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Clinical longevity of metallic versus fiberglass intraradicular posts: a systematic review

Longevidade clínica de pinos intraradiculares metálicos versus de fibra de vidro: uma revisão sistemática

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ABSTRACT

Objective: This systematic review aims to compare the clinical longevity of metallic and fiberglass intraradicular posts in teeth with severely compromised crowns, utilizing randomized clinical trials and case reports published in the last eleven years. **Material and Methods:** The research was conducted on PubMed, Medline, Lilacs, and BBO databases using the first search strategy with the descriptors 'dental posts,' 'longevity,' 'fiberglass-reinforced posts' or 'metallic posts.' The second search strategy involved analyzing the references of articles identified by the first search. Both studies were carried out with stringent inclusion and exclusion criteria. **Results:** No statistically significant and clinically relevant differences in longevity were observed between metallic and fiberglass posts. **Conclusion:** The clinical success and durability of the restorative procedure using intraradicular posts primarily depend on the remaining amount around the post (ferrule), the type and position of the tooth in the arch (impacting the masticatory forces exerted on the restored tooth), and the correct application of the cementation technique. It is noteworthy that fiberglass posts offer substantial advantages by presenting a modulus of elasticity similar to dental structure, ensuring a more homogeneous distribution of masticatory forces and reducing the risk of fractures. These findings have practical implications for material selection in restorative procedures involving intraradicular posts.

KEYWORDS

Dental materials; Dental post; Fiberglass posts; Longevity; Post and core technique.

RESUMO

Objetivo: Esta revisão sistemática visa comparar a longevidade clínica de pinos intrarradiculares metálicos e de fibra de vidro em dentes com coroas severamente comprometidas, através de estudos clínicos randomizados e relatos de casos, publicados nos últimos onze anos. **Material e Métodos:** A pesquisa foi conduzida nas bases de dados PubMed, Medline, Lilacs e BBO, utilizando a primeira estratégia de busca com os s 'pinos dentais' e 'longevidade' e 'pinos reforçados com fibra de vidro' ou 'pinos metálicos'. A segunda estratégia de busca consistiu na análise das referências dos artigos identificados pela primeira estratégia. Ambos os estudos foram delineados com critérios rigorosos de inclusão e exclusão. **Resultados:** Não se constataram diferenças estatisticamente significativas e clinicamente relevantes na longevidade entre pinos metálicos e de fibra de vidro. **Conclusão:** O êxito clínico e a durabilidade do procedimento restaurador empregando pinos intrarradiculares dependem primordialmente da quantidade de remanescente ao redor do pino (férula), do tipo e posição do dente na arcada (o que impacta nas forças mastigatórias exercidas sobre o dente restaurado) e da aplicação correta da técnica de cimentação.Destaca-se que o pino de fibra de vidro oferece vantagens substanciais ao apresentar módulo de elasticidade similar à estrutura dentária, assegurando uma distribuição mais homogênea das forças mastigatórias e reduzindo o risco de fraturas.

PALAVRAS-CHAVE

Materiais dentários; Pinos dentários; Pinos de fibra de vidro; Longevidade; Técnica de pinos e núcleos.

INTRODUCTION

When dental units are submitted to endodontic therapy and present great loss of coronary structure, the adoption of a restorative procedure associated with retention strategies for extensive restorations is suggested [1]. In dentistry, intraradicular posts are commonly used to improve the retention of direct and/or indirect restorations. They can be prefabricated or customized, according to the root canal anatomy, and vary in shape, length, diameter, and material type. Among the various material options for intraradicular posts, cast metal cores and fiberglass posts stand out [2].

Cast metal cores are fabricated from various metal alloys, including nickel-chromium, silver-palladium, and copper-aluminum. Customized cores are widely recommended in clinical practice due to their high fracture resistance and excellent adaptation to the root canal [1,3]. However, intraradicular metallic posts are susceptible to corrosion in dental science, a complex issue influenced by factors such as oral environment dynamics, material composition, and patient-specific conditions. Galvanic corrosion and pitting contribute to post-degradation, affecting both the aesthetics and functionality of dental restorations. Clinical implications include potential microleakage, posing a risk to periapical health [1,3].

Fiberglass posts, besides offering a more aesthetically pleasing alternative for restorative rehabilitation, possess a modulus of elasticity and rigidity similar to that of the dentinal substrate, thereby reducing the risk of fracture [4,5]. Notably, the absence of the corrosion process and the reduced necessity to remove dental tissue for adaptation, when compared to metallic posts, suggests that fiberglass posts may contribute to greater clinical longevity for restorations [6].

The clinical longevity of a post is directly related to its resistance to stresses and correct installation protocol. However, the stiffness of the intraradicular post material for a long time has been described as a factor that can increase the tooth's susceptibility to root fracture. This factor is associated with metallic posts, as stated by Sarkis-Onofre et al. [7], inferring that these posts have a high elastic modulus compared to the dentin substrate, increasing the risk of root fracture and failure of the rehabilitation treatment. In other words, in case of overload, the dentin fractures before the intraradicular post due to the great difference between the elastic moduli. Ghavamnasiri et al. [8] mention that the post must have a modulus of elasticity similar to that of resin cement or the dentin that surrounds it, to optimize the result of the restoration's longevity.

Despite the many advantages of fiberglass posts, metallic posts are still widely used and the discussion about the most suitable post type for restoration of tooth structure remains controversial [7,9]. The originality of this work aims to compare, through a systematic review of literature, the clinical longevity of metal and fiberglass posts, using randomized clinical studies and clinical case reports, which monitored clinical longevity for at least 3 years.

METHODOLOGY

This systematized review was conducted according to the criteria established by Cochrane. The methodology standardized the search for scientific papers that evaluated the clinical longevity of metallic cores and/or posts and fiberglass posts. The studies could report results of evaluations of only one of the materials or a comparison of longevity between them.

The first search strategy was performed using PubMed, Medline, Lilacs, and BBO databases to identify potentially relevant studies. The search descriptors were: 'dental posts' and 'longevity' and 'glass fiber reinforced posts' or 'cast posts'.

The second search strategy occurred through the references of the articles found by the first search strategy. In both surveys, inclusion and exclusion criteria were applied.

Inclusion criteria

As inclusion criteria, only studies in the English language, published in full in the last 11 years (January 2010 to September 2021), whether case reports and/or randomized clinical trials (retrospective or prospective), were included.

Since metallic retainers have relevant long-term clinical success considerations, the objective of selecting only works published in the last eleven years was the analysis of articles referring to fiberglass posts that already included studies using materials with quality in the adhesive cementation of fiberglass posts.

As there are already many laboratory comparisons in the literature of the materials used as intraradicular retainers, for this systematic review, only studies carried out with humans (in vivo) were included and that analyzed the clinical longevity of cores, and/or posts, metallic and fiberglass posts. glass.

Exclusion criteria

For the data analysis to be more standardized, some exclusion criteria for the studies were also applied. Table I shows all used.

Selection of articles

All articles found underwent a sequential reading of the title and abstract, to assess whether they contained the topic of discussion proposed by this review, and the inclusion and exclusion criteria were applied. All texts were read and selected by two independent reviewers. Eventual conflicts between reviewers were discussed and subsequently resolved by consensus with a third reviewer.

The first search strategy, through the databases, was carried out in two moments: 17.08.2020, moment 1; and updated on 9/23/2021, moment 2). The second search strategy occurred through the analysis of all bibliographical references belonging to the articles obtained from the first strategy.

RESULTS

At the moment 1 of the search strategy, 171 articles were obtained, of which 7 were selected according to the inclusion and exclusion criteria. At moment 2, 458 articles were collected, but only two fit the inclusion and exclusion criteria, in addition to having already been obtained in the search at moment 1. Thus, the total number of articles selected for this systematic review was 7.

Table II describes the first strategy with both moments (1 and 2) of the searches, detailing in each database the number of articles found and discarded, according to the aforementioned criteria.

In Table III there is a description within each of the first seven articles selected: total references cited, how many were discarded, and how many were selected for inclusion in this systematized review. By applying the inclusion and exclusion criteria, 7 new references were obtained for this work. Table IV shows the details of the references of articles discarded by the second search strategy, with the reasons for exclusion.

Thus, for the systematic analysis proposed by this study, 14 articles were selected, all involving analysis of longevity of restorations associated with metal (PM) and/or fiberglass (PF) posts, with 8 prospective and 5 retrospective studies.

The summary of the methodological guidelines is described in Figure 1 according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Table V follows the description of these articles concerning the author/year, type of study, which post was evaluated, what time the study was analyzed, which parameters for longevity used by the study, and summary conclusion.

Among the prospective articles that evaluated only FP [4,12-14], the results showed that this type of post increased the survival of rehabilitated teeth.

Table I - Description of exclusion criteria

Literature review
In vitro studies
Studies with extracted teeth
Studies performed on 3D models
Studies performed with non-human teeth
Studies conducted via surveys
Articles with themes unrelated to dentistry
Articles in languages other than English.
Articles on other topics in dentistry
Abstract not available
Case report without longevity assessment
Case report with assessment of short-term longevity (less than three years)
Systematic reviews with or without meta-analysis

Table II - Result of the first search strategy

First search strategy ('dental posts' and 'longevity' and 'glass fiber reinforced posts' or 'cast posts')			
Moment 1			
Platform	Articles Found	Articles Disposed	Selected Articles
PubMed	162	155	7
Medline	6	6	0
Lilacs/BBO	3	3	0
Moment 2			
Platform	Articles Found	Articles Disposed	Selected Articles
PubMed	443	288	2
Medline	6	6	0
Lilacs/BBO	9	9	0

Table III - The result of the second search strategy

Second search strategy Search in the references of articles selected by the first strategy			
Author	**Number of references**	**Number of selected studies**	**Number of excluded studies**
Gomez-Polo et al. [1]	40	0	40
Zicari et al. [10]	22	0	22
Sarkis-Onofre et al. [9]	33	2	31
Parisi et al. [4]	44	1	43
Cloet et al. [2]	50	2	48
Sarkis-Onofre et al. [7]	23	0	23
Martino et al. [11]	44	2	42
TOTAL	**234**	**7**	**227**

Table IV - Detailing of the references of the articles disposed by the second search strategy

	AUTHORS							
	Gomez-Polo et al. [1]	**Zicari et al. [10]**	**Sarkis-Onofre et al. [9]**	**Parisi et al. [4]**	**Cloet et al. [2]**	**Sarkis-Onofre et al. [7]**	**Martino et al. [11]**	**TOTAL**
LITERATURE REVIEW	0	1	9	1	1	14	9	**34**
MORE THAN 10 YEARS REFERENCE	40	16	15	32	46	3	29	**165**
EXTRACTED TEETH	0	4	0	6	0	1	2	**9**
IN VITRO STUDIES	0	1	0	3	0	0	0	**3**
3D MODELS	0	0	0	1	0	0	0	**1**
ARTICLES ALREADY PREVIOUSLY SELECTED	0	0	3	0	1	4	2	**10**
DIVERGENT THEMES	0	0	4	0	0	1	0	**5**
TOTAL	**40**	**22**	**31**	**43**	**48**	**23**	**42**	**227**

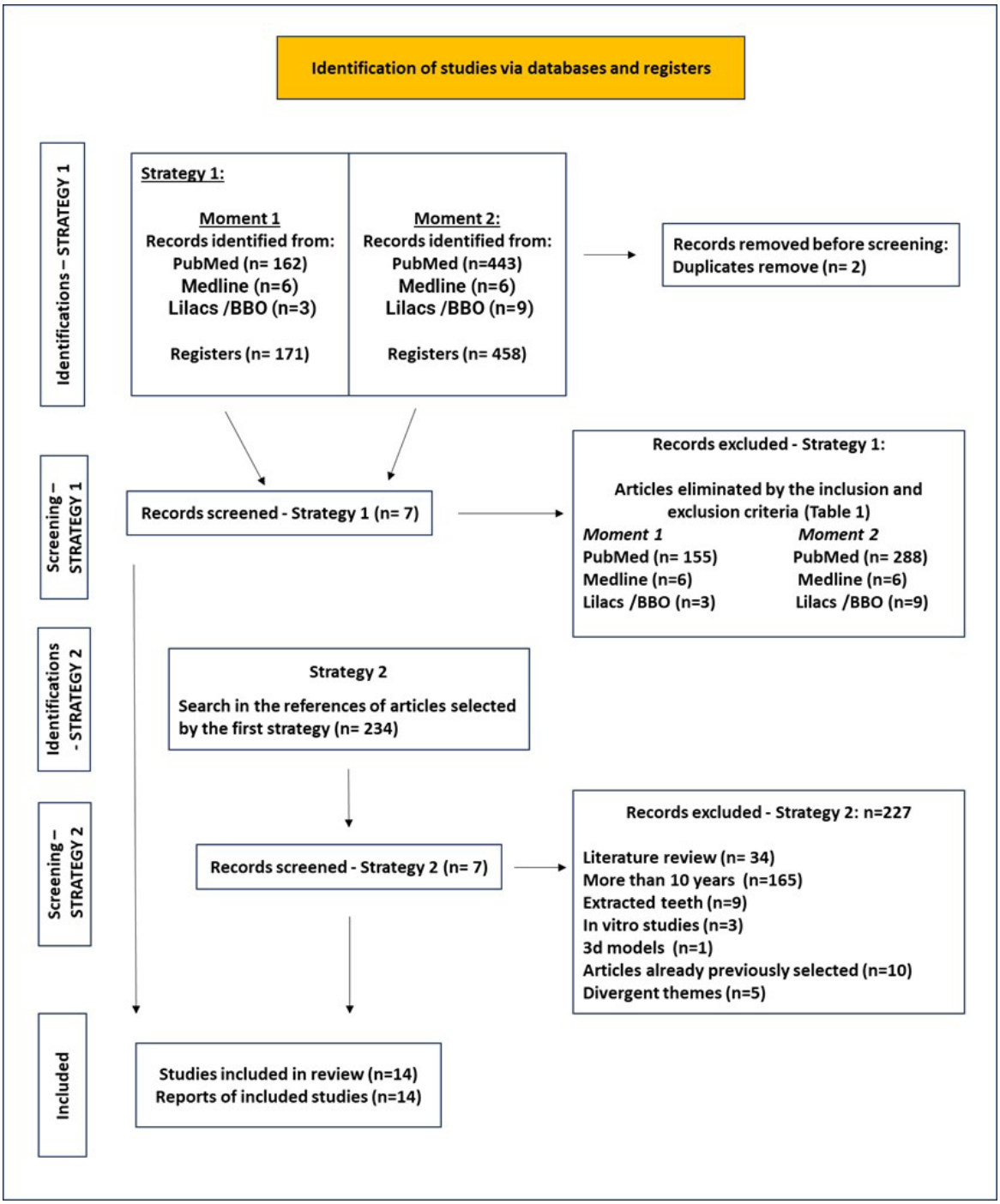

Figure 1 - Preferred Reporting Items for this Systematic Review according to PRISMA.

Table V - Description of selected studies - author/year, type of study, which post was evaluated, time of study analysis, which parameters for longevity used by the study, summary conclusion

AUTHOR/ YEAR	STUDY TYPE	MATERIAL	LONGEVITY ANALYSIS	TYPE OF LONGEVITY ANALYSIS	CONCLUSION
Gómez-Polo et al. [1]	Randomized clinical trial Prospective study	pfMP and CMP	10,08 years	It was considered a failure: - Clinical or radiographic signs of failure - Teeth in need of extraction	CMP >pfMP Success rate: CMP: 84,6% pfMP: 82,6%

Legend: FP = Fiber Glass Post; CFP = Customized Fiber Post; pfMP = Pre-Fabricated Metallic Post; CMP = Cast Metallic Post.

Table V - Continued...

AUTHOR/ YEAR	STUDY TYPE	MATERIAL	LONGEVITY ANALYSIS	TYPE OF LONGEVITY ANALYSIS	CONCLUSION
Mancebo et al. [12]	Randomized clinical trial Prospective study	FP	3 years	Every 6 months analysis The success rate was always evaluated by at least the operator Parameters: - Visual inspection with magnifying glasses - Examination of the restoration margins - Intraoral Photographic Examinations	16.1% of restorations failed. Causes: - Carious lesions - Post fracture - Root fracture - Post-cementation failure - Failure to cement the crown - Periapical lesions. The incisors had a higher failure rate (26.5%). Among premolars, the failure rate was 8%, and among molars, 18.8%.
Ghavamnasiri et al. [8]	Randomized clinical trial Prospective study	FP	From 1 to 6 years	Clinical examinations were performed by two different examiners. Success was analyzed through clinical and radiographic examinations.	The success of the treatment is linked to the location of the teeth. Maxillary teeth had a higher failure rate when compared to mandibular teeth. In one case, the composite resin fractured after 4 years of clinical service, and another fractured after 6 years. This variation might be due to each case being subjected to different forces depending on the location in the mouth, texture of the diet, oral habits, bruxism, occlusal relationships, or restoration design.
Zicari et al. [10]	Randomized clinical trial Prospective study	pfMP and CMP CFP	7 to 37 months	The flaws were: - Absolute, such as root fractures or irreparable post/core fractures, - Or relative, such as post-retention loss of retention or repairable core fractures.	After being followed for up to 3 years, both the composite core and powder systems were clinically well performed. Longer studies are needed to detect possible differences.
Ferrari et al. [13]	Controlled clinical trial. Prospective study	FP and CFP	6 years	Clinical e-radiographic follow-up	The analysis revealed that PF increased tooth survival. The failure rate was lower in teeth with prefabricated posts than with custom posts.

Legend: FP = Fiber Glass Post; CFP = Customized Fiber Post; pfMP = Pre-Fabricated Metallic Post; CMP = Cast Metallic Post.

Table V - Continued...

AUTHOR/ YEAR	STUDY TYPE	MATERIAL	LONGEVITY ANALYSIS	TYPE OF LONGEVITY ANALYSIS	CONCLUSION
Naumann M. et al. [14]	Randomized clinical trial Prospective study	FP	5,3 years	Clinical and radiographical exams during the follow-up period	The most frequently observed failures were: post-fracture, loss of post retention, and endodontic problems that resulted in tooth extraction. As for the type of tooth, posterior teeth showed better results compared to the anterior ones. The number of walls remaining in the cavities also influenced the success rate, cavities with higher numbers of walls had better results.
Sterzenbach et al. [15]	Randomized clinical trial Prospective study	FP and CMP	7 years	Clinical e-radiographic follow-up	When self-adhesive cement was used, prefabricated posts in severely destroyed teeth increased the success rate of restorations, regardless of the material used.
Sarkis-Onofre et al. [9]	Randomized clinical trial Prospective study	FP and CMP	3 years	Clinical e-radiographic follow-up	FP = CMP Average longevity 30.1 months
Parisi et al. [4]	Retrospective analysis	FP	From 7 months to 9,25 years	Clinical follow-up and success or failure were correlated with tooth location, and whether there was permanent or temporary restoration.	FP success rate was 85% The average longevity of 6 years for FPs. The high incidence of failures related to the adhesive technique showed that this aspect should be improved. The high incidence of failures in maxillary posterior teeth demonstrates the need to use less sensitive cementation techniques
Raedel et al. [3]	Cohort study	CMP	19,5 years	The assessment was carried out through electronic medical records. The longevity assessment was correlated with the type of tooth, the position of the tooth in the arch, and the presence or absence of adjacent teeth	CMP has acceptable long-term success rates. The presence of adjacent teeth increases MP survival. The use of fixed dentures can have a positive influence on tooth survival. Likewise, the use of this tooth as an abutment for fixed partial dentures can reduce the tooth's survival time.

Legend: FP = Fiber Glass Post; CFP = Customized Fiber Post; pfMP = Pre-Fabricated Metallic Post; CMP = Cast Metallic Post.

Table V - Continued...

AUTHOR/ YEAR	STUDY TYPE	MATERIAL	LONGEVITY ANALYSIS	TYPE OF LONGEVITY ANALYSIS	CONCLUSION
Cloet et al. [2]	Randomized clinical trial Prospective study	FP and CMP	5,8 years	The restorations were examined clinically and radiographically. Antagonist status, marginal integrity, periodontal health, occlusion, and TMJ patterns were evaluated.	FP = CMP
Naumann et al. [16]	Randomized clinical trial Prospective study	FP and CMP	11 years	Clinical and radiographic examinations were performed during follow-up.	When self-adhesive cement, prefabricated posts, and resin cores are used, the rigidity of the material becomes irrelevant. Survival rate declined rapidly after 8 years in severely destroyed teeth, especially in teeth with FP.
Sarkis-Onofre et al. [7]	Randomized clinical trial Prospective study	FP and CMP	Mean 5 years From 12 months to 9 years	Clinical and radiographic exams	FP = CMP Longevity up to 9 years
Martino et al. [11]	Retrospective analysis	pfMP and FP	5 years (Jan. 2013 – jan. 2018)	Digital database analysis was performed. Medical records that contained sufficient information recorded were analyzed and clinical or radiographic confirmation of the presence of the post was performed.	FP = CMP= pfMP Longevity: · FP (12 years) · CMP (11,8years) · pfMP (10,2 years)

Legend: FP = Fiber Glass Post; CFP = Customized Fiber Post; pfMP = Pre-Fabricated Metallic Post; CMP = Cast Metallic Post.

It was considered that the presence of a splint, in a range of 1.5 to 2mm, provides more resistance to fracture and increases the survival of endodontically treated teeth, when restored with adhesive technique and fiberglass posts.

Prospective analyses that compared CMP with PFs [2,7,9,10,15,16] unanimously inferred that both types of posts had similar mean longevity, with a report of up to 9 years of follow-up, regardless of tooth location.

Only one retrospective study [11] compared the survival rate between CMP and FP by analyzing medical records over 5 years. It was concluded that there was no significant evidence relating the survival rate to the type of post, but the authors mentioned that prefabricated metal posts have a slightly higher risk of failure. That same study found that the percentage of root in bone, tooth position, cement type, and restoration type were associated with survival rates. The FP had a slightly longer longevity, 12 years, compared to the MP, which was 11.8 years.

Retrospective studies by Gomez-Polo et al. [1] and Raedel et al. [3], who evaluated only CMP, revealed a high long-term success rate (over 10 years), especially when adjacent teeth are present.

Regarding the retrospective studies that evaluated only the longevity of FP [4,8], the longevity of up to 6 years was noted and suggested that the rehabilitation of teeth with FP can be considered a reliable procedure, with a high survival rate. Concerning failures, they were associated with problems arising from endodontic treatments, assuming that the cementation technique had a well-executed adhesion stage.

DISCUSSION

From this systematic review, it can be observed that studies that evaluated only the clinical longevity of metallic posts demonstrated high success rates, for follow-up periods longer than 10 years [1,3]. Comparative studies between PM and PF [2,7,9-11,15,16] demonstrated that metallics obtained a survival rate similar to fiberglass. Other authors [4,5] disagree with these results because they adhere to the theory that fiber posts are the most viable option in rehabilitation, especially when compared to CMP, due to the biomechanical behavior similar to dentin, absorbing the tensions generated by masticatory forces and protecting the remaining root, thus minimizing irreversible root fractures. For these authors, FP failures are related to errors in cementation. It is important to emphasize that adhesive cementation is much more sensitive to errors than micromechanical cementation, performed for CMP [17].

Although the cast metal post has already been established as a good and efficient material in dentistry, with the advancement of adhesive dentistry there is a tendency for dentists to use FP; because, despite the greater sensitivity of the technique, the work time and cost is reduced, as it does not require a laboratory stage. With FPs, in addition to improving aesthetics, fiber posts reduce the incidence of root fractures, as they also preserve a greater amount of tooth structure and elastic modulus similar to dentin. Its fixation is based on the principles of adhesion, without the need for greater wear for a micromechanical fixation, as it works for metallic retainers [4,5,14].

Another factor cited as relevant for the success of intraradicular posts is the amount of remaining splint. A direct relationship has been demonstrated between the amount of coronal tooth structure remaining and the tooth's ability to resist occlusal forces. As more tooth structure is removed, the ability to resist occlusal forces is reduced. And it is based on this foundation that Ferrari et al. [13] pointed out that the risk of failure increases when the dental units, that received intraradicular posts, do not have the ferrule. Mancebo et al. [12] emphasized that the dentin collar at the root embouchure, with at least 2mm, provides greater resistance to fracture of the restoration.

However, some studies do not relate the survival rate to the type of post [2,7,9,11,16]. The study by Martino et al. [11] indicated that cast metal cores have longer survival when they are located in posterior teeth than when located in anterior teeth. For the authors, the angulation of the anterior teeth can be a justifying factor for the failure results. Corazza et al. [18] stated that metal posts appear to be more suitable for weakened teeth because they can tolerate higher masticatory forces when restored with metal posts. Naumann et al. [14] stated that incisors and canines have twice the failure rate when compared to molars and premolars. The anterior teeth, especially the maxillaries, are exposed to more horizontal forces and stress zones, which cause fractures due to fatigue. Therefore, the anterior area of the maxilla is considered a high-risk failure zone.

Unlike posterior teeth, which, when in balanced occlusion, are subjected to unidirectional forces, anterior teeth are subjected to multidirectional forces. Thus, when they are overloaded by excursive mandibular movements, they result in a greater risk of fractures, especially when restored with metallic posts, due to the very difference in the modulus of elasticity of the metals with dentin. The result of the study by Sterzenbach et al. [15], states that although the success rates of metal posts and fiberglass posts are similar to each other, the type of material was decisive in the way the masticatory forces were dissipated. Teeth restored with metal posts present high levels of stress concentrated in the post, which can lead to fracture or micro gap formation and, consequently, bacterial colonization with periapical lesions. However, the study by Parisi et al. [4] states that, although theoretically anterior teeth have greater chances of failure due to the forces on them, posterior teeth have higher failure rates due to greater technical difficulty in carrying out correct endodontic treatment and correct positioning of the posts in multi-rooted teeth.

It is necessary to highlight the existence of studies on the clinical longevity of posts regardless of the material and its rigidity [14], and that the survival rate does not depend on the position of the tooth in the arch either [7,9]. Sterzenbach et al. [15] claimed that the main factor for rehabilitative success is the cementing agent. Even in severely destroyed teeth, when self-adhesive cement was used, the success rate of restorations was high, regardless of whether the post was FP or CMP.

Due to many comparisons and different results with analyses that do not have standardization of materials, cement, location, and type of tooth, new long-term clinical evaluation studies would be necessary for a more reliable conclusion of which material, PF or PM, is safer to be used as intraradicular retainers. Many other factors affect clinical longevity, which goes beyond the post material, such as the patient's occlusion, the amount of remaining structure, and the presence or absence of a ferrule [2,13-15]. It is noteworthy that the presence of intraradicular posts regardless of their composition material generates wear in the tooth structure and tensions that can induce fractures and reduce the longevity of restorations. Being restored with an intraradicular post, whether metallic or fiberglass, does not mean that the restoration and/or the tooth are reinforced [19,20]. Recent studies [21-24] have defended the efficiency of restorations without the presence of intraradicular posts. Sáry et al. [23] pointed out that restorations can be reinforced with fiberglass or polyethylene strips, an alternative to increase the longevity of extensive restorations. This new technique can provide fracture resistance, acting as a core, without the need for intraradicular wear for the insertion of material. The reinforcement is under a layer of resin composite, absorbing masticatory tensions, without compromising aesthetics and eliminating the need for intraradicular posts. They are called biomimetic restorations because they use materials with a modulus of elasticity similar to the tooth structure, mimicking their substrates and preserving their structure as much as possible [21-24].

CONCLUSIONS

It should be understood that the clinical success and longevity of the restorative procedure using intraradicular posts depends much more on the amount of remnant around the post (splint), type and position of the tooth in the arch (which will influence the masticatory forces that are exerted on the restored tooth) and correct cementation technique.

Through this systematic review, no relevant statistical differences were observed in the longevity of metallic and fiberglass posts. However, it cannot be denied that the PF has a greater advantage in the choice because it has an elastic modulus similar to the tooth structure, which ensures a distribution of masticatory forces with less overload on the tooth structure, in addition to requiring less wear and aesthetics.

While improving and spreading the "new era" of biomimetic restorations, many professionals will continue restoring with intraradicular posts, and, therefore, the entire restorative procedure must be carefully executed, as clinical success depends on much the correct execution of all steps of the restorative technique rather than the type of material of choice for the intraradicular posts.

Author's Contributions

CMM: Writing – Review & Editing. KB: Writing – Review & Editing. KCFO: Writing – Original Draft Preparation. CS: Writing – Original Draft Preparation. CSL: Writing – Original Draft Preparation. RPV: Writing – Review & Editing.

Conflict of Interest

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