

Recurrence Patterns of Head and Neck Cancer at a Tertiary Care Center in Karachi, Pakistan

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ABSTRACT: BACKGROUND: Pakistan is in the high risk zone for Head and Neck cancers (HNC) with an age standardized incidence rate of 37.1/100,000 in males and 21.7/100,000 in females. These cases are managed by a multi-disciplinary team and subjected to a thorough follow-up schedule. This follow up may not be feasible for most patients and may even be doing more harm than good as the financial burden may eventually force patients to discontinue follow up. Keeping this in mind, we concluded that specific follow up programs need to be designed to cater to the Pakistani population. In order to aid the development of further guidelines in this regard, we conducted a retrospective audit of Head and Neck Cancer (HNC) patients to determine the trends of recurrent disease in our population. **SUBJECTS METHODS:** A retrospective review of patient charts was carried out in November 2010 for patients, diagnosed with HNC at our institution between Jan 2006 and June 2008. Total 288 patients identified were included in the study. The data was recorded in a predesigned questionnaire. All case notes, records and investigations were reviewed for possible associations. **RESULTS:** Of the total of 288 cases, 210(72.91%) were primary oral cavity tumors followed by 55(19.09%) laryngeal, 12(4.16%) hypopharyngeal, 6(2.08%) oropharyngeal, and 5(1.73%) unknown primaries. Recurrence occurred in 111(38.54%) of the cases. The median time period for recurrence was 236 (range: 45 - 2803) days, in 73(65.8%) recurrence was identified by the patient. **CONCLUSION:** Keeping these factors in mind, in our opinion high frequency follow up must be reserved for the first year during which patient education should encompass self-examination and the signs of recurrence. After this period of high frequency follow up the clinical schedule can be relaxed.

Key Words: Head and neck cancer, recurrence, Followup.

INTRODUCTION : According to the Karachi Cancer Registry, Head and Neck cancers account for nearly 21% of cancers in males and 11% in females of the city; with age standardized incidence rate of 37.1/100,000 and 21.7/100,000 respectively¹. These figures, putting the region in the high risk zone, may be attributable to cultural practices of using betel nut, paan, and tobacco related products. These cases are managed by a multi-disciplinary team in accordance with international guidelines and subjected to a thorough follow-up schedule. Haas et. al, justified this rigorous follow up schedule on the belief that this would in turn lead to the evaluation of treatment efficacy; early identification of recurrences; monitoring complications; and patient welfare and support². Different strategies for following patients with treated head and neck cancer have also been proposed involving regular radiographs and investigations³. This vigilant follow up schedule although prudent in effect of catching recurrences and residual disease, heavily taxes the limited pool of head and neck surgeons in the state, leading to a negative impact on quality of care and consultations. Further with a fee for service medical system dominating nearly 75% of the health care industry and over half of the population living on less than 2 US Dollars a day; this follow up may not be feasible for most patients. It may even be doing more harm than good as the financial burden may eventually force a large percentage of patients to discontinue follow up. Keeping this dilemma in mind we concluded that specific follow up programs need to be designed to cater to the Pakistani

population. In order to aid the development of further guidelines in this regard we conducted a retrospective audit of head and neck cancer patients at our center to determine the trends associated with recurrent disease in our population.

SUBJECT AND METHODS : A retrospective review of patient charts was carried out in November 2010 for head and neck cancer patients diagnosed and treated at our institution between January 2006 and June 2008. Total 288 patients identified in our International Statistical Classification were included in the study. The data was recorded in a predesigned questionnaire with special emphasis on recurrences and residual disease. All case notes, records and investigations were reviewed for possible associations. The data was analyzed using Statistical Package for Social Sciences version 17 (SPSS17.0). Mean and standard deviation for continuous variables was computed and a student t-test was used to confirm significance of the results. Proportion & percentages were computed for categorical variables and a chi square test of significance was applied. A p-value of <0.05 was taken to be statistically significant. **RESULTS :** Of the total of 288 cases, 210 (72.91%) were primary oral cavity tumors followed by 55 (19.09%) laryngeal, 12 (4.16%) hypopharyngeal, 6 (2.08%) oropharyngeal, and 5 (1.73%) unknown primaries. Pre-operative biopsy results of 215 patients were available out of which 128 (59.53%) were moderately differentiated, 70 (32.55%) well differentiated and 17 (7.90%) were poorly differentiated tumors. Of the 288 patients 132

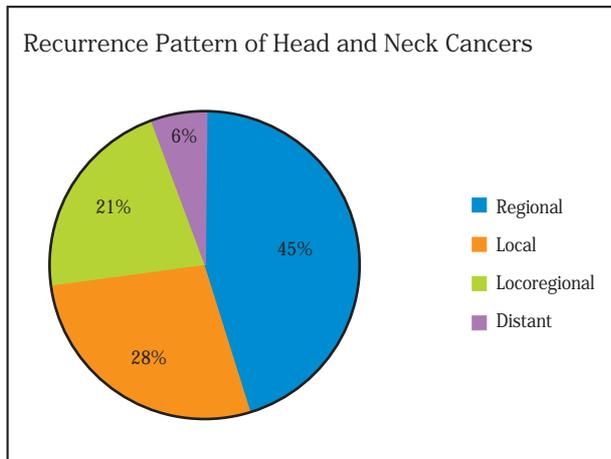


Figure 1: Distribution of the 111 recurrences in our sample.

(45.83%) underwent surgery whereas 156 (54.16%) underwent both surgery and radiation as the primary treatment modality. Postoperative tumor grade was found to be well differentiated in 80 (29.73%), moderately differentiated in 168 (62.45%) and poorly differentiated in 21 (7.80%) cases. Recurrence occurred in 111 (38.54%) of the cases. Regional metastasis was seen as the most common pattern of recurrence occurring in 50 (45.04%) of the 111 cases. Local recurrence occurred in 31 (27.92%) with loco-regional and distant metastasis occurring in 23 (20.72%) and 7 (6.30%) cases respectively. Figure 1 shows the distribution of recurrences in our sample. The median time period for recurrence to occur was found to be 236 (range: 45 - 2803) days. Of interest to note was that in cases of recurrence, 73 (65.8%) were identified by the patient themselves. Of the 111 patients who developed recurrence, the recurrence was associated with bone involvement (15, p-value=0.124, CI=0.254-1.188), muscle involvement (15, p-value=0.477, CI=0.374-1.586), vessel involvement (7, p-value=0.61, CI=0.31-2.00), skin involvement (11, p-value=0.00, CI=0.007-0.406), extracapsular spread (5, p-value=0.995, CI=0.321-3.149), and perineural invasion (4, p-value=0.72, CI=0.40-6.60). However other than skin involvement there were no statistically significant associations noted with recurrence. The highest degree of recurrence was noted in oropharyngeal tumors where 66.67% (n=4/6, 1 local, 2 regional and 1 locoregional) recurrences were noted this was followed by 40.95% (n=86/210, 24 local, 39 regional, 6 distant and 1 locoregional) in tumors of the oral cavity, 40% (n=2/5, 2 regional) in unknown primaries, 30.90% (n=17/55, 6 local, 5 regional, 1 distant and 5 locoregional) in laryngeal tumors and 16.67% (n=2/12, 2 regional) in hypopharyngeal tumors. Of the 132 patients who underwent surgery as the treatment modality 51 (38.63%) developed recurrence, similar rates were seen in those undergoing both surgery and radiation 60/156 (38.46%). Chi-square test applied showed no statistical significance between the primary treatment modality and recurrence (p-value=0.976, CI=0.626-1.622). Figure 2 shows the 5-year survival curve for this.

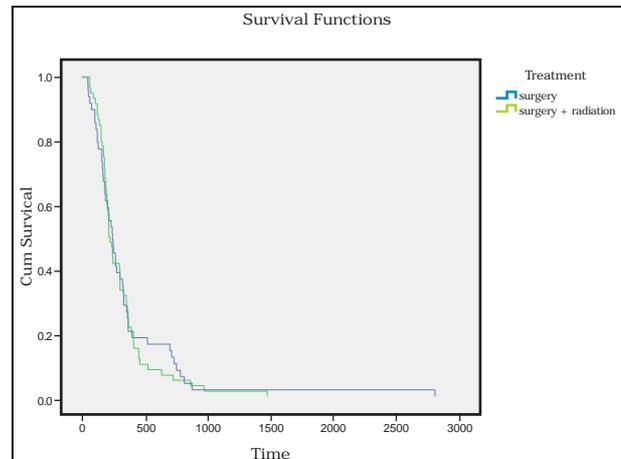


Figure 2: 5-year survival curve for patients undergoing surgery and those undergoing surgery with concomitant radiation.

DISCUSSION : According to the National Economic survey of Pakistan, 2005-2006 there is one registered medical practitioner for every 1,310 individuals⁴. Further the Pakistan Medical Association in its annual report for the same year reported that there is one registered medical practitioner for every 1,900 individuals and one specialist for every 14,500 individuals⁵, however head and neck surgeons are a rarity. A significant portion of these surgeons also work in private care settings, out of reach from a majority of the population, adding a significant load on those in public care settings. The public health care delivered through 4,554 dispensaries, 5290 basic health units, 907 maternal and child health centers, 552 rural health centers and 946 hospitals in the country⁴, is inadequately equipped to meet the needs of head and neck cancer patients. Despite these limitations most teams in Pakistan follow patients vigilantly with clinical follow ups every 4 weeks for the 1st year, and every 8 weeks in the 2nd year, when reported recurrence rates are high⁶. After which the frequency is reduced to every 16 weeks in the 3rd year and 6 monthly beyond that. We feel that this practice is heavily taxing the limited pool of head and neck surgeons in the state, leading to a negative impact on quality of care and consultations. While taxing the health care system; this follow up schedule may not be financially feasible for most patients using private health care services and may eventually force a large percentage of patients to discontinue follow up. Many studies have been conducted with regard to follow up of such patients; however their outcome is measured in terms of survival rates, rather than looking at the holistic picture of patient comfort, cost effectiveness and rationale. The general structure of follow-up reported in literature for head and neck cancer patients is high frequency visits in the first 2 years, when reported recurrence rates are high⁶, after which the number of visits are reduced with follow up finishing between a period of 3-5 years. However no specific guidelines exist and these arbitrary schedules usually reflect individual institutional or clinician preferences and there is little evidence to support any

system⁷. A recent survey on follow up patterns of head and neck surgeons in England showed that 33% followed patients for 3 years, 56% followed up patients for 5 years, 13% for 10 years and 22% for life. When questioned about the primary rationale behind these follow up patterns 32% quoted the detection of recurrence and secondary primaries; 23% claimed it as 'accepted practice' and British Association of Otolaryngology - Head and Neck Surgery guidelines; 12% preferred not to respond and 4% believed that a 5-year disease free survival was equated with cure⁸. When looking at our sample we noticed a recurrence rate of about 38%, indicating that a stringent follow up schedule may be required. However the median time period for recurrence in our sample was found to be 236 days indicating that a majority of recurrences could be detected within one year of follow up. Also of interest to note was that in these cases most of the time (65.8%) the recurrence was identified by the patient themselves and then subsequently brought to the attention of the surgeon. This finding suggests that self-examination techniques can be of some importance in this regard. By propagating self-examination practices in patients for detecting recurrences we may be able to safely increase the interval between follow up visits. Our data suggests that a major portion of recurrences were within the loco-regional limits hence especially with especial regard to oral cavity these areas can be easily examined by the patient himself allowing adequate spacing between clinical visits and examination. Recently some authors have suggested having regular nursing follow-ups intermixed with surgical follow-ups^{9,10}, this strategy may prove efficacious in the long however no concrete data is available to allow translation of these suggestions into everyday clinical practice. Another issue

with this suggestion is the limited number of qualified nurses in Pakistan, and the need for further training required to identify recurrences.

CONCLUSION : Keeping these factors in mind, in our opinion high frequency follow up must be reserved for the first year during which patient education should encompass the practice and propagation of self-examination and the signs of recurrence. After this period of high frequency follow up the clinical schedule can be relaxed with adequate spacing between visits on a case to case basis.

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