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# Knowledge, Attitude And Practices Towards Endodontic Management Of Radix Cases

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***ABSTRACT:)***
***Background: The main objective of root canal treatment is the thorough mechanical and chemical cleaning and shaping of the root canals. The present study was conducted to assess the knowledge, attitude and practices towards endodontic management of Radix cases amongst clinicians of varied experience including general dentists, specialists and Endodontists.***
***Materials & Methods: The present study was conducted on 267 participants of both genders. A well - formulated questionnaire of 13 questions was handed to all participants. They were divided into 4 groups. Group I were undergraduate students, group II were postgraduate students, group III were experienced Endodontists and group IV were other specialists.***
***Results: More than 15 years experience was seen in 29%, maximum RCTs done were 41-50 by 22%, no of Radix till date were >30 by 37%, Radix Ento molaris is more common by 80%, 1st molar is associated with Radix in 96%, 76% not maintaining data base, 55.8% feel that accurate diagnosis is management of Radix, 75% feel multiple RVG is pre- operative management, 19% feel CBCT is necessary. The difference was significant (P< 0.05).***
***Conclusion: The initial diagnosis is of utmost importance, to facilitate the endodontic procedure and to avoid treatment failures. There is a need to improve knowledge and awareness in the management of Radix cases.***

***Key words: Endodontics, Knowledge, Radix***

## 1. INTRODUCTION

The main objective of root canal treatment is the thorough mechanical and chemical cleaning and shaping of the root canals, before a dense root canal filling. Moreover, an awareness and understanding of the complexity of root canal morphology contributes to the success of root canal treatment. [1] It is well documented that mandibular molars often display several anatomical variations in the number of roots and root canals. In most cases the mesial root has 2 root canals, ending in 2 distinct apical foramina, or sometimes merging together at the root tip to end in 1 foramen. The distal root, in most cases has 1 root canal, but sometimes, if the orifice is particularly narrow and round, a second distal canal may be found.[1]
An anatomical variation concerning the root number is the presence of an additional root named as Radix Entomolaris[1] (RE) or Radix Paramolaris[2] (RP). RE is located disto-lingually

and RP is located buccaly or mesio-buccally. The etiology behind the formation of RE and RP has not been elucidated yet. Recent data attribute their formation to racial genetic factors, external factors during odontogenesis and to distribution of an atavistic gene or polygenetic system.[3-5] The present study was conducted to assess the knowledge, attitude and practices towards endodontic management of Radix cases amongst clinicians of varied experience including general dentists, specialists and Endodontists.

## 2. MATERIALS & METHODS

The present study was conducted in the department of Endodontics. It comprised of 267 participants of both genders. All were informed regarding the study and written consent was obtained. Institutional clearance was obtained before starting the study.

Data such as name, age, gender etc. was recorded. A well - formulated questionnaire of 13 questions was handed to all participants. They were divided into 4 groups. Group I were undergraduate students, group II were postgraduate students, group III were experienced Endodontists and group IV were other specialists. The data was collected and analyzed using Chi square test. P value less than 0.05 was considered significant.

## 3. RESULTS

Table I Comparison of parameters

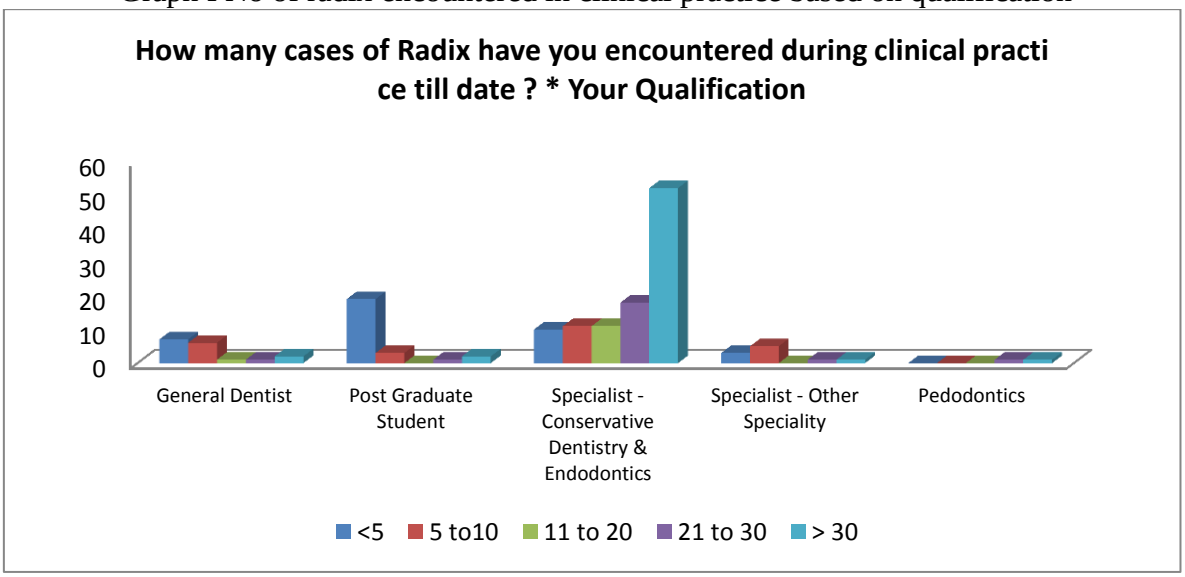
| **Parameters** | **Percentage** | **P value** |
|---|---|---|
| **Qualification** | | |
| General dentist | 11 | 0.01 |
| Post graduate | 16 | |
| Other specialist | 7 | |
| Pedodontics | 1 | |
| Conservative | 65 | |
| **Clinical experience (Years)** | | |
| <3 | 22 | 0.65 |
| 3-6 | 20 | |
| 6-10 | 16 | |
| 10-15 | 13 | |
| >15 | 29 | |
| No. of RCT in a month | | |
| <10 | 12 | 0.01 |
| 11-20 | 17 | |
| 21-30 | 17 | |
| 31-40 | 7 | |
| 41-50 | 22 | |
| 51-60 | 5 | |

| | | |
|---|---|---|
| 61-70 | 1 | |
| 71-80 | 4 | |
| 81-90 | 2 | |
| 91-100 | 8 | |
| >100 | 5 | |
| No of Radix till date | | |
| <5 | 25 | 0.03 |
| 5-10 | 16 | |
| 11-20 | 8 | |
| 21-30 | 14 | |
| >30 | 37 | |
| Which Radix is more common? | | |
| Radix Ento molaris | 80 | 0.04 |
| Radix Para molaris | 5 | |
| Don't know | 15 | |
| Which molar is associated with Radix? | | |
| 1st molar | 96 | 0.01 |
| 2nd molar | 3 | |
| 3rd molar | 1 | |
| If yes, how many cases were diagnosed Radix with treatment? | | |
| <5 | 51 | 0.01 |
| 5-10 | 29 | |
| 11-20 | 12 | |
| >20 | 5 | |
| None | 3 | |
| Are you maintaining data base for same? | | |
| Yes | 24 | 0.02 |
| No | 76 | |
| What is management of Radix? | | |
| Accurate diagnosis | 55.8 | 0.01 |
| Cleaning & Shaping | 10.3 | |

| | | |
|---|---|---|
| Modified access cavity | 22.4 | |
| Visual enhancement | 9 | |
| Glide path | 0.6 | |
| Others | 1.9 | |
| What are pre- operative management? | | |
| Single RVG | 16 | 0.01 |
| Multiple RVG | 75 | |
| RVG+ CBCT | 9 | |
| DO you feel CBCT is necessary? | | |
| Yes | 19 | 0.02 |
| No | 41 | |
| May be | 40 | |

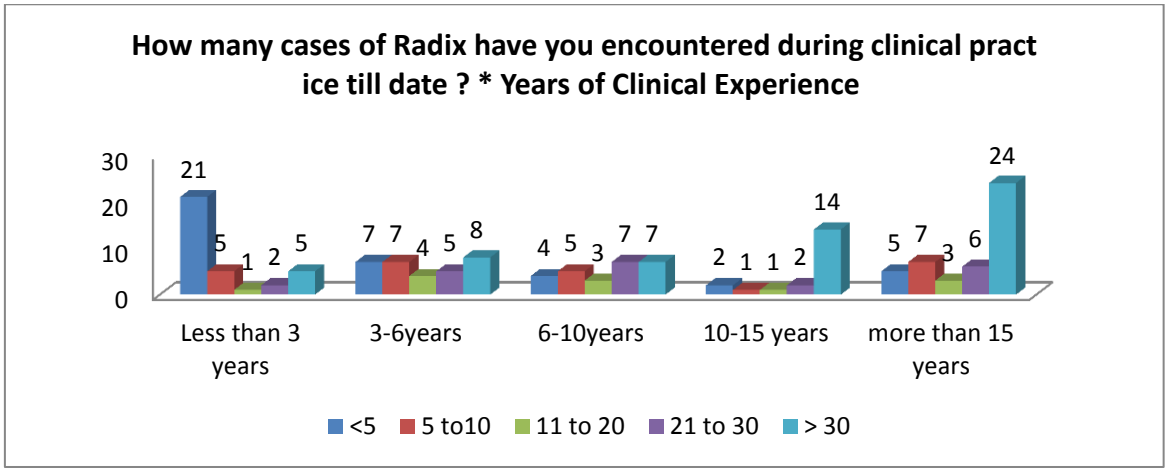
Table I shows that more than 15 years experience was seen in 29%, maximum RCTs done were 41-50 by 22%, no of Radix till date were >30 by 37%, Radix Ento molaris is more common by 80%, 1st molar is associated with Radix in 96%, 76% not maintaining data base, 55.8% feel that accurate diagnosis is management of Radix, 75% feel multiple RVG is pre-operative management, 19% feel CBCT is necessary. The difference was significant (P< 0.05).

Graph I No of radix encountered in clinical practice based on qualification



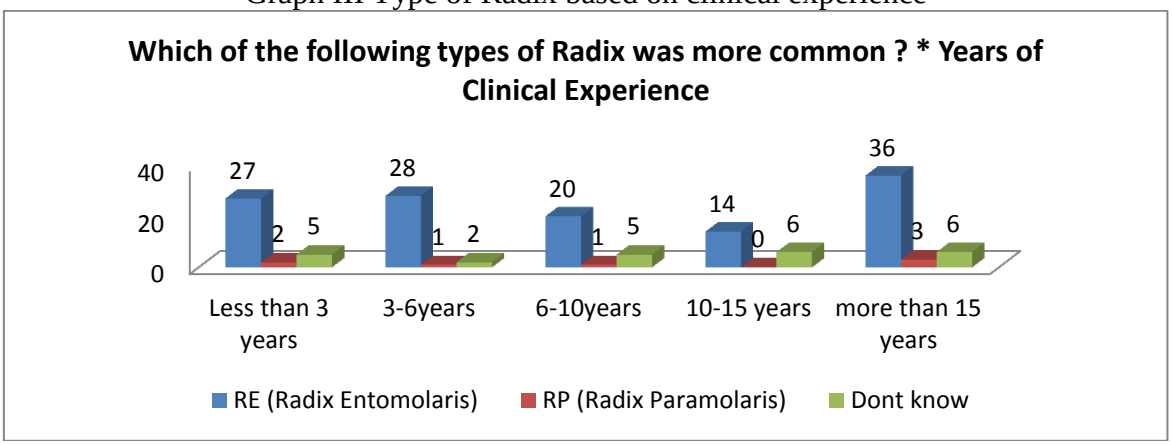

Graph I shows that maximum cases were encountered by Endodontics than other dentists.

Graph II No of radix encountered in clinical practice based on experience




Graph II shows that maximum cases were encountered by dentists having more than 15 years of experience.

Graph III Type of Radix based on clinical experience




Graph III shows that dentists having >15 years experience encountered maximum number of RE cases.

## 4. DISCUSSION

Majority of mandibular first molars are two rooted; mesial and distal. Sometimes, an extra distobuccal or distolingual root may be encountered. The etiology for radix Entomolaris is still unknown; it can be because of external factors during tooth formation or can be attributed to atavic gene or polygenic system.[3,4] It has also been suggested that "three-rooted molar" traits have a high degree of genetic predisposition as in Eskimos and in mixture of Eskimos with Caucasians. The presence of radix Entomolaris has been associated with ethical groups of mongoloid origin (>30%), rather low prevalence (<5%) in white Caucasian, African, Eurasian and Indian populations. The radix entomolaris may also be present in first, second and third molar; being less prevalent in second molar.[15] Bilateral occurrence of radix entomolaris has also been reported. [10,16] The relationship between radix entomolaris (RE), gender predilection and side distribution is not clear. Few studies have reported more of male predilection for RE while others reported no significant difference between gender and RE. Similarly, no significant difference was reported for side distribution, despite few studies reporting it to be more on left side while others on right side. Bilateral occurrence for RE have been reported to range from 37.14 - 67%.[6,17-20] The present study was conducted to assess the knowledge, attitude and practices towards endodontic management of Radix cases amongst clinicians of varied experience including general dentists, specialists and Endodontists.

We found that more than 15 years experience was seen in 29%, maximum RCTs done were 41-50 by 22%, no of Radix till date were >30 by 37%, Radix Ento molaris is more common by 80%, 1st molar is associated with Radix in 96%, 76% not maintaining data base, 55.8% feel that accurate diagnosis is management of Radix, 75% feel multiple RVG is pre-operative management, 19% feel CBCT is necessary.

Carlsen & Alexandersen (1990)[6] classified radix entomolaris (RE) into four different types based on the location of its cervical part such as type A: the RE is located lingually to the distal root complex which has two cone-shaped macrostructures, type B: the RE is located lingually to the distal root complex which has one cone-shaped macrostructures, type C: the RE is located lingually to the mesial root complex, type AC: the RE is located lingually between the mesial and distal root complexes. De Moor et al. (2004)[11] classified radix entomolaris based on the curvature of the root or root canal such as type 1: a straight root or root canal, type 2: a curved coronal third which becomes straighter in the middle and apical third, type 3: an initial curve in the coronal third with a second buccally oriented curve which begins in the middle or apical third. Song JS et al. (2010)[21] further added two more newly defined variants of RE such as small type: length shorter than half of the length of the distobuccal root and conical type: smaller than the small type and having no root canal within it.

We found that maximum cases were encountered by Endodontics than other dentists. The maximum cases were encountered by dentists having more than 15 years of experience. Dentists having >15 years experience encountered maximum number of RE cases.

Radix paramolaris is very rare and occurs less frequently than radix entomolaris. Visser reported the prevalence of radix paramolaris to be 0% for mandibular first molars, 0.5% for second molars and 2% for third molars.[12-15] Carlsen & Alexandersen (1991) classified radix paramolaris (RP) into two different types such as type A: cervical part is located on the mesial root complex and type B: cervical part is located centrally, between the mesial and distal root complexes.

## 5. CONCLUSION

Significant results observed were that an accurate diagnosis and thorough understanding of variation in root canal anatomy is essential for treatment success. The initial diagnosis is of utmost importance, to facilitate the endodontic procedure and to avoid treatment failures. Proper interpretation of radiographs taken at different horizontal angulations may help to identify number of roots and their morphology. There is a definite scope of improvement in terms of reporting and documentation of radix cases. There is a need to improve knowledge and awareness in the management of Radix cases.

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