

EDITORIAL

ESOPHAGEAL CANCER IN PAKISTAN - IS IT REALLY EXTENSION OF ASIAN CANCER BELT?

Esophageal cancer ranks as the 6th most frequent cancer world over with 412,000 new cases every year¹. Esophagus, a muscular tube beginning at the crico-pharyngeus traversing through the neck and mediastinum to take the food to the stomach, has cancer occurring in the middle and lower third with cervical esophagus an uncommon site. Most common symptom is progressive dysphagia accompanied by chest pain, burning and frequent choking on food resulting in weight loss. Esophagus has such pliability that dysphagia does not occur until the lumen is obstructed by about 75% which results in advanced stage at presentation and a high mortality. Hoarseness or Horner's syndrome implies inoperable cases while cervical or supra-clavicular lymphadenopathy is an indication of distant spread².

More than 90% of esophageal cancers are squamous cell carcinomas (SCC) or adenocarcinoma while other types such as melanomas, lymphomas, stromal tumors and neuro-endocrine tumors are rare. Presentation of SCC or adenocarcinoma are similar but epidemiology, etiology, tumor biology, treatment strategies and prognosis are different. In short, they are two different diseases that occur in the same organ³.

The SCC are associated with head and neck cancer, smoking, alcohol, liver dysfunction, Human Papilloma virus (HPV), porphyria, Plummer Vinson Syndrome, tylosis palmaris and lye ingestion. They mostly occur in the mid-esophagus, 75% at tracheal bifurcation with linear growth pattern and wider nodal spread³. On the other hand, adenocarcinoma is associated with Barrett's esophagus, gastro-esophageal reflux, hiatus hernia, obesity and family history. Mostly they occur in the subcarinal region in the distal one third having radial growth early local nodal metastasis⁴.

Cancer of the esophagus shows marked geographic variability with highest incidence measured in China, Caspian littoral of Iran,

South Africa and France. The esophageal "Asian cancer belt" stretches eastwards from Iran through Turkmenistan, Northern Afghanistan, Uzbekistan, Kazakhstan into Northern China and Mongolia with annual age-standardized incidence rate (ASIR) as high as 100 new cases per 100,000 population and SCC as the most common subtype (Figure). Although no proven precursors or causative factors have been identified but many factors have been implicated^{1,5}.

In China, Linzhou City has one of the highest incidences of oesophageal cancer in China, and in the world. A strong association was found between socio-economic status and the risk of oesophageal cancer. Increased income, residential space and education were all significantly associated with a decreased risk. Using a drinking water source other than tap water was significantly associated with an increased risk. The consumption of beans, vegetables and vinegar all showed a protective effect. Preferences for a high salt diet is associated with an increased risk⁶.

In Iran the incidence of the disease is highest, and according to one survey by the Iran Cancer Institute, 9% of all cancers and 27% of gastrointestinal cancers were esophageal carcinoma. The factors thought to be responsible for this disease in the Caspian Littoral of Iran are, opium addiction, low socioeconomic status, and thermal irritation by the use of very hot tea⁷. It is said that in the high risk areas of Iran 62% of the people take tea between 61-700 C compared to 19% in low risk areas. Not only the tea is drunk very hot but excessive amount of tea is also used. In high risk areas of Iran, 40% of the subjects drink >11 very hot cup of tea in one sitting, 3-4 times per day. It is said that this long lasting and spontaneous thermal irritation is likely to damage the esophagus and also may facilitate a carcinogenic agent through the esophageal mucosa⁸.

In Pakistan cases have been reported from the southern part of Pakistan but bulk of the patients are from the northern part. Karachi, a

metropolitan city of Pakistan along the coast of Arabian Sea, has ASIR in Karachi South for males as 6.5/100,000 in 1995-1997, 6.4/100,000 and 1998-2002 while the observed rates for females were 7.0/100,000 in 1995-1997 and 8.6/100,000 in 1998-2002⁹. A large number of people from Northern Pakistan and Baluchistan have settled in Karachi for education, jobs and business purposes. All forms of tobacco, areca nut, infrequent consumption of raw fruits and vegetables and diet deficiencies, smoking, pan chewing, naswar eating and sunff inhalation have been identified as high risk factors in patients which shows some peculiar habits of locals from the Northern Pakistan as well apart from pan chewing habit specific to this region^{10, 11}.

The incidence of esophageal cancer in Karachi is identical to medium incidence regions like neighbouring India which implies that the cultural and lifestyle characteristics are retained by the migrant Mohajirs contributing to the disease. Bidi, smoking, pan chewing, tobacco chewing and alcohol have been mentioned as major risk factors in Indian studies¹².

Quetta, the provincial capital of Balochistan which shares a vast border with Iran apart from cultural and traditional similarities, has one of the highest rates of esophageal cancer in Pakistan. A hospital based tumor registry data showed esophageal cancer as the 3rd most common cancer, 11% of all the new cancer cases in both genders and 65 new cases per annum¹³. In Quetta, cancer esophagus has age-standardized incidence rate (ASIR) of 25.5/100,000 population in males and 23.4/100,000 population in females. Pan chewing is not prevalent in Quetta but the tradition of drinking hot salted tea (khawa) and exposure to dietary amines and nitrates have been recorded as risk factor in this region supported by studies in Kashmir as well. Meat cooked in animal fat, dried salt pickled meat, or barbecue or meat cooked over charcoal are staple diet of residents from this region and blamed for high prevalence of esophageal cancer. Frequent addictive habits of oral and nasal use of tobacco/ naswar and consumption of opium residues are additional factors contributory in this population¹⁴. The region extending from Quetta to Dera Ismail Khan and

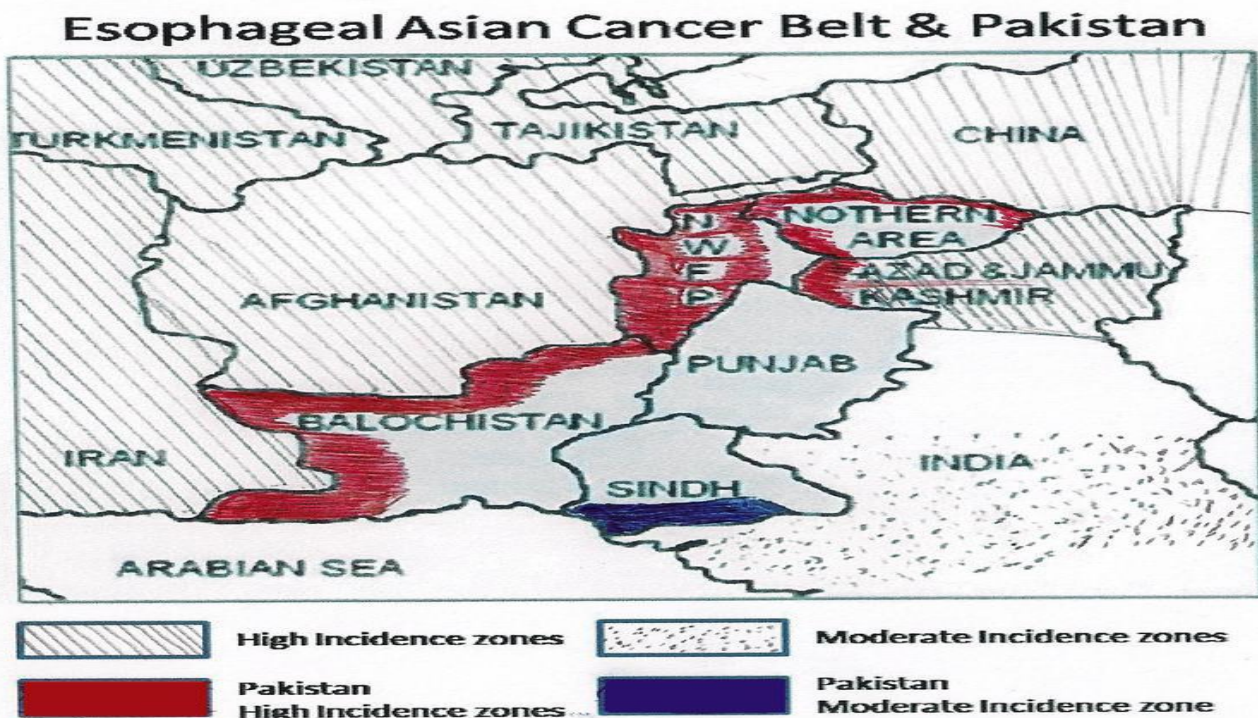


Figure: Showing Asian Esophageal cancer belt and areas of Pakistan which are possibly extension of Asian esophageal Cancer Belt.

the further to Khyber Pakhtoonkhawa (former NWFP) province also share the same etiological factors and have the high incidence as compared to other areas of Pakistan¹⁵⁻¹⁸. In some other observations Pushto speaking population of NWFP and Baluchistan was found to be more frequently affected than other ethnic groups¹⁸⁻²⁰. Similarly in a personal communication it was narrated that carcinoma esophagus was found to be quite frequently diagnosed on the esophageal biopsies and was forming a significant proportion of cases in the Pathology based analysis at Khyber Pakhtoonkhawa²¹.

To summarise, cancer incidence in Quetta adjoining areas of NWFP (now Khyber Pakhtoonkhawa), which share a vast border with Iran and Afghanistan and China is comparable to high incidence regions. It may be representing the questionable extension of Asian Cancer belt. Whereas Karachi in Southern Pakistan is close to moderate incidence region zones. These facts augment the hypotheses that in actual with common cultural, traditional and eating habits, such high incidence of esophageal cancer in our North East and Southern Pakistan are extension of the "Asian Cancer Belt" of esophageal cancer (Figure), which require further extensive population based studies in this region to confirm it. This alarming incidence of esophageal cancer warrants proactive approach for early diagnosis and preventive life style modification programmes to decrease the incidence in the target population.

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