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50 Years of Indian Orthodontics: A Status Update

Review Article

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Abstract

Indians had very little concern for their orthodontic problems in the past. Continuous efforts of the Indian Orthodontic Society had grown the Orthodontic specialty 50 years old. At this point of time, Orthodontics in India is abreast with the latest instruments, appliances and techniques followed globally. Indian orthodontists have mastered the art and science of the branch and are well qualified and confident to treat the prevailing malocclusion. This review article aims to present the current status of different aspects of orthodontic specialty in India.

Keywords: Orthodontics in India; Continuous Efforts; Current Status.

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Introduction

India is distinguished as a triangular peninsula on the planet, surrounded by the Bay of Bengal, the Arabian Sea and the Indian Ocean on the east, west and south respectively. The great Himalayan range looks like a crown on the northern part of the Indian subcontinent and separates it from the rest of Asia. Stretching to about 2000 miles from its northern to southern tip, it forms a collage of 29 states and is inhabited by 1.21 billion people.

Brief History of Medicine and Dentistry in India

Ancient Indians had great knowledge of medicine and surgery. The secret of Indian medicine is believed to be preached to his disciple by god Brahma, creator of the universe. Traditional Indian medicine, the Ayurveda, originated as an oral tradition and later as medical texts, and is grounded in Vedic scriptures.

Charaka Samhita and Sushruta Samhita are the principle Ayurvedic texts on medicine and surgery respectively. The branch of Ayurveda dealing with the diseases of head and neck region is known as Shalakya Tantra, and it includes mukhrog (diseases of oral cavity) and dantarog (diseases of teeth). The basic philosophy of Ayurveda is that our body is made up of three elements kapha (water and earth), pitta (fire and water) and vata (ether and air). Imbalance (dosha) in any of these elements will lead to a diseased state [1].

Sushruta classified various diseases of teeth in his text and 'irregular teeth' was termed as 'KaralaDanta'. Irregular teeth were considered incurable during that period. He stated that bones are natural adobe of vata (air) and in every disease of bones and teeth; there is an imbalance (dosha) in vata [2]. It was considered that vitated vata (swelling) in the region of teeth, gradually deform them making their appearance ugly and ultimately leading to malalignment. Charaka, in his text, Charaka Samhita, proposed that chewing 2-4 grams of black seasame seeds daily in the morning, eating sugarcane, consuming meat and other course food would maintain the tooth in their proper condition and these were considered as tooth tonic [3]. This dietary prescription has some resemblance to the concept of attritional occlusion and consumption of course food by Australian aborigines.

It is well documented in literature that Dentistry originated in the Indus Valley, which was in the north-western part of primitive India and at that time tooth related disorders were treated with

bow drills. However, it was not until the early 20th century that the formal dental education started in India. Dr. Raifuddin Ahmed, also known as the 'Father of Indian Dentistry' had played a major role in providing dental education to the people in India.

It was only in 1935 that orthodontics took its first step in India by the efforts of Dr. H.D. Merchant, also known as the 'Father of Indian Orthodontics'. Since then Indian Orthodontics has made many advancements in the field of dentistry.

Reason for Orthodontic Concern in India

In India orthodontic treatment is an important health care need. A wide variation in the prevalence of malocclusion has been reported in different parts of the country, varying from as low as 19.6% in Madras to 90% in Delhi [4]. The prevalence of malocclusion also varies in the rural and urban areas and this difference in the severity of malocclusion can be attributed to the difference in population homogenicity and the consistency of food [5-7].

Malocclusion is one of the most common dental diseases in children and young adults. Various congenital and developmental dental anomalies like defect in the shape and size, anomalies in number and positional eruption, problems of skeletal development and maturation, adverse oral habits and trauma may contribute to the development of malocclusion.

Research [8] has shown that physically attractive people achieve higher levels of success in many aspects of life than unattractive people. Malocclusion has a negative impact on the Oral Health Related Quality of Life [9-11]. Individuals with malocclusion usually feel ashamed of their facial appearance and often feel shy in society. School going children are often bullied by their peers and friends resulting in reduced self-confidence and impaired psychosocial development. Malocclusion also affects the periodontal health, may contribute to the development of dental caries and may predispose to the development of temporomandibular joint problems.

With the improved knowledge and better understanding of the cause and effect of malocclusion, it can be ascertained that malocclusion can be prevented, intercepted as well as treated. Thus it is very important to increase awareness regarding the various orthodontic treatment options among the children, parents, teachers and the medical fraternity.

Orthodontic Awareness in Indian Scenario at Present

Treatment demand is greatly influenced by the awareness and realization of the problem. Knowledge about the cause of the oral problems, its prevention and possible treatment options is still very among Indian population. More than half [12] of the Indian population resides in the rural areas. These are the people who are most deprived of the benefits of orthodontic treatment mostly because of the literacy rate, socioeconomic status, inadequacy of resources in their area, ignorance of patients and parents and also because of the curbed awareness about the problem [13].

Pandey et al, [14] and Kaur [15] conducted a study to find the level of dental awareness among the children, parents in India. These studies have revealed poor level of dental awareness among parents of preschool children, school children exhibited a moderate level of awareness about dentist but less awareness about orthodontic treatment, urban children were having more knowledge than rural counterparts. It is also seen that medical students are also largely unaware of Orthodontics as a specialty.

Majority of patients seeking orthodontic treatment in India are females, but the major reason behind their visit is not self-perceived awareness of the problem rather it is because of many broken or refused marriage proposals.

If we as an Orthodontist wish to sustain our specialty and pass on the benefits of our treatment to the society, we will have to take the responsibility of increasing Orthodontic awareness among the general population, teachers as well as medical students and practitioners. Awareness among teachers and medical practitioners is important because they see the children more often than general dentists and thus will play an important role in guiding the patients for orthodontic procedures. Teachers have an integral role in the foundation years of a child's education and proper awareness of orthodontic problems and its treatment can prevent bullying in school.

Only increasing awareness about the orthodontic problems and treatment possibilities will not solve the problem. It is imperative to overcome the obstacles in the path of orthodontic treatment, especially the myths prevailing in the society.

Obstacles in the Path of Orthodontic Treatemnt in India

Most common obstacle paralyzing Indian mentality is the prevailing myths in the society. Myths like eating tobacco prevents caries, dental diseases can be cured by medicine alone, oral prophylaxis causes loosening of teeth and makes them weak, tooth extraction leads to loss of vision and mental retardation. Patients are so anxious and stubborn that they refuse extraction of even the root stumps; in such a situation convincing the patient and parent for extraction of his/her firm tooth for Orthodontic alignment is the most challenging job for an Orthodontist.

Other reasons [13, 16, 17] for not seeking treatment include lack of knowledge about Orthodontic treatment; treatment is not possible, malocclusion is not life threatening, fear of pain and tooth extraction, expensive and long duration of treatment, unavailability of parents for regular follow up, dental anxiety, past negative dental experience, lack of resources in the area.

Status of Orthodontic Workforce in India

Biggest challenge in a developing country like India is to render oral health care needs to all the people in the rural and urban areas. Primary health care services in India include dental care services but the quality and access to dental care is not the same among various sub-groups of Indian population.

A major reason for such a disparity is that most of the private dental clinics and dental colleges are located within the limits of the city and the grass root level health workers and doctors posted at the public health centers in the rural areas do not have adequate knowledge about prevention and treatment of orthodontic problems. Adding to this misery, report by Sandesh and Mohapatra

[18] suggest that there are about more than one million unqualified dental health care providers or 'quacks' in India. People from the low income group easily fall prey of such practitioners, as they claim to provide quick treatment at much lesser cost. They are also responsible for spreading various myths in the Indian society.

Approximately 380 graduates become Orthodontist each year in India [19] and an unknown number is added from the East- European countries. Despite this number there are no specialized orthodontic clinics in the rural areas. The biggest irony in India is that the government jobs for dental services are scarce and are obtained by people with greatest connections rather than superlative credentials. Orthodontists graduating from government colleges wish to earn more in congruence with the effort and time consumed during their study and those graduating from private dental colleges pay an enormous amount of money for their course and do not receive any stipend during that period. So in order to salvage their investment they opt for setting their clinics in urban areas.

Present State of Orthodontic Education in India

Master of dental surgery (M.D.S) in Orthodontics and dentofacial orthopedics in India is a three year postgraduate course with training in both theoretical and clinical domain. Enrollment for MDS in India does not require any pre-postgraduate training as general dental practitioner.

For the fulfillment of the course, a student has to complete his pre-clinical training and along with the clinical cases, one has to complete a library dissertation and undertake a research investigation. Presently gene isolation, gene therapy, stem cell research [20] plus research on orthodontic materials and latest diagnostic aids have replaced clinical cephalometric research.

Incongruity in the private and government colleges in terms of variety of patient load and latest equipment's is a matter of concern for Orthodontic education in India. Interdisciplinary treatment protocol is not well developed and requires consideration.

Above mentioned requirements makes Orthodontic residency highly challenging and require physical, mental and psychological robustness. Completion of clinical cases along with the preclinical work, library dissertation and research within the prescribed three year period often challenges the physical and psychological resilience of a student and may even make them susceptible to physical and mental illness, ultimately degrading academic performance and suboptimal level of patient care.

In addition to the work pressure within the stipulated time period, studies by Madhan et al, [21, 22] other three highly stressful factors faced by an orthodontic postgraduate student include limitation of financial resources, dependencies on alcohol or drugs and politics and psychological games played by the faculty. Overall result of their study reflects a suboptimal level of mental health among Indian postgraduate orthodontics students.

Patient management and communication skill also forms an inseparable part of a postgraduate program. Patient-centered care is favored worldwide by specialist dental practice and adoption of this concept is increasing rapidly. Reports [23] show that the attitude of postgraduate orthodontic students in India is more doctor-centered and the patient-centeredness of the students increased as they progressed through their postgraduate course. Thus there is a need to reinforce patient-centered care in orthodontic health care in India.

Contribution by the Indian Orthodontic Society (IOS)

The Indian orthodontic society has played a major role in providing awareness among the orthodontic graduates and preparing them to face the world of orthodontics with confidence and ease. Annually organized conferences and convention are a major source of knowledge being funneled down to the root level of orthodontic education in India.

Specialist certification for orthodontists in India is provided by The Indian Board of Orthodontics [24] whose establishment was formally proposed at the 24th Annual General Meeting of the Indian Orthodontic Society at Trivandrum in 1989. This was a pioneering move in Indian Dentistry and is the first Specialty Board to be so constituted. Although board certification is not compulsory in India but its intent is to elevate the standard of orthodontic treatment and to stimulate self-improvement and attainment of excellence.

Orthodontic member's directory is a major step by the society to bring together all orthodontists in India. Insurance plan for the life members is a great step towards a peaceful professional mind. IOS website has FAQ's for the guests and a lot of information about orthodontics as a specialty. An awareness promoting video has also been uploaded for commercialization.

Orthodontic Market in India

Indian orthodontic manufacturing is very primitive and the profession relies heavily on imports. About 90% of India's annual requirement of dental equipment's, instruments and materials demand is met mainly by imports primarily from Germany, USA, Italy, Japan and recently from China. India's market for dental products is extremely dynamic, with a current estimated growth rate of between 25 to 30% [25].

Future Initiatives

Co-ordination of services and sound referral mechanisms by teachers, medical faculty and students will increase awareness and better allocation of treatment. Dental insurance sector in India is at a nascent stage. New dental insurance plans will allow people from every strata of life avail dental and orthodontic treatment at a reasonable cost.

Every age group should be targeted for orthodontic education where adequate preventive and interceptive treatment can be provided before it results in severe malocclusion. The reason for common dental malocclusion such as habits, caries etc should be communicated to the patient through advertisement and patient education program so that malocclusion can be prevented at an early age.

Conclusion

The Indian Orthodontic Society will be celebrating its 50th year in Hyderabad in 2015. In these 50 years, renowned orthodontists

have illuminated our path with their knowledge and expertise. It is time now to take necessary steps and formulate plans to spread the knowledge, unleash our potential to serve the needy and spread smiles all around. It is our responsibility to fight against all odds and it is upon us to hold our heads high or to let the specialty die.

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