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Isolation Techniques Used During Restorative And Endodontic Procedures–A Questionnaire Survey Among Dakshina Kannada Dental Practitioners

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I. INTRODUCTION–

In order to treat a range of dental issues, restorative and endodontic operations are frequentlycarried out indental practices.As theyaid incontrolling moistureandavoid contaminationby saliva or blood that could impair the quality of dental restorations or root canal treatments,isolation techniques are essential to the success of restorative and endodontic procedures.[1]Due to its many benefits, including enhanced visibility, greater patient safety, and less risk ofcross-contamination, the use of rubber dam has been acknowledged as the gold standard forisolation during restorative and endodontic procedures.[2] Endodontic and restorativeprocedures are essential components of contemporary dental practice and are used to treat various dental problems.

By allowing dentists to better control the operational field, lower moisture levels, and avoidcontamination by saliva or blood, isolation techniques play a critical role in achievingsuccessful outcomes for these procedures.[3] Because rubber dam isolation has advantagesincluding enhanced visibility and lowered chance of cross-contamination, it has been chosenas the best technique for guaranteeing effective results during restorative and endodonticprocedures.

The rubber dam system was introduced to the world by Dr. Sanford Barnum in 1864, thereafter it has seen many evolutions, and today, it has become an integral part of dental procedures. Rubber dam use is encouraged worldwide as an aid in the isolation of the operative area,provision of an aseptic field, infection control, and ingestion or aspiration of dental instruments,and/or materials.Italsoprovides patientscomfortand assiststhe operatorinthe protection ofsoft tissue. Operative dentistry and endodontic treatment are two major areas where rubberdam is used. Textbooks in these specialties emphasize and recommend rubber dam use duringendodonticand operativeprocedures to providea high standard of care.[4]

Therefore,the aimofmystudyistocheckthe knowledge,attitude,andpracticeofDakshinaKannada dental practitioners about isolation techniques used during restorative andendodonticprocedures.

II. MATERIALSANDMETHODS–

Aquestionnairewith15questionsabouttheknowledge,attitude,andpracticeofDakshinaKannadadentalpractitionersregardingisolationtechniquesusedduringrestorativeandendodontic

procedures was designed. The questions were close-ended with multiple choices for the dentists toselectfromandrespondaccordingly.Later,thequestionnairewaspilotedanddistributedamong200dental practitioners through Google Forms and responses were collected. Out of 200 dentalpractitioners,138responseswereobtained.Then,thecollecteddatawasstatisticallyanalysed.

QUESTIONNAIRE–

1. WhatLengthofprofessionalcareer
- Lessthan5years
- 6–15years
- 16–25years
- 26–35years
- 36yearsandmore

2. Sizeofthepatientpopulation/month-
- Lessthan100patients

- 100-500patients
- 500-700patients
- 700-1000patients
- >1000patients

3. Whattechniquesofisolationwerecommonlyusedduringyourundergraduatestudies?
- Rubberdamisolation
- Cottonrollisolation
- Salivaejectorsandhigh-volumeevacuators
- Retractioncord
- Throatshields
- Mouthprops
- Mirrorandevacuatortipretractor
- Drugs

4. Doyouuseisolationforrestorativetreatmentsinpatients?
- Yes
- No

5. Doyouuseisolationforendodontictreatmentsinpatients?
- Yes
- No

6. Whatisolationtechniquedoyouusecommonlyinyourdentalpractice?
- Rubberdamisolation
- Cottonrollisolation
- Salivaejectorsandhigh-volumeevacuators
- Retractioncord
- Throatshields
- Mouthprops
- Mirrorandevacuatortipretractor
- Drugs

7. Whichisolationtechniqueisbestaccordingtoyourclinicalexperience?
- Rubberdamisolation
- Cottonrollisolation
- Salivaejectorsandhigh-volumeevacuators
- Retractioncord
- Throatshields
- Mouthprops
- Mirrorandevacuatortipretractor
- Drugs

8. Doyouhaveyourownpracticalexperiencewithrubberdam?
- Yes
- No

9. Didyoureceivetraininginrubberdamplacingduringyourundergraduatestudies?
- Yes
- No

10. Doyouusearubber dam?

- Yes,regularly
- Yes,occasionally
- Yes,rarely
- Notatall

11. Forwhatproceduresdoyouuserubberdamisolationinyourclinicalpractice?
- Restorativeprocedures
- Endodonticprocedures
- Both
- None

12. Restorationsplacedunderrubberdamshavegreaterlongevitythanthoseplacedwithout?
- Yes
- No

13. Duringwhichstageofrestorationdoyouusearubberdam?
- Thefollowinganesthesiabeforecavitypreparation
- Aftercavitypreparationbeforeplacementofrestorativematerial
- Noneof theabove

14. Inyouropinion,thegreatestadvantageofferedbytherubberdamis?
- Asepticworkingarea
- Preventionofswallowingoraspiratingparticlesorinstruments
- Easyaccesstocavitypreparationandrestoration
- Allofthe above

15. Whatisolationtechniquedoyouuseinchildren(upto15yearsofage)?
- Rubberdamisolation
- Cottonrollisolation
- Salivaejectorsandhigh-volumeevacuators
- Retractioncord
- Throatshields
- Mouthprops
- Mirrorandevacuatortipretractor
- Drugs

III. RESULTS–

ThedatainTable1showsthatmostoftheparticipants(75%)werefreshersinthedentalpracticefollowedby15% participantswho hadbeenpractisingfor6-15years.71.6%ofparticipantshad

a population size of less than 200 per month. Out of 138 responses, 106 participants (76.3%) usedcottonrollsasthemethodofisolationduringundergraduatestudiesfollowedby15%usingsalivaejectorsandhigh-volumeevacuators.97.8%and91.4%of participantsusedisolationforrestorativeandendodontictreatmentrespectively.Most commonlyusedmethodofisolationindentalpracticebythedentistswerecottonrolls(52.4%)followedbyrubberdamisolation(24.5%).

Tableno.1

Sl.No	Questionnaire	Frequency	Percent	p value
7.	Which isolation technique is best according to your clinical experience?			
	Cotton rolls isolation	7	5.0	<.001
	Rubber dam isolation	120	86.3	
	Saliva ejectors and high-volume evacuators	11	7.9	
8.	Do you have your own practical experience with rubber dam?			
	No	65	46.8	0.496
	Yes	73	52.5	
9.	Did you receive training in rubber dam placing during your undergraduate studies?			
	No	82	59.0	0.027
	Yes	56	40.3	
10.	Do you use a rubber dam?			
	no	56	40.3	<.001
	yes, occasionally	40	28.8	
	yes, rarely	21	15.1	
	Yes, regularly	21	15.1	
11.	For what procedures do you use rubber dam isolation in your clinical practice?			
	Both	75	13.7	<.001
	Endodontic procedures	30	21.6	
	None of the above	19	54.0	
	Restorative procedures	14	10.1	
12.	Restorations placed under rubber dams have greater longevity than those placed without.			
	No	9	6.5	<.001
	yes	129	92.8	

Thedataintable2showsthatrubberdamwasfoundtobethebestisolationtechniqueinclinics(86.3%).52%dentistshavetheirownexperiencewithrubberdambutonly40%gottrainingof placingrubberdamduringtheirundergraduatestudies.Rubberdamwasoccasionally usedby29%of dentists and 40% don't use rubber dam. 21.6% dentists used rubber dam for only endodonticprocedure and 10% for restorative procedure whereas 13.7% used for both the procedures. 92%dentistsbelievedthatrestorationsplacedunderrubberdamhavegreaterlongevity.

Tableno.2

Sl.No	Questionnaire	Frequency	Percent	p value
1	Since how many years are you practicing?			
	16-25 years	10	7.2	<.001
	26-35 years	2	1.4	
	6-15 years	21	15.1	
	less than 5 years	105	75.5	
2.	what is the size of the patient population/month?			
	200 - 400	23	16.5	<.001
	400 - 800	10	7.2	
	800-1000	1	.7	
	less than 200	100	71.9	
	more than 1000	4	2.9	
3.	What techniques of isolation were commonly used during your undergraduate studies?			
	Cotton rolls isolation	106	76.3	<.001
	Mirror and evacuator tip retractor	3	2.2	
	Retraction cord	1	.7	
	Rubber dam isolation	7	5.0	
	Saliva ejectors and high-volume evacuators	21	15.1	
4.	Do you use isolation for restorative treatments in patients?			
	No	2	1.4	<.001
	Yes	136	97.8	
5.	Do you use isolation for endodontic treatments in patients?			
	No	11	7.9	<.001
	Yes	127	91.4	
6.	What isolation technique do you use commonly in your dental practice?			
	Cotton rolls isolation	73	52.5	<.001
	Retraction cord	1	.7	
	Rubber dam isolation	34	24.5	
	Saliva ejectors and high-volume evacuators	30	21.6	

ThedatainTable3showsthat51.8%ofdentistsplacedrubberdamfollowinganesthesiaandbeforecavity preparation and 36% placed it after cavity preparation. 90% of the participants say that thegreatest advantage of using a rubber dam is having an aseptic working area, easy cavity preparationand restoration, and prevention of swallowing or aspirating particles or instruments by the patient,54%ofdentistsusecottonrollsisolationtechniqueforchildrenfollowedby23.7%dentistwhousedsalivaejectors andhigh-volumeevacuators.

Tableno.3

Sl.No	Questionnaire	Frequency	Percent	p value
13.	During which stage of restoration do you use rubber dam?			
	After cavity preparation before placement of restorative material	50	36.0	<.001
	None of the above	16	11.5	
	The following anesthesia before cavity preparation	72	51.8	
14.	In your opinion, the greatest advantage offered by the rubber dam is?			
	Aseptic working area	6	4.3	<.001
	Easy access to cavity preparation and restoration	1	.7	
	Prevention of swallowing or aspirating particles or instruments	5	3.6	
	All of the above	126	90.6	
15.	What isolation technique do you use in children (up to 15 years of age)?			
	Cotton rolls isolation	75	54.0	<.001
	Mirror and evacuator tip retractor	1	.7	
	Mouth props	6	4.3	
	Retraction cord	1	.7	
	Rubber dam isolation	16	11.5	
	Saliva ejectors and high-volume evacuators	33	23.7	
	Throat shields	6	4.3	

** Chi- Square test was used to test significance level.*
** p < 0.001 was considered statistically significant.*

IV. DISCUSSION–

The use of isolation techniques, such as the rubber dam, during restorative and endodonticprocedures is considered to be the standard of care in dental practice. This is supported byvarious studies and surveys, which have identified the advantages of using a rubber dam forisolation.

Rubber dam isolation provides better visualization and adequate isolation to conductrestorative procedures and prevent root canal contamination. Additionally, it helps incontrolling the spread of saliva and blood, reducing the risk of cross-contamination andinfection. Furthermore, the rubber dam improves efficiency by reducing chairside time andincreasing patient comfort. Despite all these benefits, it is surprising that a significant numberofdentalpractitioners stilldonotuserubber damisolationduringendodontic treatment.Inthe above questionnaire survey conducted among dental practitioners in Dakshina Kannada, itwasobservedthat40.3%ofthe participantsneverusedrubberdam.Studieshaveshownthata high percentage of dental practitioners, ranging from general practitioners to specialists, donot consistently use rubber dam isolation during endodontic procedures This lack ofcompliance with the standard of care is concerning, as it increases the risk of contaminationand could lead to suboptimal treatment outcomes. Furthermore, the study mentioned in thesources raises concerns about nosocomial contamination due to the absence of rubber damisolationduringendodontictreatment.Theuseofarubberdamduringendodontictreatmentiscrucial forpreventing theentry ofmicroorganisms into theroot canal system.[5]This lackofcompliance with the use of rubber dam isolation during endodontic procedures is a cause forconcern. This study reinforces the importance of using rubber dam isolation in endodonticproceduresto prevent theentry ofmicroorganismsinto the root canal system.[5]

V. CONCLUSION–

It might be required to raise private practitioners' understanding of the advantages of isolationtechniques through continuing education and by highlighting its significance in undergraduatecourses. The majority of endodontic and restorative procedures involve rubber dams. Dentalproceduresaremadesimpler,quicker,safer,andmoreenjoyableforthepractitionerwithrubberdams.Itenablesthepractitionertoprovidebettercarewhileenhancingpatientcomfort.

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