

Oral submucous fibrosis – An Alarming Increasing Youth Morbidity

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Oral Submucous fibrosis (OSF) is an exceedingly common condition observed in the South East Asia but now is labelled as an 'Indian Disease' [1]. It is one of the 'Potentially malignant Disorders' and has a high risk of progression to oral squamous cell carcinoma (OSCC). World Health Organisation, in its official publication has documented that, based on a 5 year survival rate, the mortality from OSCC has increased from an average of 67% to 80% [2].

With this significant crucial background of OSF condition, it is a disgraceful fact, that in the era of advanced molecular diagnostics and genetic therapies we are not able to stop increasing incidences of OSF. Over 5 million cases were reported in 2002 and the figures are still on the rise [3]. There are a plethora of advanced research studies being documented on gene expression, antioxidant status, biochemical estimations, etc contributing to the literature load day by day. In spite of all these evidence based research with well conceptualised data, there is a negligible public awareness.

OSF is exclusively caused by *Areca nut* (Betel nut) [4-5]. *Areca nut* contains water and ethanol soluble compounds. The alkaloids are arecoline, arcaidine, guvacine, guvacidine arecolinidine etc. The most predominant polyphenols are catechin, flavonoids, tannin, leucocyanidins etc. *Areca* also contains trace elements like copper, bromide, vanadium manganese chlorine and calcium [4]. Arecoline alkaloids initiates major cross linking changes in the collagen, altering its structure to such extent that it becomes resistant to degradation. Tannins also increase this resistance of collagen to collagenase enzyme. It is also said

that the fibroblast phenotype itself is altered [6]. 'Colligin' is a stress protein which has also been documented to increase fibrosis in 70% of patients in a study [5-6].

Betel Nut /Areca nut has been classified as Group I carcinogen by the International Agency for cancer Research (IARC) Monograph. It induces serious precancerous conditions not only like OSF but also oral lesions with malignant potential like leukoplakia, pouch keratosis, erythroplakia etc. Betel nut chewers are also prone to benign and malignant diseases other than these oral conditions. OSF of oropharynx, Carcinoma of oesophagus, hepatocellular carcinoma, hepatitis and malnutrition due to the trismus are few conditions which can be precipitated [7].

Oral leukoplakia and OSF are clinically distinct premalignant states that precede SCC. Oral leukoplakia is a white patch which may be macular, plaque like, erosive or verrucous lesion with homogenous or speckled white appearance. Erythroplakia is the reddish counterpart with higher malignant potential. In initial stages mild form of OSF manifests as blanching of the involved part of oral mucosa with progressive stiffness and marble like appearance. The texture of mucosa becomes leathery with consequent loss of pliability of mucosa. Palpable, whitish fibrous bands appear on the cheeks. In advanced OSF, the fibrosis leads to the impairment in mouth opening and severe trismus. It reduces from the normal 4cm to 1cm or less causing extreme speech and swallowing difficulties.

Histopathologically it is characterized by epithelial atrophy which is secondary to the fibroelastic change in the connective tissue. Abundance of collagen and its hyalinisation is seen. Decrease in the number of fibroblasts, narrowing of blood vessels with perivascular cuffing by collagen fibres is seen preceded by muscle degeneration [8]. Various treatment modalities for OSF have been tried in combinations. These include intralesional steroid injections, topical applications, palliative antioxidants and surgical treatment followed by physiotherapy. Recovery is never 100 percent and the patient lives with persistent life long risk of malignant potential [9].

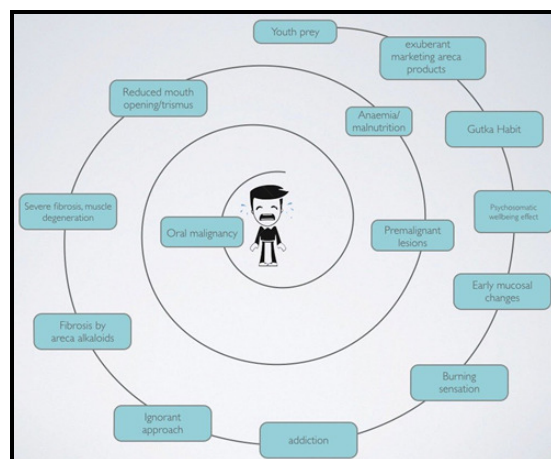
The current management protocols regarding prevention of this major threat to public health needs to be seriously changed and cautiously advocated. WHO has proposed systematic Action Plan in the form of Prevention Platform for control of betel nut and tobacco use. The strategic planning include systematic formulation of Legislation and policies, Governance and local enforcement, Public awareness programmes, Surveillance & knowledge management etc. A definitive awareness approach towards risk of betel nut chewing in general population should be done as it has been effectively implemented for tobacco. The social determinants, Risk factors, Intermediate conditions and End disease for each strategy against areca has been drafted by different world agencies but needs methodical advocacy [10].

The most saddening fact is that the young generation is the main victim of the extreme marketing and lucrative advertising by the *Gutkha* or *Pan masala* companies. The basic component of Gutkha is betel nut and this is becoming a commodity providing significant economic scope and growth to small scale industries in this sector which has inadvertently developed resistance to awareness against the gutka use. Betel nut is already having traditional importance with strong cultural beliefs in some of the Asian countries. This *socially accepted drug*

should be banned for production and consumption keeping in view the tremendous hazardous effects [11]. The habit is becoming increasingly prevalent thereby rising the incidence of OSF and consequently oral squamous cell carcinoma. This morbid habit amongst youngsters should alarmingly stop as cases as young as 4 year child with OSF have been reported which is a grave situation [12].

OSF is a serious Indian disease with a obvious preventable cause. As the world becomes more culturally and ethnically interconnected, this should not be considered as an Asian problem as it is no longer confined to Asia. The utmost need of the hour is effective planning and execution of health communications by inducting strong Government policy regards awareness, else this bash on medical health profession will continue to persist and mortify the future generation. Community-based strategies are also needed to overcome cultural beliefs and practices that are barriers to sound public health measures that can save lives and prevent unnecessary suffering from oral cancer and other diseases.

Figure-1: The “OSF Youth Morbidity spiral” depicting the young generation falling prey to advertising of betel nut products and addiction subsequently leading to a *never coming back situation* of Oral cancer.



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