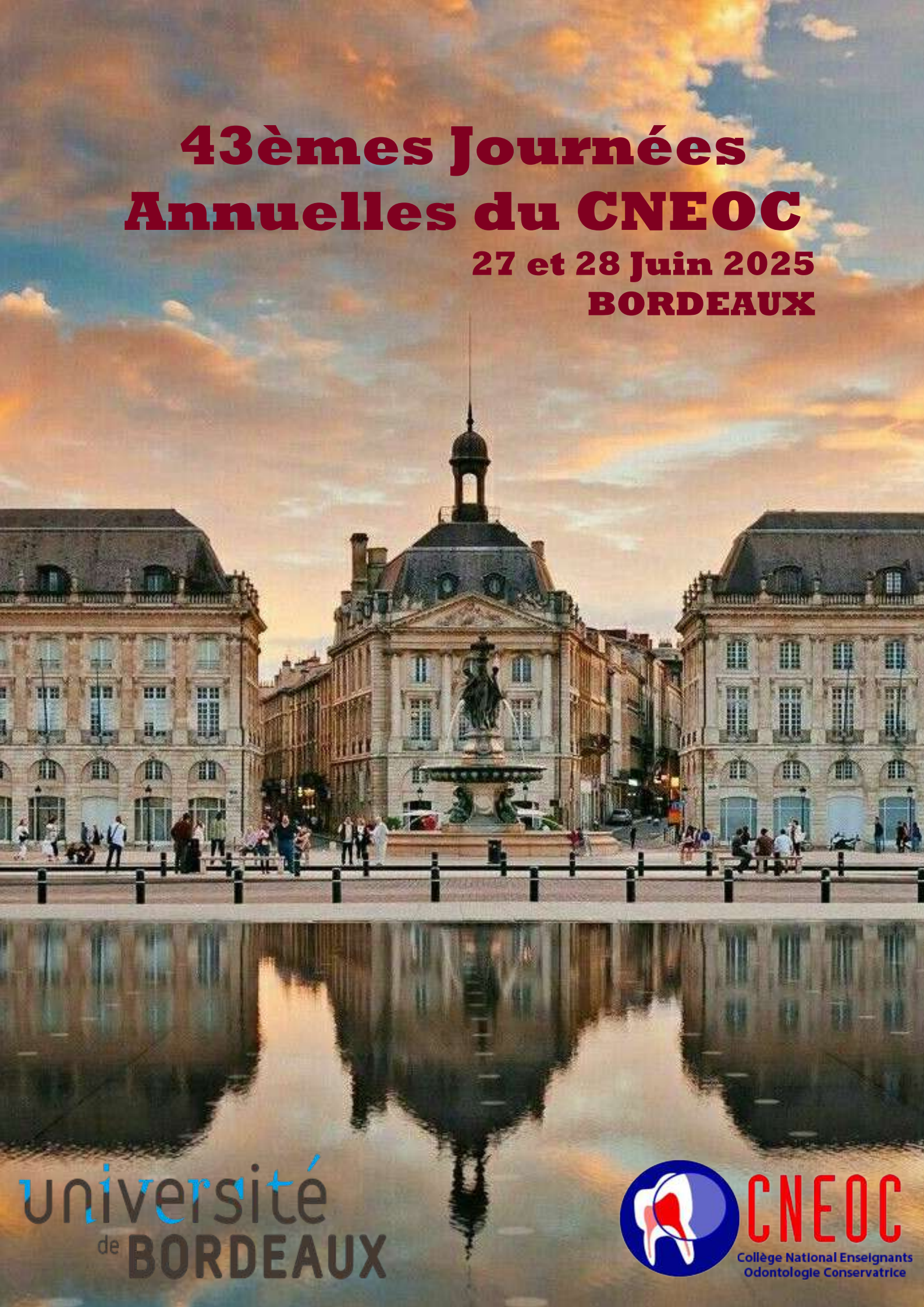
43èmes Journées Annuelles du CNEOC

27 et 28 Juin 2025

BORDEAUX



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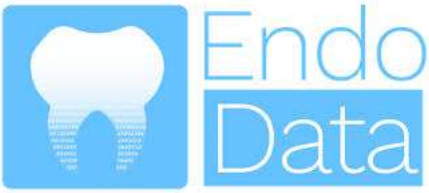

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Programme CNEOC 2025 Bordeaux

Vendredi 27 juin 2025

8h30-9h00 **Accueil**

9h00-9h15 **Mot de bienvenue**

Dr. Olivia KEROUREDAN, *Directrice adjointe de l'UFR, Université de Bordeaux*

Pr. Bruno ELLA, *Chef du Pôle Odontologie et Santé Buccale, CHU de Bordeaux*

Allocution d'ouverture du congrès

Pr. Sophie DOMEJEAN, *Présidente du CNEOC*

9h15-10h15 **Conférence inaugurale** – **Pr. Adrian LUSSI**

"Erosive tooth wear: Prevalence, diagnosis, risk factors and present and future trends in prevention"

(Modérateur : Pr. Eric MORTIER)

10h15-10h20 **Présentation** - Partenaire COLGATE-PALMOLIVE

10h20-10h40 **Pause-café** - Rencontre avec les partenaires

10h40-11h40 **Communications scientifiques** E-posters Enseignants

(Modérateurs : Dr. Benoît BALLESTER & Dr. Fleur BERES)

11h40-12h25 **Conférence interdisciplinaire** – **Dr. Christophe BOU**

"Le chirurgien-dentiste au cœur de l'enquête"

(Modérateur : Pr. Delphine MARET COMTESSE)

12h25-12h30 **Présentation** - Partenaire GC

12h30-13h45 **Pause déjeuner** - Rencontre avec les partenaires

13h45-14h30 **Assemblée générale du CNEOC**

14h30-14h35 **Présentation** - Partenaire septodont

14h35-16h05 **Communications scientifiques** orales Enseignants

(Modérateurs : Dr. Karen VALLAEYS & Pr. Lieven ROBBERECHT)

16h05-16h25 **Pause-café** - Rencontre avec les partenaires

16h25-16h30 **Présentation** - Partenaire Dentsply Sirona

16h30-17h30 **Communications scientifiques** E-posters Etudiants/Internes MBD

(Modérateurs : Pr. Maryline MINOUX & Dr. Raphaël RICHERT)

20h - 2h : Soirée de Gala sur la Garonne & Remise des prix

Samedi 28 juin 2025

8h30-9h00	**Accueil** et **Petit-déjeuner**
9h00-9h15	**Mot de bienvenue** **Pr. Jean-Christophe FRICAIN**, *Directeur de l'UFR*
9h15-10h45	**Ateliers** au choix • **Atelier 1** : Communication dans l'apprentissage **Emmanuelle FUGGETTA** • **Atelier 2** : L'hypnose médicale en médecine bucco-dentaire **Audrey AUSSEL** • **Atelier 3** : Structurer l'apprentissage pour construire la performance **Jean-François DI MARTINO**
10h45-11h15	**Pause-café** - Rencontre avec les partenaires
11h15-11h45	**Restitution des ateliers & Clôture des Journées**

Conférenciers CNEOC 2025

Pr. Adrian LUSSI

Prof. Dr. med. dent. A. Lussi, dipl. Chem. ETH; Universities of Bern (CH), Freiburg (D) and Innsbruck (A)

BIOGRAPHIE

- 1974 – 1979 Studies of Chemistry at the Swiss Federal University of Technology, Zurich, Switzerland (ETH). Master in chemical engineering
- 1978 – 1983 Studies of Dental Medicine in Zurich and Bern, graduation from the University of Bern, Switzerland
- 1979 – 1981 Research fellow at the Swiss Federal University of Technology, Zurich, Department of Chemistry
- 1981 1998 Teaching licence at college level with chemistry as the main subject Professor at the University of Bern, Switzerland
- 2011 – 2015 Executive Chairman, School of Dental Medicine, University of Bern
- 2006 – 2017 Head of the Department of Preventive, Restorative and Paediatric Dentistry, University of Bern, Switzerland 2019 2017 – Honorary member of the Swiss Dental Society (SSO) Guest professor at the Albert-Ludwigs-Universität, Freiburg (D) and at University Hospital for Conservative Dentistry and Periodontology, Medical University of Innsbruck, Austria

PRINCIPAUX DOMAINES DE RECHERCHE

Prevention, hard tissues, preparation techniques in operative dentistry, cariology, erosion, diagnosis of dental. Over 550 publications. Editor or Co-editor of 16 books.

CONFERENCE INAUGURALE

Erosive tooth wear: Prevalence, diagnosis, risk factors and present and future trends in prevention

Dental erosion and especially erosive tooth wear (ETW) are becoming increasingly important when considering the long-term health of the dentition. The clinical appearance is the most important sign for dental professionals to diagnose it.

This is of particular importance in the early stages. The appearance of smooth silky glazed sometimes dull enamel, intact enamel along the gingival margin and grooving on occlusal surfaces are some typical initial signs of dental erosion. Adequate early management are very important and can only be initiated when the risk factors (see figure) are known and interactions between them are present. Besides diet advise, modification of erosive food and beverages as well as modification of the acquired pellicle may enhance protection and prevent dissolution of dental hard tissues. Recommendations for patients at risk for erosive tooth wear as well as early management will be discussed.

The pH-value of a beverage or food is not the only decisive factor, but other ingredients decide the erosive potential, too (see figure). Many foods and beverages are acidic but they do not make any erosion. Why?

Besides diet advise, modification of erosive food and beverages as well as modification of the acquired pellicle with peptides or polyphenols may prevent the teeth from dental erosion. These trends are also discussed in this lecture.

Dr Christophe BOU

MCU-PH UFR des Sciences Odontologiques de Bordeaux / Santé Publique- Odontologie Légale
Expert Judiciaire près la Cour de Cassation à Paris : Identification odontologique / Anthropologie d'Identification

BIOGRAPHIE

- Praticien Libéral à Toulouse – 1988 à 2004
- Formation Complémentaire en Anthropologie Biologique laboratoire PACEA (Bordeaux).
- Thème de recherche sur l'étude anthropologique des momies (Musée Egyptien de Turin (Italie)- Musée de l'Homme (Paris)- Musée Labit (Toulouse) - Musée Calvet (Avignon)- Musée Leymebamba (Pérou)…)
- En 2004, Nomination MCU-PH sur Bordeaux, Avis favorable comme expert judiciaire à la Cour d'Appel de Bordeaux (identification odontologique de personnes décédées, et anthropologie d'identification en sciences criminelles)
- Suite à la nomination en 2017 auprès de la Cour de Cassation a Paris, investissement sur la problématique des inhumations sous X et des disparitions inquiétantes en France. Recherche et Evaluation de nouveaux concepts alliant la reconstruction faciale et l'IA.

CONFERENCE INTERDISCIPLINAIRE

Le chirurgien-dentiste au cœur de l'enquête

Longtemps cantonné au soin bucco-dentaire, le rôle du chirurgien-dentiste s'étend aujourd'hui jusqu'aux scènes de crime. Grâce à l'odontologie légale, ce spécialiste devient un acteur clé des enquêtes criminelles. L'identification de victimes par l'analyse des dents, mais aussi complémentairement avec les éléments squelettiques potentialise de nouvelles perspectives dans ce domaine médico-judiciaire.

Avec l'avènement des nouvelles technologies et de l'intelligence artificielle, les outils d'investigations se perfectionnent : imagerie 3D, logiciels de reconnaissance faciale et algorithmes de correspondance affinent les analyses et potentialise les méthodes traditionnelles toujours utilisées. Le chirurgien-dentiste, conjugue expertise médicale et innovation pour faire parler les preuves silencieuses. Dans un monde où chaque détail compte, sa contribution à la justice n'a jamais été aussi cruciale.

Communications scientifiques

Communications e-posters enseignants
Vendredi 27 juin 2025 – 10h40-11h40

Modérateurs : Benoît BALLESTER & Fleur BERES

Jury : Comité scientifique du CNEOC (Reza ARBAB CHIRANI, Nathalie BRULAT, Alexis GAUDIN, Cyril VILLAT) + *modérateurs*

En caractère gras : auteur communicant
Langue de présentation et UFR d'appartenance
Temps de présentation : 3 minutes (puis 2 minutes de questions/discussion)

9 présentations en compétition pour les prix SEPTODONT (1000 €) et L'INFORMATION DENTAIRE (un abonnement d'1 an à l'une des revues du groupe Information Dentaire au choix)

1. "Framing Uncertainty in Endodontics. A Narrative Heuristic Overview" – **Guillaume SAVARD**, C. MOUSSA, S. DOMEJEAN, F. DENIS (Anglais, Tours)

2. "Hypercementosis and Endodontic Treatment: A Systematic Review and Therapeutic Strategies" – **Claire LAFOURCADE**, C. CLARK, R. DEVILLARD, O. KEROUREDAN, L. MASSE (Anglais, Bordeaux)

3. "Fracture Resistance of Direct versus Indirect Restorations on Posterior Teeth: A Systematic Review and Meta-Analysis" – **Carol MOUSSA**, G. SAVARD, G. ROCHEFORT, M. RENAUD, F. DENIS, MH DAOU (Anglais, Tours)

4. "Initial Dental Lesions of permanent teeth: knowledge and management in daily clinical practice" – **Stéphane Xavier DJOLE**, GAS VAYE, KA KOFFI, SE TIEMELE-YACE, AJ ADOU, Y. GNAGNE-KOFFI (Français, Abidjan)

5. "Reintervention on external cervical resorptions in maxillary incisors" – **Elisa CAUSSIN**, F. BERES, M. IZART (Français, Paris)

6. "Comparison of the accuracy of dental restorations using injected composite with moulded silicone index versus CAD/CAM flexible resin index" – **Théodore OWCZARSKI**, C. DENIS, J. VANDOMME, L. ROBBERECHT (Français, Lille)

7. "Investigating Salivary Cytokines as Potential Biomarkers for Dental Caries: A Preliminary Analysis" – M. DUBOIS, M. ORTIS, A. DOGLIO, **Marie-France BERTRAND** (Français, Nice)

8. "Dentoalveolar phenotype in Cldn19 knock-out mice" – **Marie SEVIN**, E. LIRA DOS SANTOS, L. SLIMANI, C. PROT-BERTOYE, P. HOUILLIER, C. CHAUSSAIN, C. GAUCHER, C. BARDET (Français, Paris)

9. "A Virtual Reality Pedagogical Tool for Enhancing Preclinical Dental Skills: Addressing Limitations in Traditional Training" – **Lucie RAPP**, A. FESQUET, L. BOIVIN, B. BASTIANI, F. DIEMER, D. MARET (Français, Toulouse)

Framing Uncertainty in Endodontics. A Narrative Heuristic Overview.

G. Savard[1-2], C. Moussa[1-2], S. Doméjean[3-4], F. Denis[1-2]

[1] *Faculty of Dentistry, University of Tours, France.* [2] *EA7505, Éthique, Éducation, Santé, University of Tours, France.* [3] *Faculty of Dentistry, University Clermont Auvergne, France,* [4] *EA 4847, Centre de Recherche en Odontologie Clinique, University Clermont Auvergne, France.*

OBJECTIVE: The objective of this narrative overview is to present and test the relevance of a model for research about uncertainty and uncertainty tolerance (UT) in endodontics.

BACKGROUND: Uncertainty is a fundamental aspect of medicine. UT can have positive and negative outcomes affecting for instance: diagnosis accuracy, prognosis precision, quality of life, safety of care, avoidance of treatment, or hope of recovery [1]. The field of endodontics shows a large complexity with variability of therapeutic decisions, challenging prognostic, unpredictable outcomes, or particular circumstance [2]. This is why UT management is advocated in endodontics [3]. The aim of this review is to initially assess whether a model of UT and management in medicine can serve as a relevant and useful framework in the field of endodontics.

METHODS: We used a narrative heuristic approach to explore this new realm, performing Pubmed search and one-thing-leading-to-another approach to identify relevant issues that we matched to the framework. We ensured that the chosen model was aligned with existing research.

DISCUSSION: The *Hillen/Han model* (HHM) [1-4] describes the sources of uncertainty (Fig. 1) and provides a conceptual framework for UT, issues, locus, strategies, and management. The retrodictive validation is promising and most issues match the HHM (Tab. 1). Still some dimensions are unexplored yet.

CONCLUSIONS: Future research about UT in endodontics may benefit from grounding in the HHM.

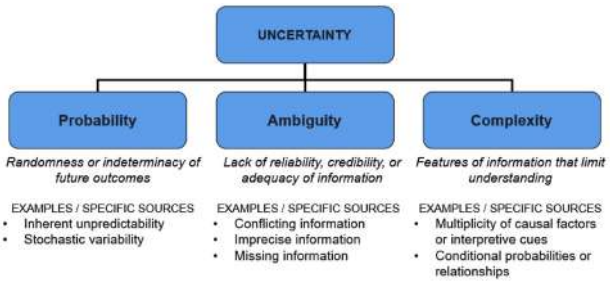

Fig. 1: Sources of uncertainty.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE

This narrative heuristic overview provides a conceptual framework for any research on uncertainty and uncertainty tolerance in dentistry and endodontics in particular.

REFERENCES: [1] P.K.J. Han (2021) *Uncertainty in Medicine: a Framework for Tolerance*, Oxford University Press. [2] B. Patel, M.A. Eskander, et al (2020) *J Endod.* **46**(11):559-1569 [3] M. Pigg, J. Brodén, et al (2022) *Int Endod J.* **55**(4):282-289. [4] M.A. Hillen, C.M. Gutheil, et al (2017) *Soc Sci Med.* **180**:62-75.

ACKNOWLEDGEMENTS: This template was initially modified with kind permission from European cells and Materials Journal.

Tab. 1: Matching endodontic issues to the HHM.

UNCERTAINTY			
SOURCES		**ISSUES**	
PROBABILITY	*Randomness*	**SCIENTIFIC**	*rate of healing ; pulp healing after pulpotomy ; retreatment success rate ; apparition of flare-ups ; tooth replantation failure rate ; number of visits*
Indeterminacy	*Chaotic behavior*		
COMPLEXITY	*Multiplicity*		*Flare up process ; endo-periodontal lesion prognosis ; anatomical complexity ; pain perception ; etiology of tooth resorption ; role of tobacco smoking in periapical periodontitis ; endodontic retreatment decision*
Intractability	*interdependance*		
AMBIGUITY	*Unreliability*		*is apical periodontitis healing or silent ; X-ray determination of working length ; reliability of thermal test ; weakening of teeth by calcium hydroxyde ; effectiveness of laser in decontamination*
Indeterminability	*Incredibility*		
	Inadequacy		
	Diagnosis		*Symptoms of tooth fracture ; survival probability of this endodontically treated teeth with a post ; possible implication of periodontitis on the pulp health ; possible formation of dentinal microcracks ; instrument separation*
	Prognosis		
	Causal explanations		
	Treatment		
	Structures of care	**PRACTICAL**	*Risk of under-treatment ; inconsistent patient care ; delayed referral ; adherence to care (prosthodontics restoration) ; respect of follow-up interval*
	Processes of care		
	Psychological	**PERSONNAL**	*Cognitive burden ; patient dissatisfaction ; difficulty in communicating about uncertainty ; ethical dilemma about a loss of chance ; economic dilemma in healthcare funding ; risk of job loss for the patient*
	Social		
	Economic		
	Existential		

ENDODONTIC ISSUES

Hypercementosis and Endodontic Treatment: A Systematic Review and Therapeutic Strategies

C. Lafourcade[1,2], C. Clark[1,2], R. Devillard[1,2,3], O. Kérourédan[1,2,3] L. Massé[1,2,4]

1 Univ. Bordeaux, UFR des Sciences Odontologiques de Bordeaux, Bordeaux, France. 2 CHU de Bordeaux, Bordeaux, France. 3 INSERM, BioTis, U1026, Bordeaux, France. 4 Univ. Bordeaux, CNRS, Ministère de la Culture, PACEA, UMR 5199, F-33600 Pessac, France.

INTRODUCTION: Hypercementosis, a non-neoplastic overgrowth of cementum, alters root morphology and poses significant challenges for endodontic treatment (1). Excessive cementum, particularly in the apical third (e.g., bulbous root forms), can result in obliterated or displaced apical foramina, and accessory canals. These features complicate diagnosis, working length determination, canal negotiation, and obturation (2). Despite its clinical relevance, limited literature exists on adapted endodontic protocols. This review aims to synthesize current evidence and propose a therapeutic framework.

METHODS: A systematic review was conducted following PRISMA guidelines. The SPIDER tool was used to define inclusion criteria focused on studies exploring endodontic implications of hypercementosis in human teeth. Among the 94 records identified through databases (i.e., PubMed, Scopus, EBSCO-DOSS, Google Scholar) and other sources, 76 were retained after removing duplicates. After full-text evaluation, 9 articles were included in the systematic review: 3 experimental/descriptive studies, 1 case series, and 5 clinical case reports. Data extraction followed standardized grids, with bias assessed using adapted STROBE and CARE checklists.

RESULTS: Key anatomical findings include club-shaped roots with multiple or obliterated apical foramina and lateral canals (Fig. 1). These variations interfere with traditional instrumentation and obturation. Clinical cases showed failures of conventional treatment due to canal inaccessibility. CBCT imaging, CAD-guided microsurgery (3), guided endodontics, and ultrasonic irrigation were proposed to address these issues. The decision tree (Fig. 2) highlights a stepwise management approach: asymptomatic cases require monitoring; symptomatic cases may benefit from CBCT-aided orthograde or surgical treatment, progressing to extraction in cases of persistent failure.

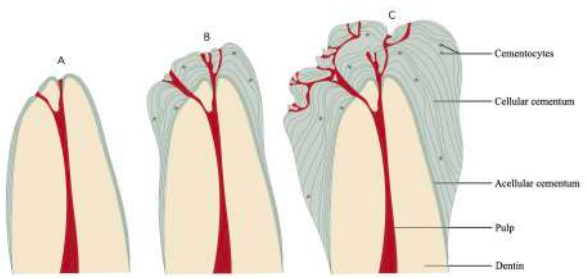

Fig. 1: Illustrations of different degrees of hypercementosis and their effects on root structure

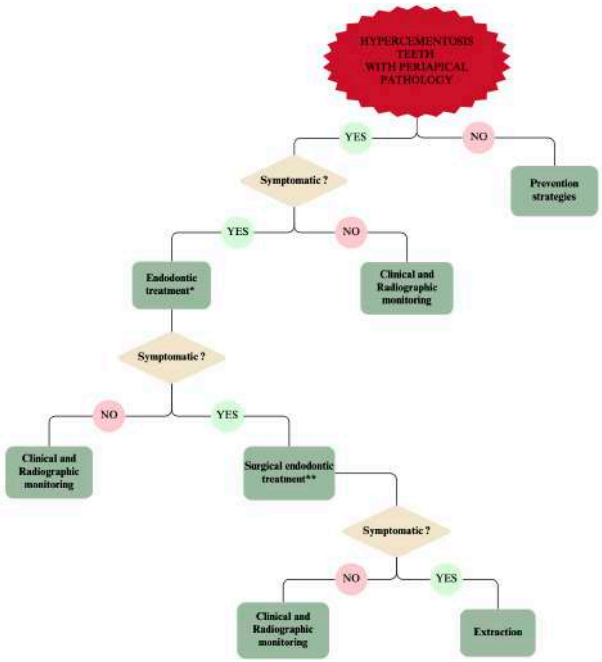

Fig. 2: Therapeutic gradient for the management of hypercementosis teeth.

DISCUSSION & CONCLUSIONS: Hypercementosis significantly alters apical anatomy, demanding tailored endodontic strategies. Advanced imaging and AI-assisted planning improve diagnosis and treatment accuracy. Bioceramic sealers and guided techniques are promising but require further validation. While CBCT aids in decision-making, it has limitations in detecting fine apical structures. Future research should develop in vitro models and standardized protocols to enhance therapeutic outcomes. Clinicians should adopt a gradient-based treatment model (Fig. 2) incorporating clinical, radiographic, and symptom-based criteria to optimize care.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE

Hypercementosis complicates endodontic treatment due to altered root anatomy, such as obliterated apical foramina and club-shaped roots. Integrating advanced imaging (CBCT), guided techniques, and AI-assisted planning enhances diagnosis and management, promoting a gradient-based approach to optimize patient care.

REFERENCES: 1. Massé L, Garot E, Maureille B, Le Cabec A. Insights into the aetiologies of hypercementosis: A systematic review and a scoring system. Arch Oral Biol. 2023. 2. Barros LAP, Pinheiro BC, Azeredo RA, Consolaro A, Pinheiro TN. Root apical third and canal morphology of teeth with hypercementosis. Dent Press Endod. 2013. 3. Lai PT, Yang SF, Lin YM, Ho YC. Computer-aided design-guided endodontic microsurgery for a mandibular molar with hypercementosis. J Formos Med Assoc. 2019.

Fracture Resistance of Direct versus Indirect Restorations on Posterior Teeth: A Systematic Review and Meta-Analysis

C. Moussa[1,2,3], G. Savard[1,3,4], G. Rochefort[1,5], M. Renaud[1,4,6], F. Denis[1,3,4], M.H. Daou[1,7,8]

[1] Faculty of Dentistry, University of Tours, France. [2] Department of Restorative Dentistry, Saint-Joseph University, Lebanon. [3] Division of Education, Ethics, Health, University of Tours, France. [4] Department of Medicine and Bucco-Dental Surgery, Tours University Hospital, France. [5] INSERM iBrain U1253, University of Tours, France. [6] N2C Laboratory, INSERM U1069, University of Tours, France. [7] Department of Pediatric Dentistry, Saint Joseph University, Lebanon. [8] Division of Biomaterials, Craniofacial Research Lab, Saint Joseph University, Lebanon

INTRODUCTION: Durable restoration of posterior teeth is a cornerstone of conservative dentistry. While direct and indirect techniques are both commonly employed, there is limited consensus regarding their comparative mechanical performance. This study aims to systematically evaluate and compare the fracture resistance of direct and indirect restorations under static compression, providing evidence-based guidance for clinical decision-making.

METHODS: A systematic review and meta-analysis were conducted in accordance with PRISMA guidelines. Databases searched included Medline, Embase, and CENTRAL, covering studies from 2007 to February 2024. Only in vitro and finite element analysis studies evaluating static compressive fracture resistance of posterior restorations were included. Data were synthesized using Review Manager 5.4.1 with subgroup analyses based on restoration material and cusp coverage.

RESULTS: Twenty-four studies were included in the qualitative analysis, and sixteen in the quantitative meta-analysis.

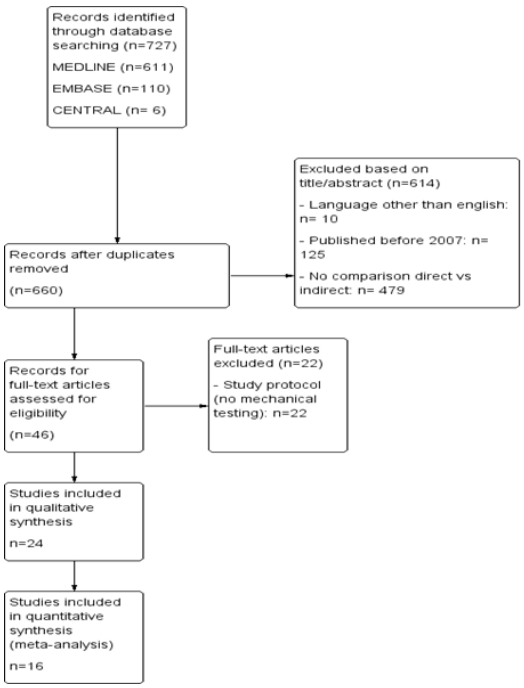

Fig. 1: Study flow diagram [1-2]

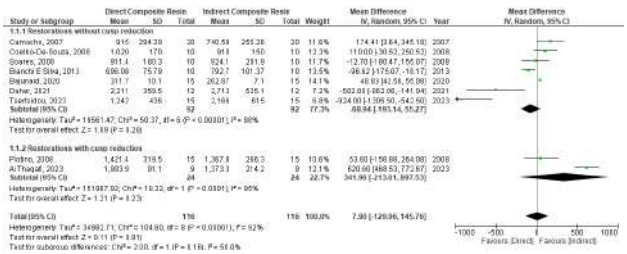

Fig. 2: Forest plot comparing fracture resistance of direct vs. indirect composite restorations

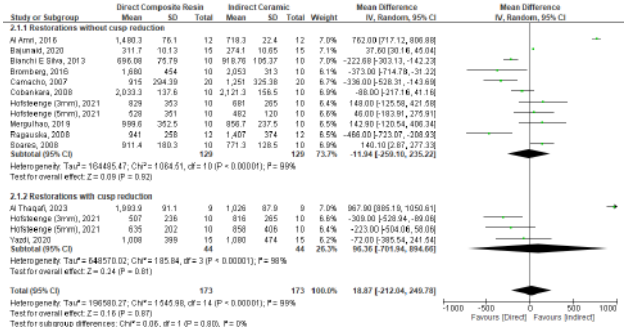

Fig. 3: Forest plot comparing fracture resistance of direct composite vs. indirect ceramic restorations

DISCUSSION & CONCLUSIONS: This meta-analysis shows that both direct and indirect restoration techniques provide comparable resistance to static compressive forces. Clinicians may base their restorative approach on factors such as clinical feasibility, cost, and patient-specific considerations rather than expected differences in fracture resistance. Further studies using dynamic loading and clinical data are needed for broader insight.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE

These findings are directly relevant to conservative dentistry practice, reinforcing that direct composite restorations can offer similar mechanical reliability as indirect restorations in terms of static compressive force.

REFERENCES (most recent): [1]Althaqafi KA (2023) Performance of direct and indirect onlay restorations for structurally compromised teeth. *J Prosthet Dent* S0022-3913:00549-8. [2]Tsertsidou V, Mourouzis P, et al (2023) Fracture resistance of class II MOD cavities restored by direct and indirect techniques and different materials combination. *Polymers* 15:341–343.

ACKNOWLEDGEMENTS: This template was modified with kind permission from European cells and Materials Journal

Initial Dental Lesions of permanent teeth: knowledge and management in daily clinical practice.

Djolé SX, Vayé GAS, Koffi KA, Tiémélé-Yacé SE, Adou AJ, Gnagne-Koffi Y.
Department of Orofacial Rehabilitation, Section of Conservative Dentistry, Odontology-Stomatology Training and Research unit, University of Félix Houphouët Boigny, Cote d'Ivoire

CONTEXT: Initial dental lesions (IDL) include visible changes in enamel color and texture without cavitation, or microcavities limited to the dentin-enamel junction. The balance between Demineralization-Remineralization (DR) determines the course of the tooth substance loss. Our previous studies showed that homemade drinks contribute to the onset of IDL[1-2], but there are no data on their management. The aim of this study was to investigate the non-operative or operative therapeutic approaches for managing IDL.

METHODS: This was a survey of the knowledge, attitudes and practices of dental surgeons (SDs) conducted from September to October 2024. SDs were asked about the terms demineralization and IDL, their associated factors, the diagnosis tools and how IDL is managed. Data analyses was performed by IBM SPSS 26.0. software using the Chi-square test.

RESULTS: We received completed questionnaires from 126 respondents (response rate 84%). SDs described the initial dental lesion as a white or brown spot on the enamel surface (92.8%), with some associating micro-cavitations (7.2%). Dental plaque biofilm and dietary habits are mostly considered to be factors (97.6%), but few dentists (23%) are able to explain the mechanism of demineralization. The main methods used to IDL diagnosis are traditional examinations by inspection, probing and radiography (65.9%). Some SDs add transillumination (21.4%) and demineralization-detecting dyes (8.7%) to their diagnostic tools. To treat non-cavitated lesions, 31% confine themselves to oral hygiene instructions and 53% prescribe oral fluoride supplementation. Resin infiltration technique is known (23%), but 11.9% and 13.5% of SDs use them respectively in non-cavitated initial dental lesions and microcavities limited to enamel and/or dentin-enamel junction. In these cases, 63.5% of SDs systematically proceed with a composite or glass ionomer cement restoration. Atraumatic restorative approach (hand instruments and glass ionomer cement) is not applied in both clinical situations (figure 1).

DISCUSSION & CONCLUSIONS: SDs can clinically recognize IDL, but the DR process is not well known. The most accessible diagnostic aids (transillumination and demineralization dyes) are not frequently used, and even less so the diagnostic tools, such as laser fluorescence detection devices and light-induced fluorescence. SDs do not use minimal intervention in the management of IDL as a priority, in line with previous studies in our epidemiological context[3].

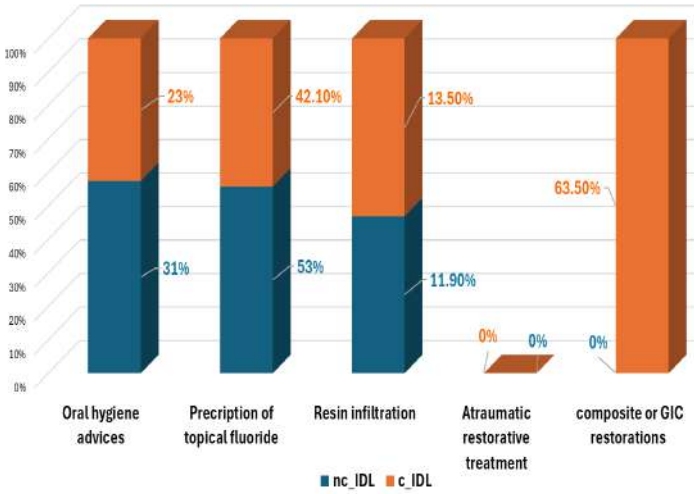

Figure 1:Clinical practices in the treatment of non-cavitated initial dental lesions (nc_IDL) and microcavities limited to enamel and/or dentin-enamel junction (or cavited initial dental lesions: c_IDL).

CONSERVATIVE DENTISTRY RELEVANCE: This study highlights the need to improve the skills of dental surgeons in the management of initial dental lesions.

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ACKNOWLEDGEMENTS: Council of the Dental surgeon of Côte d'Ivoire.

Reintervention on external cervical resorptions in maxillary incisors

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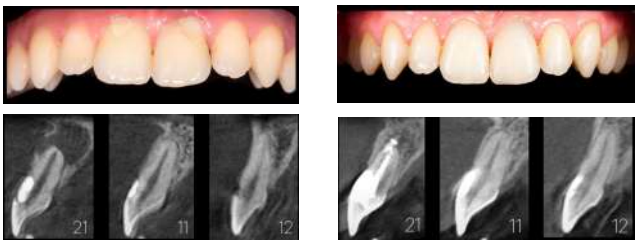
BACKGROUND /CONTEXT: Following dental traumatism in his childhood, the patient was referred in 2023 for treatment of the resorptions in maxillary incisors that had been previously treated in 2018 with glass ionomer cement (GIC). No root canal treatment had been performed at the time. In 2023, the external cervical resorptions progressed and tooth 21 had become symptomatic.

METHODS/CASE REPORT DESCRIPTION:
Tooth 21 was diagnosed with an acute apical periodontitis and progression of the resorption. The CBCT showed an additional resorption in the apical area, well defined, laterally to the canal. The most likely etiology was an apical extension of the external resorption, as it was not communicating with the main canal. Teeth 11 and 12 showed progression of the external cervical resorption but were vital and asymptomatic.
Root canal treatment was performed on tooth 21. In the same appointment, a flap with no releasing incisions was raised in order to access the resorptions. Rubber dam was placed with pre-bent incisal clamps to access low margins. Previous GICs were removed and the resorptions cleaned taking a slight security margin to avoid any resumption. To improve isolation, Teflon was used and heated with ultrasonic tips to fit perfectly. Bonding protocol was performed to apply composite resin (Venus Bulk flow One, Kulzer), which was further thoroughly polished to allow gingiva to reattach. Sutures were performed to reposition the flap and were removed at 2 weeks.

RESULTS / MONITORING: At 6 months, teeth were asymptomatic, no probing depths were measured.
Nevertheless, at the 1-year follow-up despite an almost complete healing of the periapical bone, tooth 21 became symptomatic again, and diagnosed with an acute apical periodontitis. No probing depth evocating crack extension was reported. It is likely that the apical extension of the external resorption that could not have been treated with the orthograde endodontic treatment played a role in this new bacterial dynamic. Endodontic micro-surgery was performed on tooth 21 and the main canal as well as the apical resorption were filled with bioceramic cement. 6 months later, the tooth was asymptomatic, and the gingiva was completely physiological.



(A) **(B)**

Fig. (A) initial situation in 2023. Unadapted GIC on maxillary incisor, apical lesion on tooth 21. (B) 1 month post-endodontic micro surgery on tooth 21. Orthograde treatment of 21 and resorption treatment on 11, 12 and 21 were performed 1 year earlier.

DISCUSSION & CONCLUSIONS: The treatment of resorptions following trauma is often complex, as the topology is unique to each patient. As gingival reattachment over time seems more favorable with composite resin and more aesthetic, the key is to successfully isolate once the flap is raised and apply it under suitable conditions. As the rate of re-evolution of these resorptions is high, regular monitoring of these patients is essential.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE: External cervical resorption is a complex condition as it can evolve even years after initial treatment. It is essential to use the whole endodontic therapeutic gradient to keep these teeth in the arch as long as possible.

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Comparison of the accuracy of dental restorations using injected composite with moulded silicone index versus CAD/CAM flexible resin index

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INTRODUCTION

The widespread adoption of digital workflow in dentistry makes it possible to temporarily restore the tooth by injection of composite using additive manufactured indexes made of flexible resin. These new CAD/CAM-produced indexes are said to integrate the injected composite technique into the digital workflow, eliminate the need for a physical wax-up, and offer improved thickness control and reproducibility. However, no experimental or clinical data supports the accuracy of restorations performed with these printed indexes compared to conventional moulded ones. This study aims to evaluate the trueness of direct composites injected by conventional and additive manufactured resin indexes.

METHODS

Fifteen preoperative models and wax-up models of peg-shaped teeth 12 and 22 were developed (trueness and precision were evaluated by comparing a scan of the models with reference model data). 3D-printed flexible resin indexes (thickness: 4 mm) and moulded silicone indexes were fabricated. The composites were injected and the mean discrepancies with the reference digital wax-up model were measured in the mesial, distal, buccal, palatal and incisal edge areas using comparison software (*fig. 1*). The composites were polished, scanned again and their shapes were compared to the unpolished composite. A Welch-corrected t-test was used to compare unpolished composites between both groups. A paired t-test was used to assess differences between unpolished and polished composites within each group.

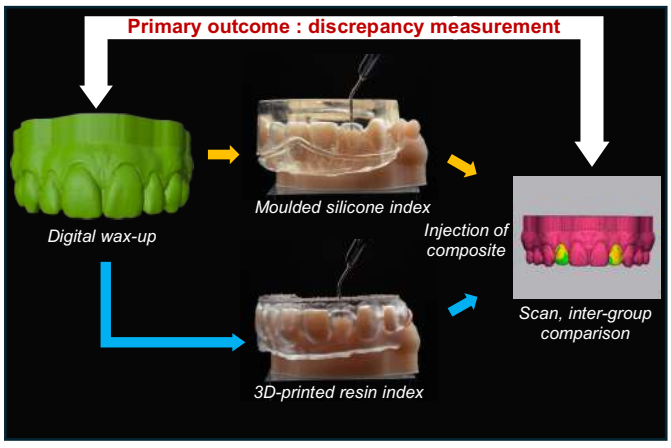

Fig. 1 : Study overview

RESULTS

No discrepancy differences were observed between the groups considering all surfaces (p>0,05). The

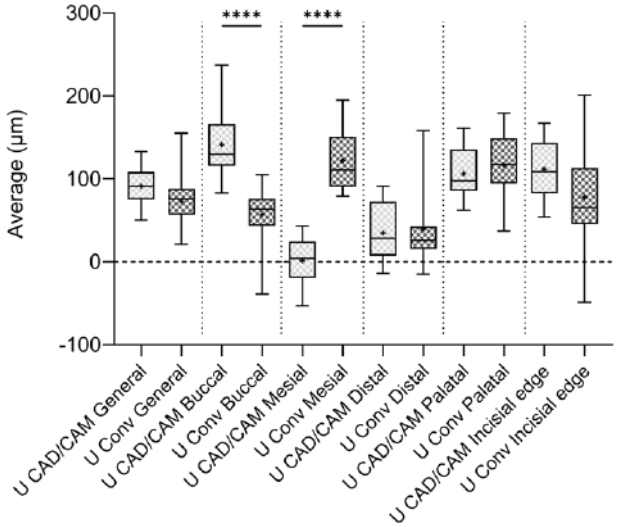

*Fig. 2: Discrepancy (median; Q1; Q3; + indicates mean) between composites fabricated using silicone index and CAD/CAM resin index and the digital wax-up model, depending on the area considered. Error bars indicate statistically significant differences between groups. **** p < 0.001*

CAD/CAM technique was less accurate than the silicone index technique regarding the buccal area, but more accurate regarding the mesial area (p<0,001). No other differences were observed (p>0,05) before polishing. Polished composites had smaller discrepancies with the reference model than the unpolished composites in all areas (p<0,05) (*fig. 2*).

DISCUSSION & CONCLUSIONS

The distances measured between the composite materials and the reference wax-up are comparable to previously published data[3]. Both fabrication techniques were clinically acceptable. CAD/CAM indexes had sharper embrasures that explain more accurate mesial areas. More accurate vestibular surfaces obtained with silicone indexes could be explained by superior shape memory of silicone, perception experienced during application. Polishing reduced discrepancies in each area.

RESTORATIVE DENTISTRY RELEVANCE

New CAD/CAM-produced indexes can be used to produce accurate dental restoration with injected composite as well as moulded silicone indexes.

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Investigating Salivary Cytokines as Potential Biomarkers for Dental Caries: A Preliminary Analysis

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INTRODUCTION: Identifying salivary cytokine biomarkers predictive of dental caries holds significant potential for personalized clinical practice. Early detection via salivary diagnostics would enable tailored interventions based on individual pathophysiological mechanisms. Salivary cytokines detection could enhance diagnosis, predict progression risk, and guide therapy (1). The aim of this cross-sectional study is to analyze the oral and immune changes depending on the presence of dental caries. A preliminary analysis was conducted to assess variations in cytokine profiles among different participant groups.

METHODS: The study was a cross-sectional, non-randomized, single-center RIPH 3 study involving 80 participants aged 18-30 years. Oral examination and unstimulated saliva sampling were carried out among the participants, grouped into caries (n=31) and healthy (n=49) groups. General (age, sex, BMI, physical activity, smoking, stress) and oral clinical indicators (plaque index, gingival index, decay-missing-filled index [DMF]) were recorded. Nine cytokines (IL-2, IL-4, IL-6, IL-10, IL-12p70, IL-17A, IL-1β, TNF-α, IFN-γ) saliva levels were quantified by a sensitive multiplex ELISA assay MSD technology. Statistical tests employed included Shapiro-Wilk test for normality, Mann-Whitney U test and Kruskal-Wallis test for non-normal quantitative data. ROUT method was employed to exclude outliers. Graphpad Prism software was used to perform statistical analysis.

RESULTS: Statistical analysis showed no significant inter-group differences in age, BMI, physical activity, or tobacco use. However, the caries group presented with a significantly higher DMF index and plaque index ($p<0.05$). Following outlier removal, salivary IL-17A levels were significantly higher in the caries group compared with the healthy group ($p=0.0219$). Besides, after data cleaning and exclusion of the patients with gingival inflammation from both groups, IL-17A concentration remained significantly higher in the caries group (Fig.1). No other significant differences in salivary cytokine levels were detected between the groups.

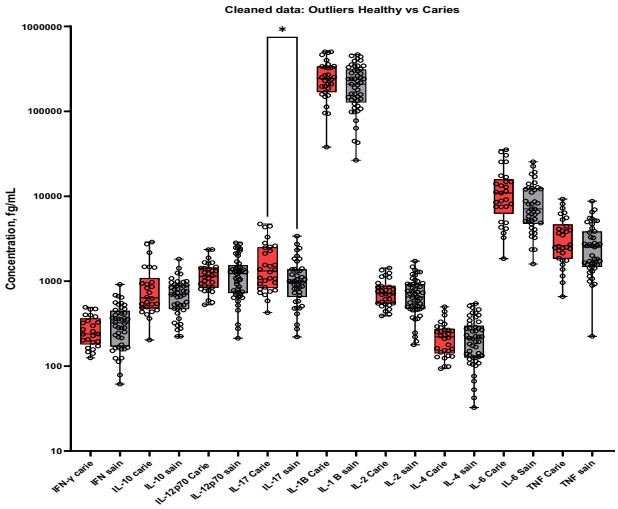

*Fig. 1: Mean cytokine levels (fg/mL) in participants with caries (red bars) and healthy controls (grey bars) after outlier removal. *p < 0.05*

DISCUSSION & CONCLUSIONS: IL-17A plays a key role in mucosal immunity by strongly inducing the production of inflammatory cytokines and chemokines. This study revealed a potential significant association between elevated salivary IL-17A levels and the presence of dental caries, suggesting that active defense mechanisms may be triggered in response to cavity formation (2). While these findings suggest the potential for cytokine-based caries detection, further research with a larger sample size is warranted.

This research will provide a greater insight into the biological processes of caries development and progression and offer practical tools for early detection, prevention and optimal management in conservative practice.

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Dentoalveolar phenotype in *Cldn19* knock-out mice

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INTRODUCTION: Claudins (CLDNs) proteins constitute key components of tight junctions (TJ). In the kidney, CLDN19 associates with CLDN16 to form cation-selective pores regulating paracellular transport of calcium and magnesium. In human, mutations in either *CLDN16* or *CLDN19* cause Familial Hypomagnesemia with Hypercalciuria and Nephrocalcinosis (FHHNC)[1] associated with *Amelogenesis Imperfecta*[2,3] *(Figure 1)* and, in some cases, bone defects[1]. *Cldn16* Knock-out (KO) mice showed that the lack of claudin-16 strongly impaired TJ organization in secretory stage ameloblasts associated to an abnormal processing of enamel matrix proteins[4]. Interestingly, jawbone defects were recently identified in a *Cldn16* Knock-In (KI) model. Here we analyzed the dentoalveolar phenotype in a *Cldn19* KO murine model in order to decipher the role of CLDN19 during enamel and bone formation.

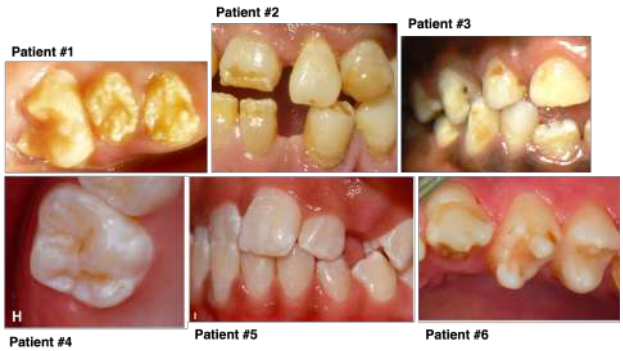

Figure 1: Panel of patients with Amelogenesis Imperfecta associated to FHHNC. Patients #1,#2,#3 due to CLDN16 mutations (Patients #1,#2 and #3)[2] and CLDN19 mutations (Patients #4, #5 and #6)[3]

METHODS: After observation of the macroscopic structure of enamel incisor from wild-type (WT) and *Cldn19* KO mice, mandibles were collected and analyzed using X-ray micro-computed tomography (MicroCT) (Quantum FX µCT, Caliper, PerkinElmer). Enamel volume and density of the continuously growing incisor was analyzed 1) for the whole incisor, 2) at the secretory stage and 3) at the maturation stage. Dentin from the first and third molar, and the underlying alveolar bone region were also studied. We performed complementary histological staining.

RESULTS: Micro-CT analysis revealed no significant differences in volume nor density in whole incisor enamel. Interestingly, a localized increase in mineral density -without volume change - was detected in the secretion stage of *Cldn19* KO mice compared to WT controls. No alterations were observed in the enamel maturation stage. Dentin volume and density remained comparable between the two groups. However, a significant reduction in bone volume was observed beneath the third molar (M3) in *Cldn19* KO mice relative to WT. We are currently studying enamel matrix proteins expression during secretory and maturation stages in WT and *Cldn19* KO lower incisor tooth and claudin-16 and -19 expression in WT alveolar bone.

DISCUSSION & CONCLUSIONS: *Cldn19* KO mice do not recapitulate the enamel characteristics of *Amelogenesis Imperfecta*. However, alterations observed in enamel secretion and alveolar bone warrant further investigation to understand 1) the respective contributions of claudin-16 and -19 to enamel formation and 2) claudin proteins role in bone formation which appears consistent with bone defect associated with FHHNC.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE

Knowledge on rare disease associated with *Amelogenesis Imperfecta* will permit better dental care of the patient with FHHNC.

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A Virtual Reality Pedagogical Tool for Enhancing Preclinical Dental Skills: Addressing Limitations in Traditional Training

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LITTERATURE REVIEW: Conventional dental simulators show limitations including lack of realism, absence of haptic feedback, and subjective evaluations. [1] In response, emerging technologies like immersive virtual reality (VR) offer enhanced realism, objective assessments, and flexibility for self-directed learning. [1] Studies demonstrate VR's effectiveness in improving dental students' surgical skills through quantifiable enhancements in accuracy and procedural comprehension. [2] The adoption of VR addresses challenges such as limited real-world cases, tutor availability, and the inadequacy of plastic teeth for realistic simulation. [1,3]

OBJECTIVES / PURPOSE: The primary objective of the pedagogical tool is to enhance preclinical skill development in restorative dentistry and endodontics by providing students with more immersive and personalized learning experiences that can be practiced at home. This aims to address the need for increased practical experience and improved clinical skills identified in preclinical dental students.

DESCRIPTION OF PRACTICE: The proposed pedagogical tool utilizes immersive virtual reality (VR) focusing on clinical observation to facilitate a better understanding of procedural acts for dental students.[2,4] This tool can be employed with VR headsets, either accompanied by an instructor or independently, or using cardboard viewers, offering a three-dimensional perspective of dental procedures.[2,4] Students can experience the situation from the operator's viewpoint, immersing themselves in the various stages of a protocol, such as caries excavation and endodontic treatment. The immersive tutorial approach employs a first-person stereoscopic view based on video, potentially leading to emotional engagement and reduced cognitive load. [2]The creation of learning content involves recording procedures in 3D from an expert's perspective, filming the oral cavity with an intra-oral camera, and synchronizing these views during editing.[2,4] Home-based practice with immersive technologies can offer accessible, high-quality simulation tools and personalized guidance.

A structured debriefing process is considered necessary for knowledge transfer and skill refinement when using immersive VR dental simulations.

Fig. First-person expert's perspective and oral cavity

DISCUSSION & CONCLUSIONS: This VR tool supplements traditional dental education by providing home-based practice opportunities.[1,4] It addresses students' need for practical experience while improving clinical proficiency and confidence. [3,4] Future research should quantify its impact on procedural skills and knowledge retention. [3] Developing scalable, cost-effective VR solutions remains crucial for accessibility. [2,4]

ENDODONTIC AND CONSERVATIVE DENTISTRY RELEVANCE: The tool is designed for preclinical skill development in both endodontic and conservative dentistry. Examples include VR applications in caries excavation and endodontic treatment, helping students understand procedural steps through immersive clinical observation.

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Communications orales
Vendredi 27 juin 2025 – 14h35-16h05

Modérateurs : Karen VALLAEYS & Lieven ROBBERECHT

Jury : Comité scientifique du CNEOC (Reza ARBAB CHIRANI, Nathalie BRULAT, Alexis GAUDIN, Cyril VILLAT) + *modérateurs*

En caractère gras : auteur communicant
Langue de présentation et UFR d'appartenance
Temps de présentation : 5 minutes (puis 2 minutes de questions/discussion)

10 présentations en compétition pour les prix COLGATE (1000 €) et L'INFORMATION DENTAIRE (un abonnement d'1 an à l'une des revues du groupe Information Dentaire au choix)

1. "Influence of the rotation angles on the mechanical behavior of the One RECI instrument" – **Renaud GIESS**, E. MORTIER, M. DELANOE, JM MARTRETTE, R. BALTHAZARD, M. VINCENT (Anglais, Nancy)

2. "Reducing the risk of instrument fracture in endodontics: a microstructural and acoustic analysis of damage to NiTi files" – **Jeanne DAVRIL**, M. VINCENT, R. HOCQUEL, A. CAPPELLA, R. BALTHAZARD, E. MORTIER, A. BALDIT, R. RAHOUADJ (Anglais, Nancy)

3. "Exploring the Potential of DeepSDF for Anatomical Reconstruction in Dental Trauma" – MA GASQUI, J. SANTAMARIA, A. HARA, P. LAHOUD, C. VILLAT, S. VALETTE, **Raphaël RICHERT** (Anglais, Lyon)

4. "Impact of work position on haptic simulator's performance of dental students : a prospective investigation" – **Renaud GIESS**, E. MORTIER, JM MARTRETTE, D. JOSEPH, M. VINCENT, R. BALTHAZARD (Anglais, Nancy)

5. "Professional integration of early career dental graduates: an exploratory investigation" – **Abid BOSSOUF**, D. DESPRES, O. ROMIEU, A. SLIMANI (Français, Montpellier)

6. "Assessing Tooth Wear Education Across French Dental Faculties: Toward National Standardization" – **Amel SLIMANI**, I. ABDANE, A. BOUCHET, O. KEROUREDAN (Français, Montpellier)

7. "Replacement of a mandibular molar with a cantilevered all-ceramic RBFDP: a case report supported by 3D finite element analysis" – **Elisa CAUSSIN**, P. FRANCOIS, N. LARSEN, R. RAJI, A. BENOIT, JP ATTAL (Français, Paris)

8. "Developmental Enamel Defects: Hypothetical Links Between Aetiological Factors and Clinical Expression" – **Julien PO**, C. NABET, AM COLLIGNON (Français, Paris)

9. "Dental trauma abroad: coordinated multidisciplinary hospital and private practice management" – **Emma STURARO**, A. PROSPER, V. BLASCO-BAQUE, M. MARTY, F. DIEMER (Français, Toulouse)

10. "Periapical microbiota and local immune reponse as determinants of dental granuloma severity" – **Emma STURARO**, M. MINTY, P. LOUBIERES, S. DIEMER, M. GEORGELIN-GURGEL, V. BLASCO-BAQUE, F. DIEMER (Français, Toulouse)

INFLUENCE OF THE ROTATION ANGLES ON THE MECHANICAL BEHAVIOR OF THE ONE RECI INSTRUMENT

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INTRODUCTION: The reciprocity is a complex endodontic kinematic involving many parameters. The most important of these is undoubtedly the selection of counterclockwise and clockwise rotation angles (CCW/CW). In this context, the aim of this study was to determine the influence of CCW/CW rotation angles on the mechanical properties of 25/.06 One RECI reciprocity instruments.

METHODS: For this purpose, 5 groups of 10 25/.06 One RECI instruments were used and each group was associated with a pair of CCW/CW rotation angles. In order to study only one variable at a time, one of the two angles was fixed and the second was increased or decreased. The distribution of rotation angles was as follows: Group 1: 170°/60°; Group 2: 150°/60°; Group 3: 170°/30°; Group 4: 170°/90°; Group 5: 210°/60°. Thanks to a load/unload endodontic protocol carried out on a tensile bench, we quantified for each tested pair of rotation angles (i) the cutting efficiency, (ii) the screwing effect and (iii) the generated torque.

RESULTS: Increasing or decreasing one of the two rotation angles influences the mechanical behavior of the instruments, as does the resulting range. Therefore, our results showed a direct influence of reciprocity angles on the mechanical behavior of endodontic instruments.

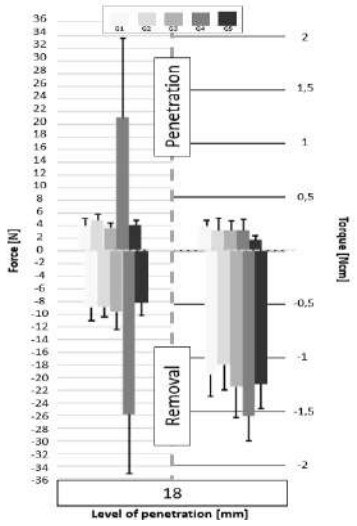

Fig. 1: Graphic representation of load/unload test results on the resin bloc: results for a 18mm penetration depth

DISCUSSION & CONCLUSIONS: Within the limits of our study, the best way to increase the performance of the One RECI instrument seems to be:

- to reduce the CW rotation angle, thus promote the active movement, when high cutting efficiency is desired;
- to increase the range linked to a high CCW rotation angle when a compromise between cutting effective, screwing effect and torque is desired;
- to avoid an increase of CW rotation angle to prevent screwing effects and unload torque increases;
- to reduce the range linked to a low CCW rotation angle when a low unload torque is desired.

Therefore, our results allow to conclude on a direct influence of reciprocity angles on the mechanical behavior of endodontic instruments (Fig. 1). The implementation of these data could improve the mechanical behavior of reciprocating instruments. Endodontic motors monitoring torque and pressure in real time could be a solution to adapt kinematic and mechanical behavior of instruments according to the different encountered clinical situations.

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Reducing the risk of instrument fracture in endodontics: a microstructural and acoustic analysis of damage to NiTi files

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INTRODUCTION: Instrument breakage still frequently occurs during endodontic treatment and compromises its success. There is currently no method to detect in real time the damage caused to nickel-titanium (NiTi) endodontic files, leading to their breakage[1]. Acoustic emission analysis is a non-destructive method allowing real-time monitoring of alloy damage. The objective of our study was to combine acoustic emission (AE) and microstructural observation to analyze the damage of NiTi files up to fracture, to develop a device able to anticipate instrument breakage.

METHODS: The study consisted in carrying out tests to reproduce the instrument fracture of nickel-titanium endodontic files. Four groups of 10 files were selected:
- Group 1: heat-treated files (C-Wire); no irrigation
- Group 2: heat-treated files (C-Wire); irrigation (ethanol, 96°)
- Group 3: non-heat-treated files; no irrigation
- Group 4: non-heat-treated files; irrigation (ethanol, 96°).

Files in groups 1 and 2 were One Curve (Coltene® MicroMega) files. Files in groups 3 and 4 had the same composition and geometry but without heat treatment. The analog tooth model was a J-shaped block of PMMA resin (Dentsply, Ballaigues, Switzerland). The blocks were fixed on a compression tensile bench (Ametek Lloyd LS1). The endodontic files were mounted on a Dual Move motor (Coltene® MicroMega), 500 rpm/4 N.cm, fixed itself on the machine and moved 18 mm in the direction of the block at a speed of 2 mm/s and returned under the same conditions. Tests were repeated on the same file until breakage, the block being changed between each test. The AE chain sensor (Mistras) was coupled to the motor head. Tests were repeated on the same file until failure, with each block reamed only once. Broken files were then observed under a scanning electron microscope (JEOL IT200LA).

RESULTS: The average number of blocks to failure (NBF) was 2.8 (SD=1.33) for group 1; 9.2 (SD=1.4) for group 2; 1.8 (SD=0.75) for group 3; 4.3 (SD=1) for group 4. Ultrasonic signals varied according to the different experimental conditions. However, the interval comprising the zone of passage through the root canal bend (forward path) systematically exhibited numerous high-amplitude signals of up to 65 dB (Fig. 1a). Scanning electron microscope analysis revealed the presence of multiple microcracks in the alloy in the area surrounding the fracture. They are either parallel to the edges of the instrument or perpendicular to them (Fig.1b).

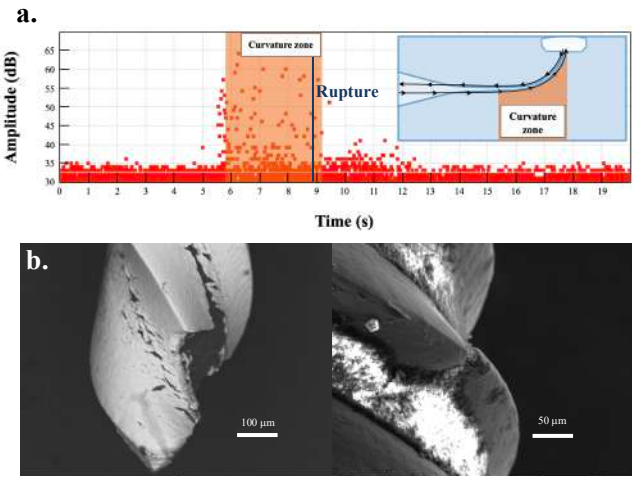

Fig. 1: a. Typical graph of amplitude (dB) vs time (s) for a Group 1 fracture test; b. corresponding SEM at the fracture surface (left) and in the vicinity (right)

DISCUSSION & CONCLUSIONS: The NBF represents a parameter accounting for the impact of heat treatment and irrigation on the breaking strength of the instrument. Irrigation and heat treatment delayed instrument fracture, which is consistent with literature data[2]. In our study, irrigation had a greater impact than heat treatment on fracture resistance. Acoustic emission analysis revealed a concentration of acoustic signals in the bending zone, indicating potential damage. AE detection allows dynamic monitoring of damage evolution in metallic materials. Microstructural analysis by SEM reveals numerous cracks outside the fracture zone, indicating the development of multiple damage zones in addition to plastic deformation. The study therefore allowed us to identify the acoustic signals associated with damage leading to instrument fracture[3].

ENDODONTIC RELEVANCE: AE should ultimately be able to support the practitioner by detecting early signals of instrumental rupture.

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Exploring the Potential of DeepSDF for Anatomical Reconstruction in Dental Trauma

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INTRODUCTION: Anterior dental trauma affects over one billion individuals, especially children aged 7–12. Immediate restoration often involves direct composite layering, yet achieving the ideal tooth shape remains challenging and could be acquired through many years of practice. Artificial intelligence (AI) has emerged as a transformative tool, enabling dental practitioners to design, plan, and restore patients' smiles with enhanced customization and predictability (Jafri *et al.* 2020). However, the implementation of these AI-based systems lack transparency. DeepSDF, a deep learning approach using continuous signed distance functions, has shown promising results in shape learning while stile maintaining transparency. However, its use in dental traumatology is poorly documented. This study aimed to evaluate the influence of latent code size on DeepSDF reconstruction performance for traumatized incisors.

METHODS: A total of 345 STL files of extracted, sound permanent maxillary incisors were retrospectively collected from three universities (Indiana, Lyon, Leuven). After quality screening, 285 files were used to train DeepSDF models with latent code sizes of 8, 64, 128, and 256. Performance was assessed via Euclidean average distances and Hausdorff distances between original and reconstructed surfaces. To simulate dental trauma, five virtual fractures per tooth were created using oblique cutting planes (±50° inclination, 1 mm below the incisal edge). Clinical applicability was also tested on 900 full-arch intraoral scans from the 3DTeethSeg'22 dataset, simulating real-world trauma scenarios.

RESULTS: Out of 345 collected STL files, 285 sound incisors were retained for training. DeepSDF models with larger latent code sizes consistently achieved more accurate reconstructions. Specifically, the model with a latent code of size 8 showed significantly higher Euclidean distances compared to those with sizes 64, 128, and 256 ($p<0.05$). This trend was observed in both isolated tooth scans and full-arch intraoral scans, where latent codes of 128 and 256 provided the most accurate reconstructions. Across all latent code sizes, shape learning achieved a Hausdorff distance below 0.3 mm. For simulated reconstructions of fractured teeth, all models except the one with latent code 8 maintained reconstruction errors below 0.5 mm, while the latent code 8 model exceeded 1.4 mm in Hausdorff distance (Table 1). DeepSDF models generalized well to clinical cases in the external dataset, accurately reconstructing both crown and root morphology from partial inputs.

	Average distance (mm)	**Hausdorff distance (mm)**
Latent code 8	0.32 ± 0.20	1.42 ± 0.93
Latent code 64	0.12 ± 0.03	0.51 ± 0.28
Latent code 128	0.11 ± 0.02	0.50 ± 0.25
Latent code 256	0.11 ± 0.01	0.50 ± 0.18

Table1. Performances of DeepSDF models of different sizes of latent code for reconstructing the anatomy on the test dataset.

DISCUSSION & CONCLUSIONS: DeepSDF appears herein to be a precise and reliable approach for digital smile design, offering patient-specific anatomical reconstructions. Despite its high performance and its ability to model surfaces using a continuous distance function, a better understanding of how the latent space is structured remains however necessary to improve transparency and foster trust among dental professionals (Rokhshad *et al.* 2024). Future investigations should also integrate contextual factors such as adjacent teeth and occlusal relationships, which play a key role in esthetic and functional outcomes.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE

DeepSDF provides a powerful tool for the restoration of fractured anterior teeth, offering clinicians a way to predict missing anatomy.

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IMPACT OF WORK POSITION ON HAPTIC SIMULATOR'S PERFORMANCE OF DENTAL STUDENTS: A PROSPECTIVE INVESTIGATION

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INTRODUCTION: The simulation room at the Faculty of Dentistry of Lorraine is designed to provide students with a realistic and ergonomically appropriate learning environment that supports the acquisition of clinical knowledge and skills. This study aims to define the optimal "calculated posture" using anthropometric data and existing literature and to examine the relationship between postural alignment and technical performance in dental procedures using haptic simulators.

METHODS: A total of 108 second-year dental students participated in a simulation-based exercise, divided equally into two groups.
- Group 1 (Phase 1) received ergonomic training prior to the exercise. Due to the number of disponible haptic simulator, 6 subgroups of 9 students were trained for 20 minutes, then each participants performed a standardized set of conservative care procedures in three postural conditions: their usual (self-selected) posture, a vacant posture (random stand-up positioning without guidance), and a corrected posture based on ergonomic recommendations.
- Group 2 (Phase 2) underwent the same practical exercise without any prior ergonomic instruction. All students performed each exercise three times under each condition, with a three-minute time constraint per attempt.

Fig. 1: superposition between a participant's personal position and the ideal schematic of their working position

RESULTS: A significant performance disparity was observed between postural conditions. Students who worked while standing consistently achieved lower scores on the haptic simulator than those in seated positions. The corrected posture yielded the highest performance scores across both groups. These results suggest a strong correlation between ergonomic positioning and technical accuracy in simulated dental procedures.

DISCUSSION & CONCLUSIONS: The findings underscore the importance of ergonomic posture in enhancing performance and precision in dental tasks. The standing position appears to limit technical performance and may be unsuitable for conservative dental procedures. These results advocate for the integration of structured and repeated ergonomic training sessions into the dental curriculum. Moreover, the use of haptic simulators, already recognized for their value in accelerating skill acquisition, may also serve as effective tools for reinforcing and assessing optimal postural behaviors in a measurable and reproducible manner.

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Professional integration of early career dental graduates: an exploratory investigation.

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LITTERATURE REVIEW: The transition from dental school to professional practice is a pivotal and multifaceted period for new graduates [l]. It is not only a time to refine clinical skills but also to adjust to new roles and responsibilities in environments that are often marked by high pressure [2]. Young dental professionals face numerous challenges, including clinical autonomy, administrative duties, and psychological stress, all of which can impact both their performance and overall well-being [3].

OBJECTIVES / PURPOSE: This study aims to explore the factors that influence the professional integration among recent dental graduates from the Faculty of Dentistry of Montpellier. It examines the role of stress, mentorship, life satisfaction, the perceived effectiveness of final-year coursework and private practice internships.

METHODS: A cross-sectional, descriptive study was conducted among dental graduates from the University of Montpellier (graduation years: 2019-2024). An online survey was shared from December 2024 to February 2025. All participants graduated from the University of Montpellier's Dental School and had a post-graduate private practice experience.
The survey collected data on sociodemographic status, professional situations, perceived challenges, and overall satisfaction. It incorporated the Satisfaction With Life Scale (SWLS) [4] to measure life satisfaction and well-being. In addition, the study assessed mentorship experiences, the perceived efficacy of the final-year private practice internship, stress levels, and work-life balance. Descriptive statistics and comparative analyses were performed.

RESULTS: A total of 80 respondents completed the survey: 53.8% identifying as women / 46.2% as men. Most participants worked in urban or semi-urban areas. Key findings include:
Mentorship: 62.2% of participants reported receiving mentorship during their first year of practice. High life satisfaction (SWLS) was reported for 84% of the participants experiencing mentorship and for 66.7% of those without mentorship.
Stress: 91.4% of respondents agreed that stress is inherent in the dental profession, and 35.4% identified a lack of self-confidence as a significant challenge.
Final-Year Internship: Only 34.1% of participants considered the final-year private practice internship to be essential for their professional integration.
Satisfaction: Despite the challenges, 77% of participants reported being satisfied with their life during this transition period. Work-life balance was not viewed as a major issue for most respondents.

DISCUSSION & CONCLUSIONS: The findings reveal a notable disconnect between the clinical training provided during dental school and the realities of private practice. Although technical skills were generally deemed adequate, administrative tasks, team dynamics, and stress management were identified as significant sources of difficulty.
Mentorship was identified as a key factor in easing this transition [5]. However, mentorship opportunities were inconsistent, and no formal mentoring system was in place.
Moreover, the value of the final-year internship was questioned, with only a third of participants considering it integral to their professional development.
These results underscore the need for educational reflect, specifically to better prepare students for the multifaceted demands of professional practice. This reform could include the establishment of structured mentoring programs and a more robust pedagogical approach to internships, with a focus on the administrative, and interprofessional aspects of dental practice. Strengthening the transition from dental school to private practice should not only improve the well-being and job satisfaction of new graduates but also enhance the quality of patient care [6].

ENDODONTICS OR CONSERVATIVE DENTISTRY RELEVANCE

Practitioners in Endodontics and Conservative Dentistry often manage complex clinical cases under pressure. It is essential for graduates to have mentorship, emotional, and organizational skills for managing these demands effectively. Ensuring that graduates are better equipped for these pressures will ultimately support their long-term professional success and enhance patient outcomes in both Endodontics and Conservative Dentistry.

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Assessing Tooth Wear Education Across French Dental Faculties: Toward National Standardization

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LITTERATURE REVIEW: Tooth wear refers to the irreversible loss of dental hard tissues caused by physical and chemical processes including attrition, abrasion and erosion. This condition has become a significant public health concern in developed countries, with prevalence rates of erosive enamel lesions ranging between 30% and 50% (1).
Early diagnosis is crucial in mitigating irreversible damage. However, international reports indicate significant variations in practitioners' knowledge and treatment approaches. Diagnostic indices, such as the Basic Erosive Wear Examination (BEWE), have been recommended to standardize clinical assessments (2). Studies from Europe have highlighted that dental wear education is less emphasized compared to cariology, underscoring the need for a unified educational framework (3).

OBJECTIVES / PURPOSE:
This study, conducted under the auspices of the CNEOC, aimed to assess the teaching practices related to dental wear across French dental faculties and to evaluate the potential for establishing a standardized national curriculum for restorative dentistry education.

METHODS:
An anonymous online questionnaire was designed and distributed to academic staff specializing in restorative dentistry across 20 French dental faculties. The survey included structured sections that assessed educational content, the volume of teaching dedicated to cariology versus dental wear, teaching resources, and opinions on curriculum standardization. Both quantitative data (from closed-ended questions) and qualitative data (from open-ended comments) were collected over a three-month period using the SurveyMonkey platform.

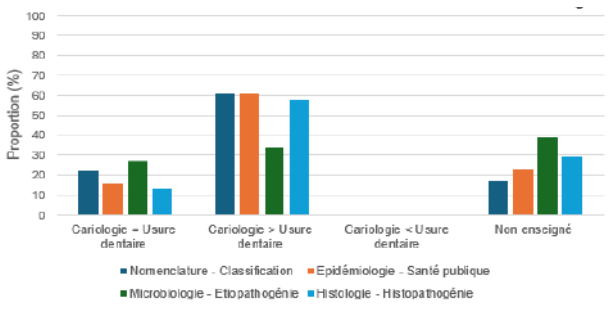

Fig.1 Respondents' distribution regarding teaching time for theoretical foundations: cariology vs. dental wear.

RESULTS: A total of 59 responses were received, representing 17 out of 20 faculties. The analysis revealed major disparities between cariology and dental wear education. The analysis showed that, across theoretical foundations, diagnostic approaches, and therapeutic management, a greater proportion of teachers reported providing dedicated instruction in cariology compared to dental wear throughout the curriculum. Cariology teaching was largely predominant during the second and third years (DFGSO), whereas dental wear education became slightly more frequent during the fourth and fifth years (DFASO). Nevertheless, for all categories of instruction, the teaching time dedicated to cariology consistently exceeded that devoted to dental wear (Fig.1). Preventive and minimally invasive management strategies for dental wear were particularly inconsistently integrated across faculties. Most respondents (93%) reported using the national reference manual for dental residency applicants, while fewer relied on European (EFCD) (62%) or ministerial recommendations (40%). Moreover, 85% of participants supported the idea of creating a harmonized national curriculum and favored developing shared educational resources. Overall, the findings highlight the need to improve consistency and quality in dental wear education across French dental faculties.

DISCUSSION & CONCLUSIONS: There is a clear disparity in the teaching of dental wear compared to cariology across French faculties (4). Establishing a national, standardized curriculum could improve educational consistency, foster better clinical competence in dental wear management, and reduce future disparities in patient care (5).

CONSERVATIVE DENTISTRY RELEVANCE: The standardization of dental wear education would directly impact the quality of conservative dentistry, promoting early diagnosis and enhancing long-term preservation of dental structures.

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REPLACEMENT OF A MANDIBULAR MOLAR WITH A CANTILEVERED ALL-CERAMIC RBFDP: A CASE REPORT SUPPORTED BY 3D FINITE ELEMENT ANALYSIS

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INTRODUCTION: Resin-bonded fixed dental prostheses (RBFDPs) have emerged as a minimally invasive alternative to three-unit fixed dental prostheses and implant-supported restorations for single-tooth replacement. The posterior cantilevered all-ceramic RBFDP (PC-RBFDP) is a recent development in this approach, offering an aesthetic, cost-effective, and conservative solution, particularly suitable for patients who are ineligible or do not wish implants. Despite its advantages, the posterior region is subject to significant occlusal forces, making the biomechanical behavior of PC-RBFDPs a crucial factor to evaluate.
This study presents a clinical case of a 60-year-old patient whose missing right mandibular first molar was replaced using a PC-RBFDP, supported by the second molar only. A finite element analysis (FEA) was conducted to compare stress distribution patterns between this restoration and a three-unit RBFDP (3U-RBFDP).

METHODS: To evaluate the mechanical behavior of structures and the stress distribution patterns in restorations, luting resin, and tooth structure under axial load application, a 3D finite element model of the situation was developed. With her consent, the patient had a CBCT scan of the right mandibular sector after teeth preparations. DICOM files were segmented on 3D Slicer to obtain stl files and allowed to create a model for dentin and enamel relative positions. The stl of the PC-RBFDP and the single crown were the files designed and sent by the dental technician. After a convergence test including 3 different meshing of the bone and the prosthesis resulting in a <8% variability in the maximum stress on the connector, the final PC-RBFDP model was meshed with 1 544 493 linear tetrahedral elements of type C3D4 and the 3U-RBFDP model was meshed with 1 528 129 linear tetrahedral elements of type C3D4 . Bone was meshed with uniform 0.7mm element size except for the area in contact with the ligament that was meshed with 0.2mm element size. The cement and ligament were meshed with 0.2mm uniform element size. All other parts were surface meshed with 0.2 mm elements and volume meshed with 0.5 mm elements to capture accurately the changes in the values of stress over the zone of interest.

RESULTS: Results showed that stress was primarily concentrated on the connector area and mesial surface of the molar in the PC-RBFDP model, whereas the 3U-RBFDP exhibited greater stress on the premolar.

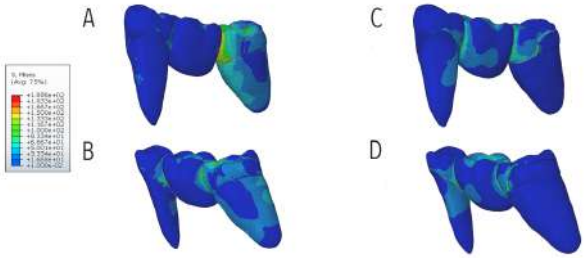

Fig. 1: Von Mises stress distribution on the root. (A) and (B) PC-RBFDP model; (C) and (D) 3U-RBFDP model. Bone and ligament hidden.

DISCUSSION & CONCLUSIONS: These findings highlight the importance of connector dimensions in PC-RBFDP design and support zirconia as the preferred material. Additionally, the role of periodontal mechanoreceptors in force regulation and long-term periodontal impact warrants further investigation. Given the promising clinical outcomes, PC-RBFDPs represent a viable alternative, but regular periodontal monitoring and further clinical studies remain necessary.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE
PC-RBFDPs offer a conservative alternative for molar replacement, minimizing preparation on adjacent teeth. Finite element analysis supports zirconia use and emphasizes the importance of connector design for biomechanical success.

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Developmental Enamel Defects: Hypothetical Links Between Aetiological Factors and Clinical Expression

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INTRODUCTION: Enamel forms through a complex, time-limited process during tooth development. Perturbations in amelogenesis can lead to irreversible abnormalities known as developmental defects of enamel (DDE). DDE affects both primary and permanent teeth, with a prevalence ranging from 33.7% to 89.9%, and is often associated with oral and psychosocial consequences (1). It presents in two main forms: hypoplasia, a quantitative enamel defect, and hypomineralisation, a qualitative defect observed as enamel opacities (2). DDE may result from hereditary, acquired, systemic, or local factors (3). Numerous risk factors have been identified in the aetiology of acquired DDEs (aDDE), yet the underlying cellular mechanisms remain poorly understood. To further understanding aDDE formation, a previous scoping review analysed risk factors reported in the literature. The authors hypothesised that these factors could be grouped into distinct pathophysiological pathways leading to aDDE (4). In continuation of this work and to attempt to validate this hypothesis, this study aims to identify whether the different pathophysiological mechanisms are associated with specific forms of aDDE.

METHODS: To achieve this objective, we relied on the bibliographic base established in the initial scoping review and followed the same scoping review–based methodological framework. For the purposes of the present study, the literature search was extended to include articles published up to 2022, using the same inclusion criteria as the original database. After screening, 11 additional articles were included, resulting in a total of 128 articles. For each article, the studied risk factor(s) and the associated form of aDDE were recorded. These forms were classified using the Modified Developmental Defect of Enamel Index (mDDE) (5). When reported, defined forms such as MIH, HSPM, and fluorosis were noted separately. In accordance with the hypothesis proposed in the initial scoping review, risk factors were categorised into six groups: 1) calcium-phosphate metabolism, 2) blood supply, 3) xenobiotics, 4) hypoxia, 5) immune response, and 6) unclassified. These categories were hypothesised to converge into two main physiological pathways: calcium metabolism and the ARNT pathway.

RESULTS: With the introduction of the mDDE Index, it became the most commonly used classification system. In our study, 87.5% of the articles used the mDDE Index. Among the articles published in 2022, no new risk factors were reported Of the 128 articles included, 20 specifically investigated defined forms of aDDE (MIH, HSPM, or fluorosis). Moreover, only 28 articles clearly distinguished between opacities and hypoplasia, allowing specific risk factors to be associated with each form. Most risk factors were associated with opacities (71.54%), while only 7.69% were linked exclusively to hypoplasia. Interestingly, 20.77% were associated with both forms. Among the five pathways, calcium-phosphate metabolism was the most represented (24.62%), and immune response the least (7.69%). All pathways were associated with both types of defects. Overall, no clear distinction was observed between the calcium metabolism and ARNT pathways regarding their association with the different defects. Surprisingly, certain risk factors, such as antibiotic use, were exclusively associated with a single type of defect across all included studies. In each case, these factors were linked to opacities.

DISCUSSION & CONCLUSIONS: Through this scoping review, the initial hypothesis that specific mechanistic pathways are associated with particular forms of aDDE could not be confirmed. The initial hypothesis reflects a simplified model, assuming a one-to-one link between pathways and defect types. This view is challenged by our findings, as several risk factors were associated with both forms of enamel defects. Moreover, these findings may reflect a mismatch between clinical classification and pathophysiological analysis, limiting direct associations between defect types and risk factors. However, the fact that certain risk factors were exclusively associated with opacities appears to be a promising lead for future research.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE

Understanding pathophysiological mechanisms underlying aDDE contributes to better diagnosis, preventive strategies, and treatment planning in conservative dentistry. Knowing that certain risk factors are exclusively associated with a specific form of enamel defect may further support a more targeted and appropriate clinical approach.

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DENTAL TRAUMA ABROAD:

COORDINATED MULTIDISCIPLINARY HOSPITAL AND PRIVATE PRACTICE MANAGEMENT.

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INTRODUCTION: The maxillary incisor represents a major aesthetic challenge. Unfortunately, these teeth are subject to significant risks of trauma. Children and adolescents aged between 6 and 15, with a peak between the ages of 8 and 10, are often victims of oral trauma. The annual incidence varies from 4 to 10%. Over 80% of accidents involve the upper central incisors (1). The upper lateral incisors are less involved (12%) and the lower incisors even less (6%). The majority of traumas involve coronal fractures (70%), very rarely root fractures (5%). Monitoring the progress of dislocations (30% of traumas) and expulsions (10%) can quickly become a therapeutic challenge and a reason for modifying the initial orthodontic treatment plan. In this case, the initial aim was to keep the 21 at least until adulthood.

CASE REPORT: The parents of 12-year-old L., who were travelling to Cape Verde during the spring holidays, contacted their GP by email (Thursday night) and then by telephone to help them repatriate their son, who had just suffered a violent trauma to a maxillary central incisor. They report that the teenager had hit his maxillary incisor directly, coming out of a waterslide on the edge of the swimming pool. The tooth was missing and could not be found.

He was taken to a practitioner who was able to produce an orthopantomogram (fig. 1), where the incisor appears to have been impacted towards the nasal cavity.

Figure 1: *orthopantomogram immediately after the trauma*

The family returned on their normal flight the following Sunday and, in conjunction with their GP, he was referred to the emergency department of the Rangueil Dental Care Center in Toulouse, where two practitioners (an endodontist and a paedodontist) had been notified.

The teenager was admitted as soon as the center opened. The exobuccal clinical examination revealed surprisingly few lesions. There was only upper labial oedema associated with the lesion on the inside of the lip visible on endobuccal examination (Fig. 2). At the dental level, an amelo-dentinal fracture of tooth 11 was visible, whereas tooth 21 was not. The 21 can only be detected by vestibular palpation (which was painful) at the base of the vestibule. A CBCT complete the information.

Figure 2: *Intra-oral picture (pre-op & + 8 month)*

It was decided to treat L. under general anesthesia, to replace and contain the 21. Endodontic treatment was carried out and regular follow-up was initiated. The follow-up period is now 24 months, with an orthodontic treatment that started 12 months ago.

DISCUSSION & CONCLUSIONS: This clinical case raised many questions about the initial management (between 5 practitioners about the type of management and whether or not to keep the 21). And a posteriori of the interest of a bone filling of the zone with a membrane.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE: This clinical case illustrates the possibility of preserving a tooth that appeared to be totally compromised.

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PERIAPICAL MICROBIOTA AND LOCAL IMMUNE REPONSE AS DETERMINANTS OF DENTAL GRANULOMA SEVERITY.

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LITERATURE REVIEW: Apical periodontitis is one of the most frequently diagnosed conditions in dentistry. Its prevalence increases with patient age and varies from 33% to 70% depending on the country and population studied[1]. These periapical lesions of endodontic origin (LIPOE) of variable severity (PAI index ranging from 1 to 5) represent a major public health problem[2]. Endodontic treatment of apical periodontitis (AP) fails in up to 50% of cases[3], often requiring invasive surgery. Preliminary data from the InCOMM team suggest that specific microbial ecosystems may influence lesion severity[4].

The aim is to identify the molecular mechanisms by wich periapical bacteria contribute to the severity of dental granulomas.

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MATERIAL & METHODS: This interventional, single-centre clinical study was conducted at Toulouse Rangueil University Hospital. Dental granulomas were collected from 25 patients undergoing endodontic surgery. Before surgery, each patient completed a clinical questionnaire, and saliva, sulcular fluid, and blood samples were collected.
Three areas are being explored:

- Immune (Host-microbiota interaction): Granuloma cells were dissociated, labelled, and analysed by flow cytometry.
- Bacterial (metabolic pathways): DNA from the supernatant was analysed by shotgun metagenomic sequencing.
- In vitro proof of concept: The effect of polydextrose (PDX) on the growth of *Porphyromonas Gingivalis, Fusobacterium N, Enterococcus F, Lactobacillus Reuteri, and Streptococcus M* was tested on blood agar at concentrations of 1%, 5% and 10%.

Data were analysed using ANOVA and Fisher's PLSD test ($\alpha = 0,05$).

RESULTS: Stress level, brushing frequency, and BMI significantly influenced granuloma immune cell composition. Immune profiles also varied with lesion severity: PAI 3 lesions showed more lymphocytes than PAI 4 (Fig. 1).

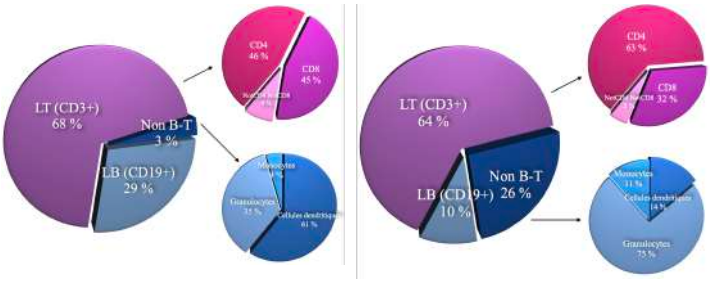

Fig. 1: Mapping of immune cells, flow cytometry (PAI 3 granuloma on the left - PAI 4 granuloma on the right)

Shotgun sequencing revealed a predominance of Gram-negative bacteria, with differing profiles according to severity. *Porphyromonas*, *Bacteroides*, and *Pyramidobacter* predominated in PAI 3, while *Tannerella*, *Prevotella*,and *Fusobacterium* we re enriched in PAI 4. Higher PDX concentrations reduced the growth of four out of five bacterial species, with *Streptococcus* (sugar-dependent) remaining relatively unaffected (Fig. 2).

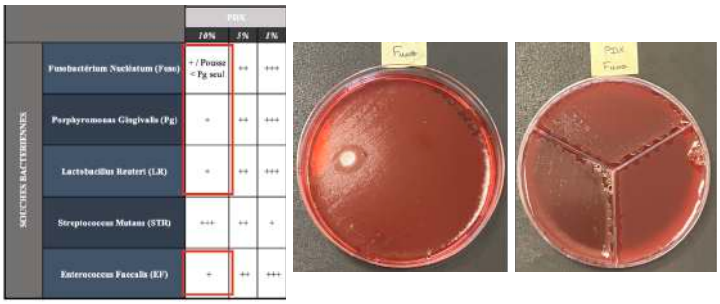

Fig. 2: Summary table of results obtained for PDX conditions and Petri dishes of Fusobacterium strain, "strain alone" and "PDX" conditions respectively

DISCUSSION & CONCLUSIONS: Dual immune and microbial profiling from a single granuloma sample is feasible. A larger cohort (target n = 200) is being built to explore correlations of PAI and other clinical parameters. PDX shows potential as a bacteriostatic agent, suggesting a role in modulating microbial ecology and lesion severity.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE: The identification of immune and bacterial targets paves the way for new therapeutic approaches to control the severity of apical lesions.

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Communications e-posters étudiants / internes MBD
Vendredi 27 juin 2025 – 16h30-17h30

Modérateurs : Maryline MINOUX & Raphaël RICHERT

Jury : Comité scientifique du CNEOC (Reza ARBAB CHIRANI, Nathalie BRULAT, Alexis GAUDIN, Cyril VILLAT) + *modérateurs*

En caractère gras : auteur communicant
Langue de présentation et UFR d'appartenance
Temps de présentation : 3 minutes (puis 2 minutes de questions/discussion)

9 présentations en compétition pour les prix DENTSPLY SIRONA (1000 €) et L'INFORMATION DENTAIRE (un abonnement d'1 an à l'une des revues du groupe Information Dentaire au choix)

1. "Personalized Bonding Approach for Full-Mouth Adhesive Rehabilitation in Dentinogenesis Imperfecta" – **Cyprien CLARK**, O. KEROUREDAN, L. MASSE (Anglais, Bordeaux)

2. "Management of an infraoccluded ankylosed maxillary central incisor in a 12-year-old child: a case report" – **Laura MURESAN-VINTILA**, M. FAURE (Anglais, Lyon)

3. "*In situ* prevascularization and mineralization using Laser-Assisted Bioprinting for personalized maxillofacial bone regeneration" – **Mina MEDOJEVIC**, E. RIBOT, C. DELATTRE, A. JAKOVLJEVIC, R. DEVILLARD, O. KEROUREDAN (Anglais, Bordeaux)

4. "From laser-assisted bioprinting to a laser-assisted drug delivery medical device" – **Agathe BEDOUX**, P. ROPERO, Y. BOULEAU, C. PIERRE, G. MACHINET, L. GEMINI, D. BONNARD, R. DEVILLARD, O. KEROUREDAN (Anglais, Bordeaux)

5. "A Pediatric One-Step No-Prep Resin Printed Restoration in Amelogenesis Imperfecta: A Clinical Case Report" – **Loris MONEGO**, E. CAUSSIN, F. BERES, M. IZART, P. FRANCOIS (Français, Paris)

6. "Complete Digital Workflow serving orthodontic treatment to handle anterior microdontia using injectable composite: a case report" – **Pauline KE**, J. RAMPEREZ, A. CANIONI, K. BOUCHIHA, I. PANAYOTOV, B. LEVALLOIS, O. ROMIEU (Français, Montpellier)

7. "Conservative Dentistry in the Management of External Root Resorption Secondary to an 8-Year-Old trauma: A Case Report" – **Mathilde MOREL**, C. BATAILLE, S. TAWFIK, G. BOUDIN, C. GAUCHER (Français, Paris)

8. "Immediate Pre-Endodontic Dentin Sealing (IPDS): Clinical Case" – **Emmanuel PINTO**, J. LE CLERC, C. MOCQUOT, A. LE GOFF, A. DAUTEL, M. PERARD (Français, Rennes)

9. "Spontaneous re-eruption and revascularization management after traumatic intrusion of immature permanent teeth : a case report" – **Marie MARQUES**, L. LODHIYA, S. VITAL, C. BESNAULT, AM COLLIGNON (Français, Paris)

Personalized Bonding Approach for Full-Mouth Adhesive Rehabilitation in Dentinogenesis Imperfecta

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BACKGROUND: Dentinogenesis imperfecta (DGI) is a rare genetic disorder of dentin formation caused by mutations in the DSPP gene[1]. It results in amber-translucent teeth, enamel fractures, and rapid wear, posing significant clinical challenges. Shields classified DGI into three types, distinguishing syndromic from non-syndromic forms. Clinically, DGI presents with bulbous crowns, short roots, and pulpal obliteration. The disease severely impairs quality of life, causing discomfort and functional limitations[2]. Personalized treatment approaches are essential, favoring full-coverage adhesive restorations that maximize enamel preservation[3]. This article reports on a 24-year-old patient treated with a minimally invasive adhesive rehabilitation, including resin infiltration to enhance enamel bonding.

METHODS/CASE REPORT DESCRIPTION: A 24-year-old male was referred to Pellegrin University Hospital for aesthetic and functional rehabilitation. His medical history included only pollen allergy ; general health was otherwise excellent. He reported localized left-sided dental pain (VAS : 4) and dissatisfaction with his smile due to dental structure anomalies, resulting in a GOHAI score of 36/60. The most affected domains were functional and psychosocial. His goals were to restore masticatory function and improve aesthetics. Genetic analysis confirmed a diagnosis of DGI via DSPP mutation. Clinical and radiographic evaluation showed enamel fractures, occlusal wear, pulpal obliteration, and localized bone loss. Microscopy revealed hypomineralized dentin with sparse, disorganized tubules, enamel cracks, and a smooth, widened dentin-enamel junction. A minimally invasive rehabilitation was planned. Orthodontic treatment was excluded due to infection risk. Vertical dimension was increased using mock-ups and composite abutments. Full-contour zirconia bridges were placed posteriorly for strength, and minimally invasive lithium disilicate crowns were used anteriorly. Resin infiltration (Icon® protocol) enhanced bonding to affected enamel. Digital workflow and calibrated preparations preserved enamel and ensured prosthetic fit. Two adhesive protocols were used based on restorative material, optimizing durability and integration.

RESULTS / MONITORING: Two weeks postoperatively, the patient reported high satisfaction with aesthetic outcomes. At the 13-month follow up, functional performance and psychosocial well-being had notably improved. GOHAI score rose to 58/60, reflecting enhanced oral health and quality of life.

Fig. 1 Extraoral view and GOHAI scores before (left) and after treatment (right, 13-month follow-up).

DISCUSSION & CONCLUSIONS: This case illustrates challenges in managing DGI with prosthetic rehabilitation, especially bonding efficacy[3]. Microscopic analysis revealed enamel and dentin alterations. Innovative treatments like resin infiltration and minimally invasive crowns optimize bonding and preserve enamel. Zirconia offers durability, while conservative approaches balance aesthetics and function. The resin infiltration-based approach showed promising initial outcomes, improving patient quality of life. Long-term studies are needed to confirm its stability and durability.

CONSERVATIVE DENTISTRY RELEVANCE: This case report highlights a minimally invasive, full adhesive rehabilitation for managing dentinogenesis imperfecta, involving a pretreatment using resin infiltration for enhancing enamel bond strength. The treatment improved quality of life, with stable outcomes at one-year follow-up.

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ACKNOWLEDGEMENTS: The authors would like to thank Mr. Eric Pubert (PACEA, Univ. Bordeaux), for his contribution to this clinical case. The authors also extend their gratitude to the Corus Laboratory for their expertise and support

MANAGEMENT OF AN INFRAOCCLUDED ANKYLOSED MAXILLARY CENTRAL INCISOR IN A 12-YEAR-OLD CHILD: A CASE REPORT

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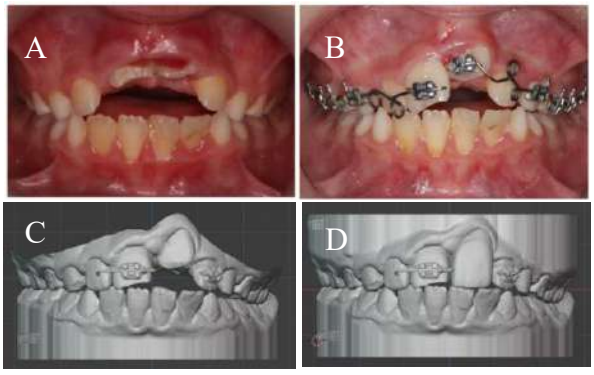
BACKGROUND /CONTEXT: The management of dental trauma and its sequelae remains a significant clinical challenge. We report the case of a 12-year-old patient who presented with a history of dental trauma sustained two years prior, resulting in the impaction of maxillary central incisors 11 and 21, and ankylosis of tooth 21.

CASE REPORT DESCRIPTION: The patient, a 12-year-old child diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), was referred to our department by the Dentofacial Orthopedics Unit of the Hospices Civils de Lyon for the aesthetic and functional rehabilitation of tooth 21, following several unsuccessful attempts at orthodontic traction. Clinical examination revealed a 7 mm infraocclusion of tooth 21, which was vital. The tooth exhibited significant plaque accumulation and gingivitis, particularly around the cervical area, due to limited accessibility during routine brushing. Following reinforcement of oral hygiene education, various therapeutic strategies were evaluated and discussed in a multidisciplinary team meeting. These options—ranging from observation, restorative intervention, decoronation, and alveolar osteotomy to extraction—were presented to the patient and their legal guardian.

RESULTS /MONITORING: A conservative restorative approach was selected. This involved taking a digital impression, performing a virtual wax-up, and fabricating a silicone index to guide the placement of a stratified composite restoration. A follow-up appointment was scheduled six months post-operatively to assess the long-term stability of the restoration and to proceed with restorative treatment of the mandibular dentition. The patient expressed satisfaction with the aesthetic and functional outcome.



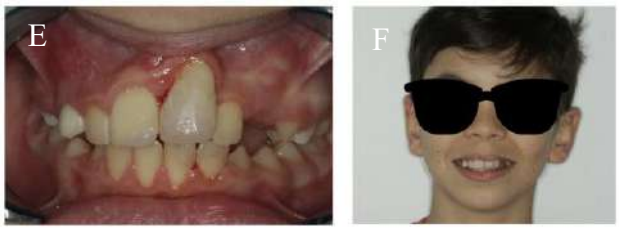


Fig. (A) Initial situation. (B) At the end of the orthodontic treatment. (C) Digital impression. (D) Digital wax-up. (E) Final result. (F) Final result.

DISCUSSION & CONCLUSIONS: This minimally invasive approach offers several advantages, including the preservation of tooth structure in accordance with the therapeutic gradient, and the possibility of future intervention if required. Furthermore, it enables a rapid and satisfactory outcome, which was particularly important in this case given the patient's prolonged and previously unsuccessful treatment history. This option also appeared to be the most suitable considering the patient's ADHD, allowing for shorter and more manageable clinical sessions.

CONSERVATIVE DENTISTRY RELEVANCE: This case highlights the value of a conservative approach that emphasizes tissue preservation, rapid aesthetic rehabilitation, retreatability, and adaptability to patient-specific behavioral considerations.

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ACKNOWLEDGEMENT /

In situ prevascularization and mineralization using Laser-Assisted Bioprinting for personalized maxillofacial bone regeneration

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INTRODUCTION: Oral cancer affects approximately 275,000 patients annually, leading to significant functional impairments and a reduced quality of life. The management of maxillofacial defects remains a major clinical challenge (1). Bone tissue engineering combines functional scaffolds with bioactive molecules and stem cells to promote bone regeneration. Laser-assisted bioprinting (LAB) has emerged as a promising technique for scaffold fabrication, offering precise bioink deposition and high spatial resolution (2). Previous studies suggest that endothelial and dental stem cells enhance bone regeneration, although they do not achieve bone formation ad integrum (3). Meanwhile, MRI has proven effective for tracking printed cells in 3D construct (4).

METHODS: Bioinks were divided into two big groups, polyglucuronic acid (PGU) and Oxycellulose (OXY), each with the addition of different concentrations of mineral particles (Regolith (R), diatomaceous (D), and nanohydroxyapatite (nHA)). Mineral particles (0.1%, 0.01% and 1%) were added to different concentrations of biopolymers (0.5%, 1%, 2%, 4%) and printed using LAB to assess qualitative and quantitative properties of bioinks.

RESULTS: The results were assessed qualitatively, evaluating spreadability, evaporation kinetics, and printability. They were also analyzed quantitatively, measuring reproducibility of area and circularity (Fig.1). The 6 best conditions were chosen, 3 from PGU and 3 from OXY group. Regarding the MR imaging, cells can be tracked overtime in thick constructs (3, 6, and 9 layers) and for over a month, with tracking of different patterns in high spatial resolution.

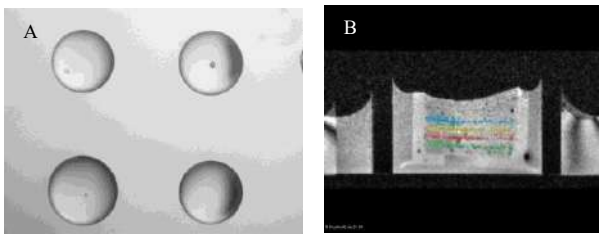

Fig. 1: Microscopic picture of droplets after printing 2% PGU with 0.1% nHA (left). MRI image of three-dimensional stacked biopaper constructs with printed cells (right).

DISCUSSION & CONCLUSIONS: Recent advances in laser-assisted bioprinting (LAB) have demonstrated high spatial resolution and cell viability, making it a promising technique for regenerating complex bone structures, including those in the maxillofacial region (5,6). Novel bioinks with the addition of mineral particles and biopolymers, alongside stem cells can be suitable for LAB and have great potential for advancing bone regeneration strategies in dentistry. The integration of non-invasive imaging modalities like MRI further supports longitudinal monitoring and tracking of cells within thick biofabricated three-dimensional constructs.

ENDODONTIC DENTISTRY RELEVANCE
Laser-assisted bioprinting could enable precise and targeted bone regeneration in large periapical defects, enhancing the outcomes of endodontic dentistry by promoting structural and functional tissue integration.

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From laser-assisted bioprinting to a laser-assisted drug delivery medical device

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INTRODUCTION: Laser-assisted bioprinting (LAB) has emerged as a precise, contact-free, and minimally invasive technique for bone regeneration in complex maxillofacial defects[1,2]. It has since evolved into a platform for laser-assisted drug delivery (LADD) via a minimally invasive endoscopic approach, enhancing clinical applicability. LADD enables the localized deposition of therapeutic agents with high spatial accuracy, even on hard-to-reach anatomical targets. *In vivo* studies in mice have confirmed the method's precision and effectiveness in targeting specific areas such as the round window membrane of the cochlea[3], suggesting strong potential for applications for this new medical device in regenerative medicine, targeted therapy, and minimally invasive treatments.

METHODS: This study aimed to develop a medical device for targeted inner ear drug delivery. The prototype, adapted from the laser-assisted bioprinting (LAB) experimental set-up, incorporates a nanosecond pulsed infrared laser for on-demand drug release and a multimode optical fiber for laser transmission. While murine surgeries are performed via a retro-auricular approach, the proposed device is designed for transtympanic delivery onto the human round window membrane (hRWM) through the auditory canal. A LAB-inspired donor system was engineered for this purpose. Prior to *in vivo* applications, feasibility and functionality were evaluated through *ex vivo* experiments. Ultrafast imaging combined with shadowgraphy enabled quantitative analysis of printing quality, assessing the influence of ink composition, laser parameters, and donor system design dimensions.

RESULTS: The prototype combined with a poloxamer-based hydrogel[4] in PBS enable precise deposition of the ink onto a reveicing substrate (Fig. 1) and the RWM of dissected mice cochleae.

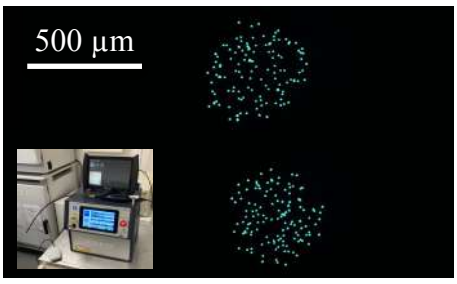

Fig. 1: Printed fluorescent microspheres on a receiving substrate using the LADD device.

A donor system was designed and fabricated for targeted delivery, based on optimal distances between the laser absorbing layer and the laser fiber tip, and the auditory canal diameter and length.

DISCUSSION & CONCLUSIONS: This *ex vivo* study marks a critical step in developing a medical device for minimally invasive, laser-assisted drug delivery. It enabled the optimization of laser settings, ink composition, and the design of a disposable donor system suitable for future *in vivo* preclinical testing. This medical device is intended for clinical use, aiming to enable precise drug delivery and bioprinting in anatomically challenging areas, ultimately supporting improved bone regeneration in patients with difficult-to-access defects.

ENDODONTIC DENTISTRY RELEVANCE: The adaptation of laser-assisted bioprinting into a laser-assisted drug delivery system represents an innovative technique enabling the precise and minimally invasive deposition of therapeutic agents via endoscopy. This device shows potential for treating extensive periapical bone lesions or post-endodontic bone defects by improving healing dynamics in at-risk patients through localized and controlled delivery of regenerative treatments.

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A Pediatric One-Step No-Prep Resin Printed Restoration in Amelogenesis Imperfecta: A Clinical Case Report

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BACKGROUND /CONTEXT: Amelogenesis imperfecta (AI) is a rare hereditary condition that affects the enamel tissue of the entire dentition.
The main challenge in these cases lies in the need for early management aimed at restoring both function and aesthetics, while continuously adapting to the ongoing musculoskeletal and soft tissue development. In this context, new digital technologies appear to offer promising solutions.
In the present case, the patient had primarily aesthetic discomfort and a strong desire to protect her teeth. Our objective was to meet the patient's demands within a limited clinical timeframe.

METHODS/CASE REPORT DESCRIPTION:
The initial consultation aimed to identify the patient's concerns and expectations. Optical impressions were taken to analyze the case and a numeric wax-up was created to visualize the project. No tooth preparation would be performed, optimizing adhesion of the restorations and maintaining maximal tooth structure.At the second appointment, centric relation impressions were recorded thanks to a KOIS deprogrammer with an increased DVO. Final restorations were designed and printed (resin Crown on Sprintray Pro2 printer).

The procedure began with a try-in of the bisacryl mock-up. Once validated and removed, a complete rubber dam was placed. Each restoration was tried in individually and then collectively to ensure proper fit. Interproximal tooth separation was made using metal strips. Laboratory pre-treatment consisted of sandblasting, rinsing, and silanization (monobond plus, Ivoclar). Tooth surface preparation consisted in intraoral sandblasting, 30-second orthophosphoric acid etching, application of a universal adhesive (Scotchbond universal). Final cementation was made using composite resin (spectra STLV) following the « no finishing concept » with the use of modeling liquid (Ivoclar) to smooth the margins and remove excess material. After removal of the rubber dam, occlusal adjustments were performed.

Bitewing radiographs were taken to ensure complete removal of any residual cement. The patient came back the following day to refine occlusion. Follow-up appointments were scheduled monthly for two months, then every three months thereafter.

RESULTS / MONITORING: The patient is highly satisfied and very pleased with the final result. The gingival tissues have repositioned themselves naturally, now adapting perfectly to the contours of the bonded restorations. No discomfort was reported by the patient. The intermaxillary relationships have remained stable over time.

Photographic Series: Pre-, Intra- and Post-treatment

DISCUSSION & CONCLUSIONS: The progressive wear of composite restorations will inevitably lead to occlusal modifications. Nevertheless, ceramic restorations remain contraindicated at this age. The chair time required was shorter than that of direct techniques, with a clearly superior esthetic outcome. These techniques are also less operator-dependent. In addition, their biocompatibility is consistently superior to that of direct composite restorations[1]. We opted for 3D printing rather than milling, as it represents a less costly solution and significantly reduces chairside time due to the faster fabrication process. Given that the patient lived far from the dental center and that few clinics near her offered this type of restoration, minimizing the number of appointments, as achieved in this case, was essential.
In conclusion, this method appears to be a promising alternative to traditional direct restorations for young patients affected by amelogenesis imperfecta. Although indicated for definitive restorations, concerns remain regarding the long-time biocompatibility of these definitive printed resins .

CONSERVATIVE DENTISTRY RELEVANCE : Resin-printed restorations could offer an interesting alternative to direct composite for patient with Amelogenesis Imperfecta.

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Complete Digital Workflow serving orthodontic treatment to handle anterior microdontia using injectable composite: a case report

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INTRODUCTION/SCIENTIFIC CONTEXT:

Dento-dental disharmony (DDD) resulting from microdontia frequently necessitates restorative post-orthodontic treatment, as orthodontic alone may not achieve optimal aesthetic outcomes. This often results in a compromise due to the space not being planned.

The closure of diastemas may be carried out *prior to* orthodontic treatment. This approach enables the establishment of an ideal morphology and facilitates the guidance of orthodontic movements(1).

This case report outlines a digital workflow for pre-orthodontic planning of injected composites, enabling faster and simpler orthodontic treatment.

MATERIALS AND METHODS:

A 20-year-old woman consulted the dental care center in Montpellier to close her anterior diastemas. After an orthodontic assessment, an increase in the volume of the upper incisors was indicated to close the diastemas and achieve an Angle Class I occlusion.

Digital impressions were taken using 3shape® IOS. Both extraoral and intraoral photographs were captured, and a digital orthodontic setup was performed(2). Ideal teeth shapes were designed on the final setup and validated by both the patient and the orthodontist. The design was transferred to the initial impressions using Exocad® software. A rigid, homothetic, transparent tray was designed from the last 3D model and printed. Exaclear® transparent silicone was then injected into it and set under pressure.

The tray was spaced out 4mm away from the planned wax-up, and it featured dental supports on the premolars for easy re-positioning.

The composite injection was performed under a rubber dam with GC G-aenial Universal Injectable® composite, followed by polishing.

RESULTS:

This complete digital workflow enabled the composites to be produced in just two sessions: one for data collection and one for restoration.

Figure 1: illustration of the various stages of the digital workflow

Pre-orthodontic injection simplified the polishing of the restorations and thereby enhanced their long-term durability.

DISCUSSION / CONCLUSION:

This protocol provides a straightforward workflow for multidisciplinary rehabilitation and could be applied to other clinical cases, such as agenesis. Composites injection before orthodontic treatment proved to be beneficial in guiding future tooth movements towards the final occlusion and aesthetics.

The addition of 3D-printed rigid tray improved the accuracy of the wax-up shapes and facilitated the usage of injectable composites for the practitioner.

However, it is only feasible when the patient presents with an initial diastema.

CONSERVATIVE DENTISTRY RELEVANCE: Pre-Orthodontic Composite Planning with 3D Enhancement

REFERENCES:

1. Blasi A, Blasi I, Henarejos-Domingo V, Castellano V, Blasi JI, Blasi G. The PGO concept: Prosthetically guided orthodontics concept. J Esthet Restor Dent. juill 2022;34(5):750-8.
2. Barreto MS, Faber J, Vogel CJ, Araujo TM. Reliability of digital orthodontic setups. Angle Orthod. 1 mars 2016;86(2):255-9.

Conservative Dentistry in the Management of External Root Resorption Secondary to an 8-Year-Old trauma: A Case Report.

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BACKGROUND /CONTEXT: A 20 years-old patient presented with pain on teeth 21 and 11 for the past two months. He has experienced an intrusive trauma to those teeth eight years ago. At the time, the teeth were repositioned, and endodontic treatments were performed. The patient then underwent orthodontic treatment.

METHODS/CASE REPORT DESCRIPTION:

Clinical Examination:

- Tooth 11: Post-eruptive intrinsic grayish discoloration, positive percussion test, negative palpation test, mobility <1mm, palatal displacement without occlusal interference
- Tooth 21: Enamel incisal edge fracture, positive percussion and palpation test, mobility >1mm
- A 3 mm overbite with a group function on both sides and a stable, repetitive occlusion.
- Generalized moderate gingival inflammation

Radiographic examinations:

- Tooth 11: Periapical radiolucency, apical root resorption unsatisfactory endodontic treatment
- Tooth 21: periapical radiolucency, unsatisfactory endodontic treatment, not well-defined and diffuse radiolucency extending along the root and crown, insufficient crown-to-root ratio

Diagnosis:

- Apical (11 and 21) and external (21) inflammatory root resorption associated with a severe trauma history and defective endodontic treatments (11 and 21)

Prognosis:

- 11: moderate with endodontic retreatment
- 21: unfavorable, need for replacement

Treatment Plan: Endodontic retreatment on 11, extraction of tooth 21 with bone grafting in preparation for implant placement, along with a connective tissue graft with epithelial component. Cantilever adhesive bridge with a wing on 11. External whitening of 11 before direct restoration

(A)

(B)

Fig.(A) X-ray exam on the first appointment on 11 and 21 (B) Photograph after extraction, grafting, and bonding of the bridge.

RESULTS / MONITORING:

Pain: The pain was relieved by the endodontic retreatment of 11 and the extraction.

Patient satisfaction: The discoloration on tooth 11 does not bother the patient.

DISCUSSION & CONCLUSIONS: External Root Resorptions occur in 5–8% of simple luxation and 38% of intrusions. Necrosis occurs in 15–59% of simple luxation cases and in 42% of intrusion cases, most of time leading to a grayish appearance. It is important to establish regular follow-up to intercept such complications. Currently, there is no consensus on the treatment of resorptions. It should be adapted according to their clinical extension and to the practitioner's experience It is essential to issue an initial medical certificate at the time of the trauma so that the patient may exercise a potential right to compensation.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE:

- Long term follow-up of trauma complications
- Anterior cantilever adhesive bridge as a good alternative for incisor replacement

REFERENCES: Patel S, Saberi N, Pimental T, Teng PH. Present status and future directions: Root resorption. International Endodontic Journal. 2022;55(S4):892-921.

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ACKNOWLEDGEMENTS: Many thanks to Dr. Bataille, Dr. Tawfik, Dr. Boudin, and Pr. Gaucher for their active participation in the completion of this work.

Immediate Pre-Endodontic Dentin Sealing (IPDS) : Clinical Case

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2, av du Pr. Léon Bernard 35043 Rennes Cedex.

CONTEXT: Immediate dentin sealing (IDS) has demonstrated its value in restorative dentistry, particularly with the increasing use of adhesive restorations. Teeth requiring endodontic treatment are often structurally weakened, mainly due to significant tissue loss. Preservation of peri-cervical dentine and early consideration of future prosthetic rehabilitation are therefore essential. Adhesive restorations are perfectly in line with this tissue preservation philosophy. However, the implementation of this protocol is demanding. It requires strict control of humidity, in particular through the use of rubber isolation dams[1]. Endodontic irrigation solutions such as sodium hypochlorite (NaOCl) and EDTA, although recommended[2], have deleterious effects on dentin collagen fibres[3,4]. IDS, performed prior to endodontic treatment, enables these collagen fibres to be preserved within a hybrid layer and the method therefore seems relevant for improving the fracture resistance[3,4] of direct and indirect coronal restorations. This protocol is illustrated here through a clinical case.

METHODS: A 45-year-old female patient with no medical history was referred for acute apical periodontitis on tooth 16, presenting with pain during mastication. Clinical examination revealed an ICDAS 6 carious lesion, painful percussion, negative pulp vitality test, and no evidence of cracks or apical lesions on radiographs (Fig a). The pulp chamber was obliterated, the canals were calcified, and CBCT did not reveal the presence of an MB2 canal. The procedure was performed under magnification using an operating microscope, following anesthesia and rubber dam placement. The lesion was excavated, a metal matrix was positioned, and canal orifices were protected with PTFE (Fig b). The cavity was etched, treated with Futurabond M®, and a layer of flowable composite was applied to enhance seal integrity (Fig c). Endodontic treatment was performed using 3% sodium hypochlorite and 17% EDTA, followed by thermomechanical compaction with a zinc oxide-eugenol-based sealer. The cavity was sandblasted with 50 µm alumina powder and restored directly with composite resin.A 3-month follow-up appointment was scheduled to assess apical healing.

RESULTS: At the 3-month follow-up, the patient exhibited no symptoms. There was no evidence of apical periodontitis, and the composite restoration remained intact and well-sealed.

DISCUSSION & CONCLUSIONS: Given the limited number of remaining walls, a direct coronal restoration was chosen. This approach helped prevent bacterial contamination of the completed endodontic treatment, especially as rubber dam placement was challenging. Additionally, the composite can be easily replaced later without exposing the root canal filling, if necessary. Root canal obturation was performed using a zinc oxide-eugenol-based sealer, preceded by cavity sandblasting

Fig. a: initial periapical radiograph, b: cavity after caries removal, c: IDS and teflon in canal orifices.

with 40 µm alumina powder and combined with a pre-endodontic immediate dentin sealing (IDS) protocol. This approach allowed for a reliable direct restoration. Performing IDS requires precise visualization of canal orifices; the use of polytetrafluoroethylene (PTFE) and an operating microscope helps prevent their obstruction.A follow-up appointment at 3 months was scheduled to assess clinical and radiographic stability. However, further studies are needed to confirm that the obturation techniques used do not compromise the integrity of the IDS, particularly through the formation of microcracks. Moreover, the short-term follow-up limits the ability to fully evaluate the potential fracture-preventive benefits of IDS, which warrants further long-term clinical investigations.

RESTORATIVE DENTISTRY RELEVANCE: This approach is particularly suited to practices equipped with a microscope and limited endodontic activity. It serves to reinforce the tooth structure and reduce the risk of fracture prior to endodontic treatment.

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ACKNOWLEDGEMENTS: The author expresses gratitude to their professors for their valuable support in the preparation of this article.

Spontaneous re-eruption and revitalization management after traumatic intrusion of immature permanent teeth : a case report

Marie Marques, Meera Lodhiya, Sibylle Vital, Catherine Besnault, Anne-Margaux Collignon, Université Paris cité, France.

BACKGROUND /CONTEXT: Intrusion of permanent teeth accounts for 0.5–2% of all dental traumas involving permanent dentition. Intrusion is defined as an axial displacement of the tooth into the alveolar bone. This type of trauma can lead to pulp necrosis, marginal bone loss, root resorption, and arrested root development in cases of immature permanent teeth. Healing depends on patient-related factors (such as degree of intrusion, age, and root maturity) as well as treatment-related factors (including time to treatment, repositioning method, and type of splint). Close monitoring is essential to prevent and to manage potential complications and to initiate endodontic treatment.

METHODS/CASE REPORT DESCRIPTION:
A 7-year-old boy presented to the dental emergency department due to a fall at school two hours earlier. Clinical examination revealed an intrusion of tooth 11, and high mobility of tooth 21 without associated displacement (Fig. A). A radiographic examination (Fig. C) confirmed the intrusion of tooth 11, a cervical fracture line on tooth 21, and root immaturity on both teeth (Stage 3 of Cvek's classification). A conservative approach was chosen, and no-repositioning for tooth 11. A flexible splint was placed from tooth 13 to 23, excluding tooth 11 (Fig. A). At 3 months, 11 was re-erupting. However pulp necrosis was diagnosed leading to the decision to perform a regenerative endodontic procedure (revitalization). Intracanal medication with calcium hydroxide was applied over two appointments. At the third appointment, bleeding was induced to form an intracanal blood clot. A collagen sponge was placed as a scaffold, followed by placement of Biodentine™ and a composite.

RESULTS / MONITORING: Follow-up visits showed favorable periodontal healing, continued spontaneous eruption (Fig. B), no signs of infection and no signs of complications (root resorption or bone loss) eleven months after the trauma. Radiographic follow-up showed evidence of remodeling inside the root canal and potential root development five months after the revascularization (Fig. D).

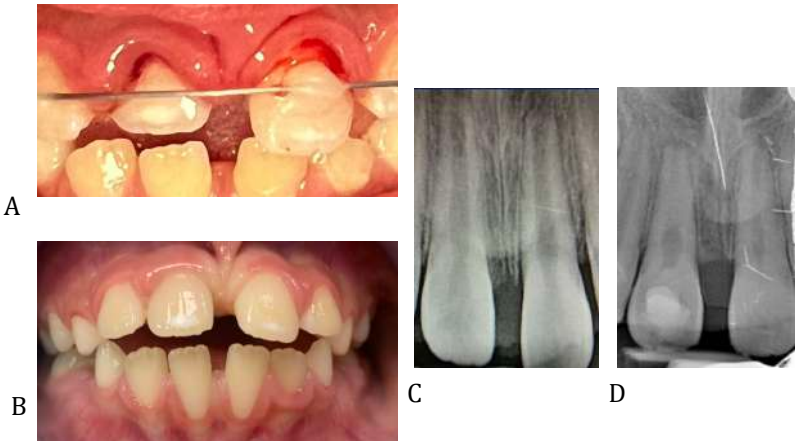

Fig. (A, C) Frontal view and occlusal radiograph centered on the maxillary incisors on the day of the trauma. (B) Frontal view nine months after the trauma. (D) Periapical radiography eleven months after the trauma and five months after the revascularization procedure.

DISCUSSION & CONCLUSIONS: Intrusion of immature permanent teeth is a severe injury with a high risk of complications. In this case, although spontaneous re-eruption occurred, pulp vitality was not preserved. Due to the immaturity of the root and the presence of an open apex, revascularization therapy was considered as a suitable treatment option. This endodontic therapeutic approach aims to continue root development and apical closure, offering an alternative to apexification used to induce a calcified barrier at the apex of a non-vital tooth.

ENDODONTIC OR CONSERVATIVE DENTISTRY RELEVANCE: Spontaneous eruption is possible in intruded immature permanent teeth even if pulp vitality is lost. Endodontic treatments, such as the revitalization, should be considered.

REFERENCES: Singhal R, Negi S, Namdev R, Kakran A. Effect of root immaturity and depth of intrusion on spontaneous re-eruption and healing complications: A retrospective analysis. Dental Traumatology. 2024;40:243– 250.
Andreasen JO, Bakland LK, Andreasen FM. Traumatic intrusion of permanent teeth. Part 3. A clinical study of the effect of treatment variables such as treatment delay, method of repositioning, type of splint, length of splinting and antibiotics on 140 teeth.

ACKNOWLEDGEMENTS: We thank the patient and his mother for their cooperation throughout the treatment process.

Ateliers CNEOC 2025

ATELIER N°1 :

« Communication dans l'apprentissage »

Résumé de l'atelier

Cet atelier vous propose un espace d'exploration et de réflexion pour affiner vos pratiques de retour d'information. Il vous aidera à :
🔷 **Prendre conscience** de votre posture d'enseignant·e, du pouvoir qui y est associé, et des biais cognitifs susceptibles d'influencer vos jugements.
🔷 **Mieux comprendre et mieux communiquer**, pour des relations plus fluides et constructives avec vos étudiant·es.
🔷 **Découvrir et expérimenter des outils de feedback concrets**, simples et efficaces, pour stimuler l'apprentissage et l'autonomie.

Pourquoi participer ?
Parce qu'un feedback bien pensé ne se contente pas de corriger : il inspire, oriente et valorise. En cultivant une posture réflexive et bienveillante, vous maximisez l'impact de vos interactions pédagogiques tout en contribuant au développement global de vos étudiant·es.

Intervenant

Emmanuelle FUGGETTA

Emmanuelle Fuggetta est coach et préparateur mental formée à l'Ecole Nationale de Voile et des Sports Nautiques.

Titulaire du *Diplôme Universitaire d'accompagnateur de la performance humaine* et d'un *Executive Master coach et performance*, j'accompagne des managers, des entraîneurs, des équipes et des collaborateurs qui souhaitent développer leur potentiel et franchir de nouveaux caps.

Dans un contexte universitaire exigeant, la performance ne peut se réduire qu'aux résultats, souvent influencés par des facteurs extérieurs hors de notre contrôle. Inspirée du sport de haut niveau et du monde de l'entreprise, mon approche repose avant tout sur le **savoir-être** : être performant, c'est exploiter pleinement son potentiel pour atteindre le meilleur de soi-même.
Dans cet esprit, le **feedback pédagogique** devient un outil puissant : il favorise l'engagement, nourrit la motivation et soutient la réussite des étudiants.

ATELIER N°2 :

« L'hypnose médicale en médecine bucco-dentaire »

Résumé de l'atelier

En cabinet dentaire, l'hypnose constitue un outil particulièrement adapté pour accompagner les patients confrontés à de nombreux désagréments sensoriels, souvent à l'origine d'une anxiété importante. Sur le plan visuel, la proxémie imposée par les soins, les lumières intenses et l'environnement médicalisé peuvent générer une gêne. Le canal auditif est fortement sollicité par les sons aigus et répétitifs des instruments rotatifs, souvent perçus comme intrusifs. Le canal kinesthésique est activé par les vibrations transmises par ces mêmes instruments. Enfin, les canaux olfactif et gustatif sont mobilisés par le contact prolongé avec les biomatériaux, dont les odeurs et les goûts peuvent être ressentis comme envahissants. L'hypnose représente alors un outil particulièrement intéressant pour accompagner ces perceptions sensorielles et en atténuer l'impact émotionnel.
Cet atelier permettra de comprendre comment fonctionne l'hypnose médicale, à partir des apports actuels des neurosciences, en explorant les mécanismes impliqués dans la modulation de la douleur, de l'attention et des états de conscience. Le réapprentissage des langages, auquel les participants seront initiés, constituera un point de départ essentiel, ouvrant à une autre manière de communiquer et d'interagir avec le patient. Enfin, des outils hypnotiques simples, directement applicables en contexte clinique, seront transmis afin de favoriser une meilleure qualité de soin et une relation soignant-soigné plus adaptée.

Intervenant

Dr Audrey AUSSEL

Le Dr Audrey Aussel est actuellement Maître de Conférence des Universités – Praticien Hospitalier en Odontologie à l'Université de Bordeaux.

Spécialisée dans la prise en charge des enfants et des patients en situation de handicap, elle utilise quotidiennement l'hypnose médicale, outil de choix pour la prise en charge de ces patients à besoins spécifiques.

Titulaire d'un Diplôme Inter-Universitaire d'Hypnose Médicale Clinique et Thérapeutique, elle forme également, au sein du CHU de Bordeaux, de nombreux professionnels de santé à l'hypnose médicale.

ATELIER N°3 :

« Structurer l'apprentissage pour construire la performance »

Résumé de l'atelier

Le but de la séance est de faire réfléchir les participants sur leurs opinions concernant l'enseignement, de les aider à comprendre les différentes phases de la performance, et de les aider à élaborer un plan efficace en intégrant les étapes clés de l'apprentissage.
Nous allons explorer les croyances sur l'apprentissage en discutant des perceptions de l'apprentissage :

- Quels sont les facteurs clés d'un apprentissage durable et autonome ?
- Comment encourager la motivation, l'engagement et la progression chez l'apprenant ?
- Quel devrait être le lien entre le mentor et l'élève ?

Nous examinerons ensuite les différentes étapes de la performance en analysant les phases qui la composent (compréhension, consolidation des apprentissages, maîtrise, transfert dans des situations réelles, synchronisation avec les rythmes biologiques, cognitifs et émotionnels des apprenants).

Nous aborderons également les moments d'apprentissage comme des facteurs clés du succès. Quels sont les facteurs qui favorisent chaque étape de l'apprentissage : répétition, rétroaction, adaptation au contexte et individualisation ?
Nous examinerons le rôle du formateur en tant que facilitateur et ajusteur de ces phases.

Enfin, nous verrons une proposition de structuration d'une planification avec les temps d'apprentissage :
Comment élaborer une séquence ou un cycle en prenant en compte les différentes étapes de la performance et les besoins d'apprentissage en utilisant des outils concrets (tableaux de progression, rétroplanning et indicateurs d'évaluation) ?

Intervenant

Jean-François DI MARTINO

Jean-François Di Martino est actuellement conseiller Haut Niveau à la maison régionale de la performance de la région Nouvelle-Aquitaine en charge de l'Accompagnement paralympique et de la montée en compétences des entraineurs de haut niveau.

Ancien membre de l'équipe de France d'escrime, Jean-François Di Martino s'est illustré au plus haut niveau en tant que vice-champion olympique aux Jeux de Sydney en 2000 et champion du monde par équipes. Fort de son expérience de l'élite, il s'est naturellement tourné vers la formation.

Aujourd'hui maître d'armes et ancien entraineur des Équipes de France, il intervient auprès de publics variés : jeunes en formation, athlètes de haut niveau, et futurs professionnels du sport. Son approche pédagogique allie exigence technique, bienveillance et préparation mentale.

Accès UFR des Sciences Odontologiques de l'Université de Bordeaux

Adresses et informations

4 rue du Docteur Hoffmann Martinot, Bordeaux

Comment s'y rendre ?

Tramway/Bus :

Depuis le centre-ville :

- Tram **A** (Direction Aéroport ou Le Hailland-Rostan) : Arrêt **Saint Augustin**

Depuis la Gare :

Attention Travaux sur le ligne C et A du Tram empêchant un accès direct à la faculté par ce trajet

Alternatives :

- **Bus G** :
  - Prendre le Bus G à l'Arrêt **Gare St jean** en Direction St Medard Issac ou St Aubin Villepreux jusqu'à l'arrêt **Palais de Justice**
  - Prendre le **Tram A** à l'arrêt **Palais de Justice** en Direction Aéroport ou Le Haillan Rostand
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- **Bus 6** :
  - Prendre le Bus 6 à l'Arrêt **Gare St jean** en Direction Palais de justice
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- **Bus 9** :
  - Prendre le Bus 9 à l'Arrêt **Gare St jean** en Direction Brandenburg jusqu'à l'arrêt **Barrière d'Ornano**
  - Prendre le Tram A à l'arrêt **Stade Chaban Delmas** en Direction Aéroport ou Le Haillan Rostand jusqu'à l'arrêt Palais de Justice
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Arrêt : **Saint-Augustin**
Tram A

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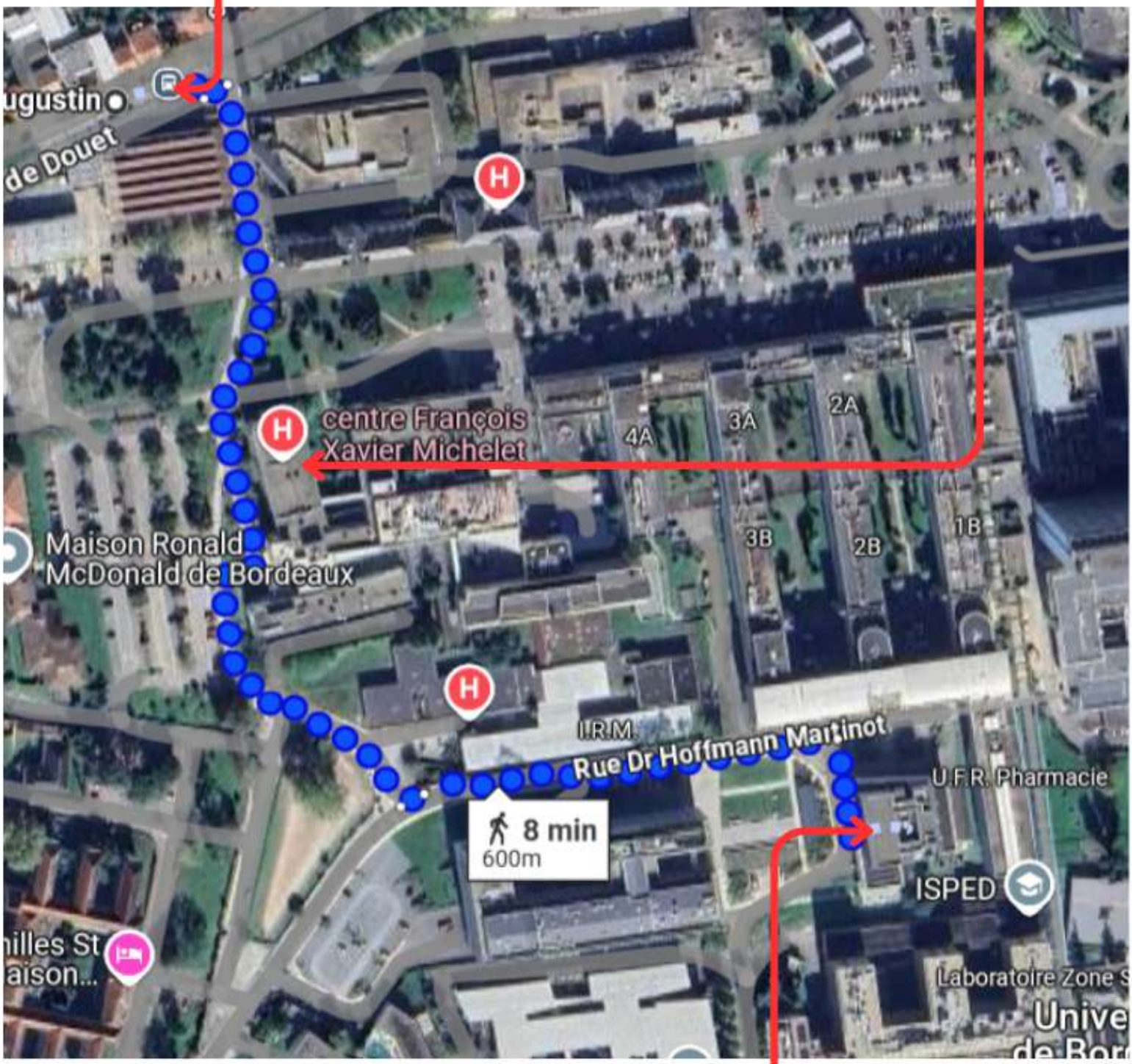

UFR Odontologie

Soirée Gala CNEOC 2025

Soirée Gala sur le Bateau de croisière, le « Burdigala »

RDV 20h pour l'embarquement
Ponton « Croisières »
Face au 7 quai de Queyries, Bordeaux Bastide

Attention : Interruption du Tram A

entre « Hôtel de ville » et « Stalingrad »

Comment arriver jusqu'au bateau ?

- Accès en bus via la **ligne 16** direction **Bouliac Centre Commercial** :
    - Prendre le bus à :
        - Arrêt **Mériadeck** ou Arrêt **Palais de justice**, par exemple, si vous êtes dans le centre de Bordeaux
        - Arrêt **Porte de bourgogne**, par exemple, si vous êtes à proximité du pont Saint Jean
    - S'arrêter à l'Arrêt **« Stalingrad »** (*Voir plan en suivant)*

OU

- Accès **à pied** via un « pédibus » CNEOC
    - Rendez-vous à **19h30**, devant la **Maison écocitoyenne Quai Richelieu**, où des membres de l'organisation du congrès vous mèneront jusqu'au lieu de la soirée (*Voir plan en suivant*) Comptez 15 minutes à pied à partir de ce point de rendez-vous.

La croisière se déroulera de **20h à 2h** (navigation jusqu'à 22h30).


Entrée **Burdigala Croisière**
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Place Stalingrad
Point de RDV pour le pédibus
Maison Écocitoyenne
Pont de Pierre
Arrêt : **Porte de Bourgogne**

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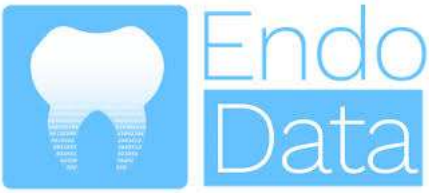

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