



Knowledge and Preference of Prosthodontic and Orthodontic Treatment Options for Dental Anomalies among General Practitioners in India

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ABSTRACT

Background and objective: Dental anomalies vary from the normal size, contour, number, color and some deviation from development of teeth. Local as well as systemic factors may be responsible for these developmental disturbances. Missing lateral incisor or Peg shaped lateral incisor is such a condition. The aim of this study was to assess the awareness of general practitioners regarding needs of prosthodontic, orthodontic, or integrated treatment approach for management of peg shaped lateral incisor through a self-represented survey.

Methodology: A Cross-sectional study was planned to conduct a survey using questionnaire containing 16 questions which were mailed and distributed to random sample of 1000 general dental surgeons who voluntarily took part in the study.

Results: Results were self-descriptive due to simple form of questionnaire. Most important goal for the treatment according to 91% responders was improvement in esthetics. 91% of responders believed that combination of both orthodontic and prosthodontic approach was best to achieve the perfect treatment outcome.

Conclusion: Pre restorative orthodontic treatment is best for management of peg lateral incisor. Multidisciplinary approach towards the complex dental treatment is always better for the best treatment outcome. Referral system is also developed by such means.

Key words: Peg shaped, Lateral incisors, Orthodontic treatment, Prosthodontic treatment

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INTRODUCTION

A peg lateral can be defined as an undersized, tapered, maxillary lateral incisor. Other anomalies can also be associated with it like over retained deciduous teeth or canine transposition etc. The peg-shaped lateral incisor is one that has an incisomesiodistal width of the tooth crown shorter than the cervical width. This can lead to aesthetic, function and periodontal problems for the patient. Whenever there is malformed maxillary lateral incisor, the individual also has midline diastema which results due to distal migration of central incisor. Due the reduced size

of lateral incisors, formation of other diastema is also more likely to take place. Normally, such patients exhibit an otherwise normal dentition. Prevalence of peg shaped lateral incisor has been much more than the prevalence of any other developmental disturbance in the oral cavity. The prevalence of peg-shaped maxillary permanent lateral incisors varies by race, population type, and sex [1]. It has always been a challenge for prosthodontists and orthodontists to treat a young patient with anterior spaces and/or presence of peg shaped lateral incisor. To resolve this problem, generally speaking there are two principal approaches. First approach aims at maintenance of spaces for future auto transplantation or restoring with prosthodontic approach if extraction is planned. The alternative way is to close the spaces orthodontically and then restoration of peg lateral by prosthetic

means *i.e.* alteration of shape to simulate central incisor. Each of these approaches has its own advantages and disadvantages and the prevailing conditions also influence the type of treatment plan or approach. Decisions to choose an approach are based on several factors such as type of existing occlusion, space conditions, width of lateral incisor and its root length, the shape and shade of canine, position of canine etc. Apart from this the type of treatment should also be selected based on esthetic and functional requirements, need for extractions and potential for coordinating prosthodontic and orthodontic treatment[1-3]. The development of acid-etch technique and new adhesive systems has been a boon to the restorative dentistry. And it provides us with an alternative of adopting integrated approach for management of space closure and restoration of peg lateral in a most satisfactory manner. Because the results rarely are satisfactory when a single approach *i.e.* prosthodontic or orthodontic alone is adopted. The aims and objectives of this study are to conduct a survey using questionnaire to evaluate the knowledge and awareness of Saudi general practitioners regarding needs of prosthodontic, orthodontic, or integrated treatment approach for management of peg shaped lateral incisor.

METHODOLOGY

A Cross-sectional study was planned to conduct a survey using questionnaire containing 16 questions which were mailed and distributed through the local dental association data base to random.1000 general dental surgeons who voluntarily took part in the study. Pattern of questionnaire was as mentioned below and the response to the survey was recorded and analyzed electronically.

RESULTS

Data record and analysis was done electronically and results of the questionnaire were self-explanatory. Starting with the 1st question, 50.5% were females who took part in survey. 60% of total responders were fresh who were in practice since less than 5 years. 52% responders were in need of services of both orthodontist and prosthodontist for the management of peg lateral incisors (Table 1). Almost 40% responders do the diagnostic wax up in such cases. 43.2%

responders decided to plan prosthetic treatment after completion of orthodontic treatment and for that full coverage crown was the most preferred choice for rehabilitation in regard question 6, 7 and 8. Single tooth implant was the choice of the treatment when peg lateral tooth was planned extraction in search of maximum esthetic outcome and for that width and height of the bone was the most important factor to be considered according to responders. 91% of responders believed that combination of both orthodontic and prosthodontic approach was best to achieve the perfect treatment outcome. Long treatment time was the biggest factor of dissatisfaction after interdisciplinary approach for the management of peg lateral incisor. 43.1% of responders didn't find any difficulty in communication with the specialist.

DISCUSSION

One of the most challenging problems in dentistry is the treatment option for replacement of one or more maxillary lateral incisors that have been lost as a result of traumatic injuries or congenitally missing or which are having abnormal structure *i.e.* peg lateral incisor [1-6]. In the current study, management of peg lateral incisor was the focused goal. According to the results of previous similar studies, generally the treatment options include space maintenance or later incisor rehabilitation with prostheses, extraction followed by dental implants, or orthodontic space closure with camouflaging the maxillary canine to resemble the appearance of a lateral incisor [2,3]. In our study we tried to assess the knowledge of the general dentist to manage the patient with peg lateral incisor depends upon functional and esthetic demand of patient. As concluded by Abu Hussein et al., when

TABLE 1: How confident do you feel in treatment planning and treatment of peg lateral?

Answer options	Response percent
Need orthodontist	0.08
Need prosthodontics	0.26
Need services of both	0.52
I am confident alone	0.14

Table 2: Most important goal of the management of peg lateral.

Answer options	Response percent
Correction of tooth size	0.02
Improve esthetics	0.91
Correction of occlusion	0.03
Correction of tooth position	0.04

space opening is indicated, both orthodontist and prosthodontist perform a key role in determining and establishing space requirements which is similar to our findings [5,6]. The restorative approaches can be divided into two categories (single tooth implant, and tooth supported restorations) where dental implants are the most commonly used to rehabilitate congenitally missing maxillary lateral incisors once skeletal maturity has been reached which is similar to our survey finding [6,7]. When dental implants are contra-indicated, there are mainly three available options: removable partial denture, resin bonded bridge which is a minimally invasive option for rehabilitation of congenitally missing lateral incisor, and full coverage fixed partial denture [7,8]. Legislation regulating dental practice permits general dentists to perform a broad range of complex procedures that are also performed by dental specialists. A general dentist's decision to perform treatment or to refer a patient to a specialist depends on the competence of the general dentist, patients' expectation, the available specialists in the same dental office, the accessibility of specialized dental treatment in the region, the time involved, cost of treatment, motivation of the patient, etc. [9-12]. Pre-restorative orthodontic alignment has distinct advantages especially in patients with malaligned dentition seeking prosthetic rehabilitation. Exodontia is not a popular treatment option anymore unless the clinician has to deal with teeth that are grossly infected or mutilated. Even malformed teeth are being retained and restored for an optimal esthetic result. As stated by Spalding, et al. a thorough discussion of the pre-restorative orthodontics, visualization of the end result through a diagnostic wax-up and agreeing upon a sequential comprehensive treatment plan, are all necessary steps in the diagnostic work-up of these cases [13-16]. Similar to that conclusion, in our study also, almost 40% responders preferred to do diagnostic wax up for the proper treatment planning. The benefits of pre-restorative alignment have been well documented. Sadowsky et al. stated that full cast crowns were the choice of restoration as a final restoration for peg lateral incisors after orthodontic treatment [17,18] The results were similar to our study in which most responders preferred rehabilitation treatment after orthodontic

treatment that too with full cast crowns. It is clear that when esthetic expectations are more and the malocclusion is severe in patients with peg lateral incisors, multidisciplinary approach is always recommended. In the present study, implant restoration is the treatment of choice among general dentists when extraction of peg shaped lateral incisor is planned to achieve optimal aesthetic and function. Communication with the specialist has a key role in treatment plan. Previous studies have been done to assess the communication level between general dentists and orthodontist for the management of complex cases [19]. By any communication way, involvement of orthodontist and prosthodontist in the management of peg lateral incisor gives the excellent treatment outcome with great satisfaction both to the patient and clinician. Now days, team approach is the widely accepted theory for the complex treatment. Our study objective was one of the examples of such multidisciplinary approach to various dental treatments.

CONCLUSION

Management of peg lateral incisor with multidisciplinary approach with the help of orthodontist and prosthodontist has the best treatment outcome. The referral system to the specialist is needed to be improved in developing countries.

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