled pain in patients with advanced cancer.(Portenoy RK,1999). Pain is consistently experienced as a moderate or severe symptom in cancer patients. Studies indicate patients with metastatic cancer frequently identify pain as a symptom (Teumissen, S 2007)

Cancer pain causes increased morbidity, reduced performance status, increased anxiety and depression, and diminished quality of life (QOL) (Caraceni A 1999 Portenoy RK 1990, 1990,1999 Potter J,2003).

### **Age And Gender Distribution**

In our study the highest number of head and neck cancer patients (31.6%, n=19) were in the 41 to 50 years age group (Fig 1). The median age was 50. Other study (A Bhattacharjee et al 2006) reported the commonest age group of sixth decade comprising of 348 cases (31.13%). Similar observations were reported in various literature (Manjari M 1996, S.Thakur 2001, Chaturvedi VN1987). The use of tobacco, lime, betel and smoking is a very common oral habit prevalent in this region which may be one of the prominent causes. Sanz Ortiz J (2008) found the mean age 62.6 years for women and 68.8% were men. There were 13 male and 7 female patients (M:F-2.7:1) (Fig 2). The male predominance is due to the fact that males are more in to the habit of smoking and tobacco chewing, and of their increased awareness and accessibility to health-care service. Similar findings were also reported where male cases were far more common than female comprising of 833 males to 285 females, (2.9:1) (A Bhattacharjee et al 2006).

### **Prevalence Of Pain As A Symptom**

In our study, 60 confirmed cases of head and neck cancer were treated in our department. On assessing the pain using the VAS, the prevalence of pain in our study was found to be 73.33%. (Fig 3). It is also reported in up to 85% of cases at diagnosis (Foley KM: 1985, Foley KM: 1987). Potter J 2003 in a recent study, identified pain in 56% of patients and Chaplin 1999 and Morton 1995 noted that 48% of patients with HNC had pain at diagnosis. Portenoy RK,(1999) and Foley KM (1985) reported that pain may be the first symptom in 20% to 50% of all cancer patients due to the malignancy, and oral pain may arise from HNC in up to 85% from metastatic disease in the head and neck or due to oral involvement in systemic cancers (e.g., leukemia).

This suggest that pain is a very common symptom in head and neck cancer and merits further evaluation in terms of its effect on quality of life, performance of the individual and proper pain management. HNC pain may arise due to tissue damage from multiple sources such as mucosal injury, invasion of the tumor into somatic tissue (skin, muscle, bone) with inflammation or ischemia, and nerve infiltration or compression (Woolf et al).

### **Spectrum Of Type Of Pain**

Pain is classified by mode of origin and transmission to aid in choosing a management plan for pain relief (International Association for the Study of Pain, 1979,5, Downing M 2006). Joel B Epstein et al., (2009), reported that the most common neuropathic pain descriptors chosen were aching (20%) and burning (27%); nociceptive words chosen were dull (22%), sore (32%), tender (35%), and throbbing (23%), and affective/evaluative descriptors were tiring (25%) and annoying (41%). 57% of patients reported continuous pain, and combined continuous and intermittent pain was reported by 79% of patients.

Nociceptive pain is due to the stimulation of nerve fibers that transmit signals in a normal way from nerve endings to brain centers. (Downing M 2007). Somatic pain originates from muscle, soft tissue or bone. It is usuallywell localized and described as deep, aching, or boring. It may be worse with movement. (Downing M 2006, Eddy, B 2007). Half of our cases had somatic pain which may be due to muscle/tissue damage from localized cancer, involvement of the cartilage and surrounding areas. (Fig11)

Visceral pain originates from internal organs or viscera surrounding them. It is usually less well localized, can be referred and often described as deep aching, cramping, or squeezing (Downing M 2006). 41% cases had visceral pain and is mostly present in esophageal cancer.

Neuropathic pain is the abnormal sustained stimulation of the nerve fibers that transmit signals from the nerve endings to brain center and/or from a dysfunction in the central nervous system. (Eddy,B 2007). Neuropathic pain is defined as pain initiated or caused by a primary lesion or dysfunction in the nervous system resulting in debilitating pain (IASP Task Force 1994). It can be dysesthetic pain, described as burning, electrical sensations or pins and needles and/or lancinating pain, described as stabbing, shooting, or hot poker (Eddy, B 2007). In a recent study, investigators found mixed nociceptive and neuropathic pain in 93% of those with pain (Potter J 2003)

Localised Pain V/S Radiating Pain

77% cases had localized and 23 % showed radiation. (Fig12). Although any HNC can have radiating pain, particularly growths of the base of tongue and PFS have radiating pain towards ipsilateral ear while tonsillar growths usually have throat pain. Esophageal growths also showed radiating pain towards anterior and posterior chest wall.

### **Impact On Life From Cancer Pain**

77% of our patients admitted that the pain had an impact in their daily life. (Fig 10). Cancer pain has characteristics of both chronic and acute pain. Like acute pain, cancer pain is directly associated with tissue damage. When cancer pain persists and worsens, it can serve as a sign of the progression of disease (Ahles TA,1983) and can create a sense of hopelessness because patients fear that their lives are not worth continuing or patients lose the meaning of living if they must live in pain ( Ferrell BR 1985). Research has demonstrated that despite the effective analgesic therapy and an array of treatment modalities currently available as a result of advances in the area of neuro-oncology (Foley KM,2000) there has not been a significant reduction in the prevalence of pain in patients with cancer (Vainio A,1996). Cancer pain has a significant impact on the overall quality of a cancer patient's life by influencing physical, psychological, and spiritual aspects (Ahmedzai S,1995)

### **Severity Of Pain (Vas) In Various Stage Of The Disease**

As 90.9% of Stage 3 and 83.33 % cases of Stage 4 have moderate to severe pain, it indicates that there is more pain as stage increases. (Fig 4). No to moderate pain is reported more in Stage 2 than in Stage 1. It may be due to deeper infiltration of the cancer into pain insensitive structure and better understanding of the disease from emotional aspect of the patient. Other studies also revealed that prevalence of moderate or severe pain increases in late stages of cancer (Teumissen, S 2007, Bajwa, ZH 2007)

### **Functional Effect With Respect To Site Of Hnc**

The commonest HNCA reported in this region was oropharyngeal carcinoma comprising of 320 cases (28.62%) followed by oesophageal and oral cavity cancers comprising of 217 cases (19.41%) and 182 cases (16.28%) respectively. (A.Bhattacharjee et al., 2006). Head and neck and oral pain management is particularly challenging due to the rich innervation of the orofacial region and because oral intake, swallowing, speech and other motor functions of the head and neck and oropharynx are constant pain triggers. The oral microbial flora may cause secondary infection with attendant pain and morbidity. In our study laryngopharyngeal cancers (60%) reported with more symptoms as this is a common pathway for both food and airway. Involvement of PFS not only gives dysphagia but also involves larynx causing hoarseness and respiratory distress, overall increasing the symptoms. Similarly, we found laryngopharyngeal malignancy (65%) also having higher functional morbidities indicating multiple functional problems accompanying cancers of this site.

## **VI. Conclusion**

Our study is the first study to assess the condition of pain in patients with head and neck cancer in this region of southern Assam. The study shows that, the prevalence of pain in head and neck cancers is significantly high at 73.33%. Majority of head and neck cancer cases with cancer are in the age group 41-50 years with males outnumbering females. Most of our cases had somatic localized pain at diagnosis. While conducting the pain assessment in such group of patients, it is seen that VAS is a reliable tool for categorizing pain into mild moderate and severe having statistically significant relation ship with stage of disease. We found higher scores of VAS in late stages of disease. It also revealed that oropharyngeal cancer patients had the least symptoms and hypopharyngeal the highest with poorest functional status. Given the high incidence of pain in cancer and that 77% cases in our study had the impact on life, proper assessment and control of pain is therefore very important. Therefore the use of these scores in the evaluation of pain symptomatology of HNC patients gives us a clearer understanding about the effect of site and stage of disease and its severity on the routine life of HNC patients. This knowledge is important to formulate and initiate comprehensive pain and palliative management in HNC patients.

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