

## Oral Communications

### CLINICAL CASES

#### 1. UPDATE ON REGIONAL ODONTO-DYSPLASIA ("GHOST-TEETH")

**Austro MD, López M, Cortés O, García C, Castejón I**  
*Unidad Docente Odontopediatría. Universidad de Murcia*

*Regional Odonto-dysplasia* is an unusual anomaly affecting the enamel and dentine. It does not have a hereditary component and clinically it affects the primary and permanent dentition in both the maxilla and mandible although it more commonly affects the maxilla.

The etiology of *Regional Odonto-dysplasia* is not clear. There are possible causes such as local trauma, irradiation, hypophosphatasia and hypocalcemia among others.

This paper aims to offer an up-to-date revision of this anomaly, *Regional Odonto-dysplasia*.

The case is presented of a girl with delayed eruption and with nearly all her permanent dentition missing from the anterior upper jaw.

We aim to provide new clinical, radiographic, histologic and therapeutic aspects in order to improve the treatment of these cases.

#### 2. DENTAL ERUPTION DISTURBANCE AND TREATMENT. A CASE REPORT

**Pérez Vera A, Sanz Coarasa A, Rojas Villa G, Barbería Leache E**  
*Departamento de Profilaxis, Odontopediatría y Ortodoncia. Facultad de Odontología. Universidad Complutense de Madrid*

**Introduction:** Dental eruption is a physiological process that is influenced by factors that are ethnic, racial, sexual and individual, and which should all be taken into account when individualizing normal eruption standards.

The eruption and occlusion development processes are subject to a multitude of possible disturbances and deviations. Eruption delays can be a manifestation of a systemic or localized pathology. There are numerous terms that describe the pathogenesis of dental eruption delays.

There is considered to be an eruption delay or disturbance when there are two standard deviations from the guidelines established for the emergence of each tooth, in each population and/or when comparing the dental emergence and eruption with the contralateral tooth.

Radiographically, this starts when  $\frac{3}{4}$  of the root length has been formed (which is the basis suggested for determining if a tooth has delayed or advanced eruption).

**Objective:** To carry out a revision of the literature on the possible manifestations with local eruption disturbance and possible treatment, illustrated with a case report.

**Material and methods:** A literature search was made in the library of the Dental Faculty of the *Universidad Complutense de Madrid*, together with the data bases of PubMed and MedLine, on subjects related to local disturbances in dental eruption and early treatment, supported by the case report of a patient who attended the Pediatric Dental Degree Clinic of the *Universidad Complutense de Madrid*

**Conclusions:** The supervision of dental development, from an early age, is key for detecting any disturbance and correcting this early on. The appropriate age for the intervention should be established taking into account: objectives and treatment prognosis.

Early treatment tends to be carried out faster and it is simpler than any treatment carried out later, although retention and follow-up should always be taken into account.

#### 3. DENTAL BLEACHING IN NON-VITAL PRIMARY TEETH

**Poza Pascual A, Delgado Quiroga C, Juárez Villar E, Olivera EM, Delgado Castro N**  
*Hospital San Rafael. Madrid*

Currently, in our daily practice, we come across cases in which, after carrying out pulp treatment in a primary tooth with good prognosis and outcome, we are asked for a final aesthetic solutions given the normal color disturbances.

Being familiar with the etiology of the different types of whiteners in these situation is necessary for a correct diagnosis, such as the possible therapeutic options to consider, indications, risks, safety and results.

Compared with other more conventional treatments, internal dental whitening appears at first to be a therapeutic alternative that is more conservative with the remaining dental structure, with proven efficacy, that is relatively simple and inexpensive.

However, most studies on internal whitening have been carried out on the permanent dentition and very little has been published on this technique in the primary dentition.

After establishing the success of pulpectomies in anterior teeth following the information in the work carried out for SEOP 2010 entitled "Retrospective study of pulpectomies in the primary dentition", and in order to achieve integral treatment for non-vital temporary teeth with color disturbances, we carried this study.

*Material and methods:* Revision of the literature in Pubmed/Medline. Terms used: bleaching in primary teeth, Walking bleach technique.

In order to carry out this study, 4 non-vital primary teeth were chosen that had been given pulp treatment and they were submitted to internal bleaching following the Walking bleach technique (described by Spasser in 1961). The bleaching agent used was sodium perborate mixed with distilled water using a 2:1 concentration.

The teeth chosen had secondary color disturbance due to trauma. They were examined clinically and radiographically in order to ensure there were no signs of root canal treatment failure such as: root resorption, infection, apical or periapical radiolucency, furcation disturbance or advanced physiological resorption.

*Results and conclusions:* The protocol proposed was effective for treating the discolored teeth chosen. The patients continue to come for periodic revision.

Further long-term studies are necessary on internal bleaching in the primary dentition, as we do not have the information necessary for determining the possible risks related to use in children, such as a greater incidence of external root resorption or possible damage to the permanent tooth germ.

#### 4. IMPACTED CANINES: DIAGNOSIS AND THERAPEUTIC POSSIBILITIES

**Moreno MC, Caleza C, Huertas M, Mendoza A**

*Facultad de Odontología. Máster de Odontopediatría. Universidad de Sevilla*

*Introduction:* Canines play a vital role in the dental arch. However, it is the second tooth that more commonly suffers ectopia. Therefore, early diagnosis is very important, and patients should be examined between the ages of 8 and 9 years by means of a clinical and radiological examination. Among the therapeutic options to be found are surgical exposure with orthodontic traction and autotransplantation. The radiographic position of the canine is fundamental for deciding on the treatment option.

*Objective of the study:* To show the treatment and development of four impacted canines and to choose the therapeutic option according to the radiographic position.

*Material and method:* In this work four cases are presented of patients with impacted canines. In each case a clinical and radiographic examination was carried out that consisted in an orthopantomography, telerradiography and Clark's technique with periapical radiographies. The seriousness of the impacted canines was evaluated by means of the following parameters.

- Angle of canine with regard to the midline
- Position of canine with regard to lip and palate

On two occasions surgical exposure was carried out with orthodontic traction and in another two, the canine was autotransplanted to its corresponding position in the arch.

In all four cases the canine was repositioned successfully.

#### *Conclusions:*

— Surgical exposure with orthodontic traction and autotransplantation are two choices of treatment for impacted canines that allow favorable results.

— In order to decide on the therapeutic option, a correct diagnosis based on the radiographic position is fundamental.

— The decision to carry out surgical exposure with orthodontic traction or an autotransplant is based principally on the position of the canine with regard to the lip and palate and the angle of the canine with regard to the midline.

#### 5. ECTODERMAL DYSPLASIA. A CASE REPORT. ISPLASIA ECTODÉRMICA – A PROPÓSITO DE UN CASO

**García L, Saldaña I, Camps O, Font I, Brau I, Maire I, Pascual M, Sancho I, Ustrell J. M, Torrent I**

*Servei Integrada Infantil. Facultat d'Odontologia. Universitat de Barcelona*

Ectodermal dysplasia (ED) is not a new syndrome, but every time a professional is faced with a patient who has this disorder, the challenge is in both the diagnosis and the treatment of the case. ED is a genetic disorder that is characterized by disturbances in two or more structures that originate in the ectoderm, and at least one of these will affect the hair, nails, teeth, and sweat glands. Hypohidrotic ED presents in a triad: hypohidrosis (disturbance of the sweat glands), hypotricosis (disturbance in the formation of hair and nails) and hypodontia (disturbance in the formation of teeth). It commonly affects males and it has an X-linked recessive inheritance, although more than 150 forms have been described. The oral manifestations that have been described in the literature are disturbances to the number, shape, structure, and size of the teeth, in addition to alterations in the eruption sequence and resorption of the alveolar process.

We aim to present a case report of a child showing signs of HED, to update the information on this disorder and to establish treatment involving dental rehabilitation. We would also like to insist on the need for inter-professional coordination in order to obtain a better diagnosis and treatment for patients.

In this work the case is reported of a 9 year-old male, with fine down, nail dystrophy, dry skin, and an educational lag. At an orodental level he had multiple agenesis, disturbance in shape and size, and eruption problems compatible with HED. We will develop a treatment plan for orodental rehabilitation and prognosis.

Our conclusions will emphasize the important role that pediatric dentists can play in the diagnosis of this pathology, when parents are looking for dental treatment, and the importance also of being familiar with the different dental therapeutic possibilities for improving function, aesthetics and the quality of life of child patients, improving their confidence and daily social relationships.

## 6. MULTIDISCIPLINARY FOCUS ON A GIRL WITH A CLEFT LIP AND PALATE

Urberuaga M<sup>1</sup>, Aguirrezábal Jáuregui L<sup>2</sup>, Martín C<sup>3</sup>, De los Ríos JM<sup>3</sup>, Arrondo K<sup>1</sup>

<sup>1</sup>Servicio Vasco de Salud. <sup>2</sup>Práctica Privada. <sup>3</sup>Servicio Madrileño de Salud

The case is presented of a seven year-old girl who attended an orodental clinic for the first time. She had a history of surgery for a right sided cleft lip and palate. In addition she had peculiar features: sequelae from the surgery to the upper lip, flat epicanthic nasal bridge. During the oral examination she had extensively carious primary teeth. The secondary right central incisor was rotated, her tongue was between her teeth, she had open-bite, atypical swallowing and oral breathing.

We observed that she had difficulties in understanding basic concepts and in verbal expression.

Multidisciplinary treatment is necessary involving doctors, orthodontists, speech therapists, teachers, social service carers, psychologists, as well as parent collaboration.

## 7. EPIDERMOLYSIS BULLOSA: A CASE REPORT

Bobillo Cinta L, Rosado Olarán J, Pérez Suárez MV, Romero Maroto M

Universidad Rey Juan Carlos. Madrid

**Introduction:** Epidermolysis bullosa (EB) is a term used to refer to a group of hereditary, chronic and non-inflammatory pathologies affecting the skin and mucosa throughout the organism. It is classified within the rare diseases group. It is characterized by the formation of blisters at the slightest friction or trauma. It has been calculated that in Spain there are around 1000 people with this disease. There are thirty types of EB that can be classed into three groups: simple, junctional or dystrophic. The difference between them lies in the type of protein affected. In the oral cavity, depending on the type of epidermolysis, there may be from small boils to enamel disturbance or microstomia which makes dental treatment more difficult.

**Case description:** Patient who at birth had generalized erosive blister-like skin lesions and who was diagnosed, following a biopsy of healthy skin, with recessive dystrophic EB. At the age of six he came for a consultation and, following oral examination, he was diagnosed with caries in 55, 65, generalized gingivitis and severe microstomia. The following treatment was carried out: obturation of 55, 65, sealant in primary and permanent molars, application of topical fluoride, chlorhexidine and oral hygiene techniques.

**Discussion:** EB is a disease with a low prevalence, the main problem being how to handle the oral mucosa, which should be harmed as little as possible, and the limited opening.

Although most of these patients are treated using general anesthesia, in this case of ours we decided to

carry out the treatment in the dental office.

Patients with EB have severe microstomia, and in this case it was less than 30 mm, and a mouth opener had to be used in a horizontal position.

In order to reduce the formation of blisters, all the material used was lubricated with Vaseline so as to minimize the rubbing from the instruments but, nevertheless, lesions appeared in the areas to be treated since these lesions appear with just opening the mouth.

Although some studies say that the treatment can be carried out with total isolation, the state of the blisters should be previously evaluated. In this case of ours, given the limited aperture and the exacerbation, only relative isolation was used.

**Conclusion:** Pediatric dentistry patients with epidermolysis bullosa can be treated in a dental clinic, as the possible complications from the treatment can be dealt with using the appropriate techniques.

## 8. ESTHETICS IN THE ANTERIOR REGION AFTER SPACE CLOSURE

Huertas M, Guevara E, Biedma M, Villalón G, Mendoza A

Universidad de Sevilla. Facultad de Odontología. Máster de Odontopediatría

**Introduction:** Micro-esthetics is derived from the esthetics of a tooth in itself, based on the following eight points: tooth proportion and size, gingival shape and level, points of contact, incisor pockets, angle of anterior teeth, dental midline, dental morphology and color.

During orthodontic movement, when taking a canine to the position of a lateral incisor and a premolar to that of a canine, the orthodontist will carry out, in addition to the mesial movement, intrusion of canines and extrusion of premolars, in order to level the margins.

In order to achieve a high esthetic result and to complete the leveling off, we will carry out a gingivoplasty before the dental transformation, which will be verified in the clinical case described.

**Objective:** To describe and define the basic principles of micro-esthetics in order to re-establish an esthetic appearance in a case of agenesis of the lateral incisors in the anterior region after closing the space.

**Material and methods:** A case report is presented of a female patient aged 15 years with agenesis of both maxillary lateral incisors. Following an evaluation of facial esthetics, smile, occlusal relationship and function, periodontium, stability and the type of malocclusion, closing the space was decided on, together with a gingivoplasty, the transformation of canines into lateral incisors and premolars into canines with the stratification technique.

**Conclusions:** In the case of agenesis of lateral incisors in the maxilla, space closure for esthetic restoration is a definitive solution and exempt of com-

plications, as it does not involve surgical treatment, the esthetic result is good and there is long-term stability.

## 9. INTRUSIVE LUXATION OF PRIMARY TEETH

**González E, Gutiérrez N, Ribas D, Mendoza A**

*Facultad de Odontología. Máster de Odontopediatría. Universidad de Sevilla*

*Introduction:* Within the different types of luxations, intrusion is the most common, and it is generally the result of an axial impact. It is possibly the traumatic lesion that produces the greatest damage to a tooth, as displacement within the alveolus leads to extensive and acute damage to the periodontal ligament, bone lesions and a break in neuro-vascular supply.

The close relationship between the apex of a primary tooth and the developing permanent successor is the cause of many possible complications, which increase when the permanent tooth germ is affected in the first stages of development.

*Objective:* The aim of this article is to present a case of intrusion in the primary dentition, and to cover the progress made following the diagnosis of avulsion when the trauma occurred.

*Material and methods:* A revision of the literature was carried out on the intrusion of primary teeth in the Pubmed database as well as in books. A case report is presented in which tooth 51, with a diagnosis of avulsion, was found lodged on the floor of the right nasal fossa. It was intervened under general anesthesia in order to extract the tooth nasally.

*Conclusion:* An exhaustive clinical and radiographic evaluation of the region is essential. Carrying out a differential diagnosis between total or type III intrusion should be a priority. If the tooth is not found, it is the responsibility of the dentist to investigate the location of the tooth and to evaluate possible aspiration (which can be ruled out by taking an X-ray of the thorax) and to warn parents of the possible consequences.

## 10. CLINICAL MANIFESTATIONS OF REGIONAL ODONTODYSPLASIA. A REPORT OF TWO CASES

**Sanz Coarasa A, Hernández Guevara A, Rojas Villa G, Pérez Vera A, Barbería Leache E**

*Departamento de Profilaxis, Odontopediatría y Ortodoncia. Facultad de Odontología. Universidad Complutense de Madrid*

*Introduction:* Regional Odontodysplasia is an unusual and severe anomaly of unknown etiology. It affects the tissues arising from the ectodermal and mesodermal layers in an adjoining group of teeth, while the rest of the permanent dentition remains normal. These anomalies involve the enamel, dentine, pulp and dental follicle, and they cause disturbance to structure, color, shape

and size, and to the eruption of the teeth affected. Onset is early and there may be repercussions in craniofacial growth.

Radiographically the dental tissues appear to have little mineralization, and the amelodentinal junction is badly defined. Proportionally there are large pulp chambers with an abnormal shape and little root development. The radiographic appearance is characteristic of teeth with Odontodysplasia and this has led to them being called “ghost teeth”.

It generally only affects half the arch and it is very rare for it to go beyond the midline. It has been described predominantly in the upper jaw and in women. The disturbance is more commonly in incisors and canines than in posterior teeth and it can affect both primary and permanent teeth. When primary teeth are affected the permanent successors will also be affected.

The diagnosis of Regional Odontodysplasia is clinical and radiographic. These teeth erupt later and in some cases they do not erupt at all, or they do so only partially. The teeth affected are frequently unviable given the severe disturbance to the structures and because they often have an infectious processes of unknown origin that on occasions will involve the bone, causing osteomyelitis in the area. The treatment tends to require a multidisciplinary approach.

*Objective:* The aim of this communication is to present two cases of severe Regional Odontodysplasia with some unusual characteristics regarding sex, location and manifestations.

*Materials and methods:* A search was made of the available literature in the databases of the UCM, and patient data was analyzed for the sake of comparison and to present the results.

*Conclusion:* It can be affirmed that this disorder causes severe disturbance to craniofacial and esthetic development. It requires personalized treatment, which should be conservative if possible, but taking into account the risk that these teeth have of developing serious infections. Parents should be aware that these patients should be followed constantly by a multidisciplinary team.

## 11. THE FREE-END SPACE MAINTAINER. FIVE YEAR EXPERIENCE

**Hernández A, Cuesta L, García L, Barbería E**

*Programa de Atención Odontológica a Pacientes de Edad Infantil. Facultad de Odontología de la Universidad Complutense de Madrid*

*Introduction:* The premature loss of primary teeth is still a very common finding, and it should be a reason for concern. In most cases not only is function altered, but there will also be a loss of space, the length of the arch will be shortened, there will be changes in occlusion and malposition of the teeth. For this reason maintaining the dental arch is of great importance in the primary and/or mixed dentition, in order to permit the correct eruption of the permanent dentition.



A particularly complex case arises when the second primary molar is lost before the eruption of the first permanent molar. This premature loss will lead to the mesial migration of the first permanent molar, even before emerging, with the resulting loss of space, reduction of the dental arch and the subsequent disturbance to the positioning of the premolars.

Over the years many modifications have been made to space maintainers with distal intra-gingival extension. However, all these had to be submerged in the gingiva and into the mucosa, maintaining the risk of considerable infections in this area.

In the year 2006 we started to use the free-end space maintainers, an alternative to the intra-gingival space maintainers. These maintainers serve as an eruption guide for the first permanent molars and the extrusion of the antagonists is prevented. Moreover, they keep the mucosa intact, avoiding the risk of infection.

**Objectives:** To show the results obtained over 5 years with this therapeutic option after the premature loss of primary molars and before the eruption of the permanent molars.

**Material and methods:** A revision of the literature was carried out and the treatment options, which were similar to the treatment proposed in this communication, were compared. The results are presented.

**Conclusion:** Given the favorable experience obtained over the last 5 years, we consider the free-end space maintainer to be a biologically valid solution following the premature loss of primary second molars, as they guide the positioning of the permanent first molar in the arch, but without the risk of constant infections in the mouth.

## 12. ALTERNATIVE METHODS TO RADIOLOGY IN PULP TREATMENT FOR SPECIAL PATIENTS

**Gómez B, Gómez F, Adanero A, Beltri P, Planells P**  
*Especialista en Atención Odontológica Integral en el Niño con Necesidades Especiales. UCM. Directora Profa. P. Planells. Hospital Universitario La Paz. Madrid*

**Introduction:** Dental care for special needs patients on some occasions requires the application of alternative therapeutic options to the normal ones. These patients will often require treatment under sedation or general anesthesia, given their pathology and the limitations entailed. Even today, not all operating rooms have intraoral x-ray machines which we all know are of vital importance not only for diagnosis but also for intraoperative assistance in root canal treatment. Therefore, the use of alternative methods that are very precise are becoming essential. Apex locators are of vital assistance when carrying out pulp therapy, as they very reliably detect apical constriction by means of impedance differences between the mouth and the periodontal ligament.

The case is presented of a 12 year-old autistic patient who required root canal treatment under general anesthesia, of an upper central incisor following trauma.

**Objectives:** To discover the alternative therapeutic options to radiology for pulp treatment.

**Material and methods:** A search of the literature was carried out using the Pubmed, Medline databases using the keywords: *autism, apex locator, root treatment, dental traumatology*. In order to carry out the pulp treatment the Morita Root Zx mini locator was used as well as the X Smart rotary motor (Protaper system) together with the lateral condensation technique which was followed by the reconstruction of the crown with composite resins.

**Conclusions:**

1. Dental treatment for special patients requires the adjustment and modification of conventional therapies, and on many occasions carrying these out under general anesthesia is essential.

2. New generation apex locators are an alternative given the lack of radiology devices, as they are very reliable for achieving a proper working length.

## 13. PROSTHESES IN PEDIATRIC DENTISTRY PATIENTS

**Martínez MP, Estrela F, Aura I, Borrás C**  
*Clínica Odontológica. Facultad de Medicina y Odontología de Valencia*

**Introduction:** The loss/absence of young primary and permanent teeth together with defects of the dentinal structure affect the normal development of the adult dentition. These cases require specific prosthetic solutions that adapt to the maxillofacial growth moment of the patient. Much of the treatments will be carried out in a provisional fashion until the child stops developing, upon which the definitive treatment will be carried out.

**Objective:** To carry out a series of reflections with regard to the partial or total replacement of the teeth, by means of different types of prostheses in the primary dentition period and in the mixed and permanent dentition periods, with the aim of reestablishing masticatory function, swallowing, speech, avoiding the appearance of harmful habits, improving esthetics, avoiding negative psychological repercussions and maintaining the available space.

**Material and methods:** A series of case reports are presented with differing etiologies (caries, agenesis, avulsion, defects of the dentinal structure), and different prosthodontic treatments are proposed depending on the age of the pediatric dentistry patient, while emphasizing why the treatment was chosen, and assessing the advantages and disadvantages.

**Conclusions:** The age of the patient plays an important role when selecting the type of prosthesis. In both the primary and mixed dentition the most appropriate prosthesis should be removable as this allows for adjustments and modifications as the child grows and changes his teeth. The child with permanent dentition can choose between a removable or fixed prosthesis (single crown on natural tooth/implant, adhesive bridge...), with the latter being the most used.

#### 14. DENTIGEROUS CYST. A RESULT OF TRAUMA IN THE PRIMARY DENTITION?

**Bermúdez M, Chung Leng I, Ruiz A, Albajara L, Correa E**

*Master de Odontopediatría. Universidad Europea de Madrid.*

**Introduction:** Given the age of our patients, trauma in the primary dentition is one of the most common reasons for a pediatric dentistry consultation. Not always does this receive the importance it is due from either parents or from some professionals. However, the consequences that certain traumatic injuries can have in the permanent dentition are well known.

Pulp necrosis with or without infection, is a common sequelae in primary dentition that has suffered trauma, and it can represent an etiological factor for the possible development of a dentigerous cyst.

**Objectives:** The aim of this paper is to put emphasis on watching and treating as quickly as possible any trauma to the primary dentition, so that measures can be taken against any future repercussions to the permanent dentition.

**Material and methods:** An investigation was carried out of the literature in Pubmed and Medline. In this presentation the case is reported of a boy aged 9 years who attended the *Policlínica de la Universidad Europea de Madrid*, after the enucleation of an odontogenic cyst and the extraction of 11, 12 and 13. The patient reported traumatic injury by 51 at the age of 18 months. The possible treatment options were studied using a multidisciplinary team.

**Conclusion:** Pulp infection and necrosis in the primary dentition should be treated as soon as possible in order to prevent any disturbance to the permanent tooth germ, and so that more complex treatment is avoided in the future.

#### 15. ESTHETIC RECONSTRUCTION IN THE ANTERIOR SECTOR AFTER ORTHODONTIC TREATMENT

**Biedma M, Ribas D, Huertas MD, Vilches A, Mendoza A**

*Máster de Odontopediatría. Facultad de Odontología. Universidad de Sevilla*

**Introduction:** Dental esthetics is becoming increasingly more important within the different dental disciplines, and an interdisciplinary focus is therefore required that permits a complete diagnosis and the proper execution of a treatment plan.

In the 80s, with the appearance of new aesthetic materials in restoration dentistry, it was recognized that esthetic results were critical for patient satisfaction.

When completing orthodontic treatment, the factors that are important for obtaining the best esthetic smile currently include concepts that are important in esthetic dentistry: shape and contour of gums, proportion of teeth and height of crowns, midlines, points of contact,

incisal pockets, dental angles, vertical position of teeth and color.

**Objectives:** Comparative analysis of 8 points in micro-esthetics in a 16 year-old patient after finishing orthodontic treatment.

**Material and methods:** After the orthodontic treatment, a gingivoplasty was carried out in order to regularize the gingival margins not achieved during the treatment. The pockets together with the shape and proportion of the teeth, were achieved using the stratification technique.

**Conclusions:** As said by Vincent Kokich in his article "Interdisciplinary management of anterior dental esthetics," one has to start with mental esthetics.

#### 16. FUNCTIONAL AND ESTHETIC REHABILITATION IN GOLDENHAR'S SYNDROME. A CASE REPORT

**Del Barrio MP, Lázaro M, Zuluaga O, Gómez E, Beltri P**

*Especialista en Atención Odontológica Integral en el Niño con Necesidades Especiales. UCM. Directora Profa. P. Planells. Hospital Universitario La Paz. Madrid*

**Introduction:** Goldenhar syndrome or auriculo-vertebral dysplasia is a polymalformative condition, related to defects in the first and second branchial arches. It was first described by Von Arlt in 1941 and it was included as a syndrome by Goldenhar in 1952.

The incidence of this syndrome is estimated to be 1 out of 25.000 live births. It affects more males with the M/F rate being: 3/2. It has no hereditary, gender or racial preference patterns. In most cases the condition is unilateral and asymmetric.

Due to the family variations that have been found, the genetic studies carried out and the pattern of malformations that are variable, it is thought to be a heterogeneous entity.

When Goldenhar's syndrome is the result of a chromosomal alteration, intellectual development will be more commonly affected.

Certain drugs, such as Primidone, ingested by the mother during pregnancy have been associated with this syndrome. It has also been seen in mothers with *diabetes mellitus*.

The signs that most commonly arise in patients are:

- Hemifacial microsomia.
- Microtia.
- Vertebral malformations.
- Epibulbar dermoide.

Like the pathogeny itself, the treatment should be multidisciplinary, and it should treat:

Vertebral and cardiac malformations.

Hemifacial microsomia will require craniofacial surgery. This surgery should be carried out by means of progressive bone elongation of the maxillofacial area using mandibular distraction.

The surgery consists in an intraoral external corticotomy of the mandible. Two bicortical intra-osseous screws are placed percutaneously which are jointed to the external distractor.

**Objectives:** The clinical characteristics, diagnosis and pathogeny of Goldenhar's syndrome. To describe the surgical treatment for hemifacial microsomia through progressive bone elongation.

**Material and methods:** In order to carry out the article, the medical literature of the PubMed Central databases was consulted.

References were also looked for in search engines such as Google Academy. In addition the library of the Universidad Complutense of Madrid was used to look for articles in scientific journals.

**Conclusions:** The prognosis and the degree of impact of this malformation will depend on the amount of associated malformations.

The diagnosis is important in order to carryout multidisciplinary treatment.

With regard to the orofacial anomalies, mandibular distraction is today the only early treatment in mandibular anomalies and it has obvious advantages for growing patients.

Distraction achieves the creation of new bone, it permits treatment at an early age and it allows simultaneous growth of the muscles and soft tissues in the face.

## 17. ESTHETIC RESTORATION OF DENTAL FRACTURES BY MEANS OF FRAGMENTS ADHESION

**Vilches A, Gutiérrez N, Moreno M, Mendoza A**

*Facultad de Odontología, Universidad de Sevilla, Master de Odontopediatría*

**Introduction:** Crown fractures as a result of falls and playing sports are the most common trauma in the permanent dentition. Only incisors tend to be affected. The two most conservative and esthetic treatments are restoration by means of the stratification technique (Dr. Vanini) or fragment replacement, with the later offering the greatest advantages.

**Objective:** To demonstrate the esthetic benefits and wear resistance of fragment replacement.

**Material and methods:** A revision of the literature was carried out on fragment adhesion in the permanent dentition according to the different techniques that are to be found in Pubmed and in books. Various case reports are presented of crown and crown-root fractures, and of fragment replacement using the dental preparation that had the greatest resistance to fracture according to the search carried out.

**Conclusion:** Fragment replacement is the best alternative for restoring fractured teeth as the esthetic results are long-lasting, the shape and color of the tooth is maintained, and wear resistance is increased with minimal loss of dental structure.

## 18. REVASCULARIZATION: AN ALTERNATIVE TO APEXIFICATION. A CASE REPORT

**Espí M, Ávila D, Torres L, Bartolome B, Ortuño A**

*Universidad Europea de Madrid*

**Introduction:** There are currently different alternatives for treating permanent teeth with pulp necrosis and an immature apex, such as apexification, apical closure with MTA and revascularization. Different factors should be evaluated in order to choose the best therapeutic option (behavior and level of patient cooperation, degree of opening of the apex, thickness of the dental walls...)

Revascularization is presented as an alternative technique to apexification with calcium hydroxide.

**Objectives:** the aim of this paper is to present an action protocol of a revascularization technique for teeth with no apical closure, with this being a new option as opposed to other techniques such as apexification.

**Material and methods:** 7 year-old male who attended the Master's degree course in Pediatric Dentistry of the *Universidad Europea de Madrid* with severely damaged 46 that radiographically showed open apices and pulp necrosis. Revascularization treatment was decided on, in order to avoid lengthy conventional apexification.

By means of this technique the necrotic pulp was eliminated and closure of the apex was achieved artificially by means of coagulation. The root canal was filled with MTA in order to ensure a proper seal.

**Conclusions:** Revascularization is considered to be an efficient technique for treating permanent teeth with immature apices in order to achieve closure of the apex, avoiding the disadvantages of conventional treatments. Closure is achieved in a maximum of 18 months and in only 2 clinical sessions.

## 19. WILLIAMS-BEUREN SYNDROME: A REPORT OF TWO CASES

**De la Cuesta Rivas Y, Martínez Martín N, Hontecillas Moreno V, Martín Olivera E, Delgado Castro N**  
*Servicio de Odontopediatría. Hospital San Rafael. Madrid*

Williams-Beuren syndrome, also known as "Elf syndrome" is a condition with a genetic origin produced by the submicroscopic hemizygous deletion of the long arm of one of the seven homologous chromosomes.

It has a low prevalence, approximately 1/20.000 births, affecting mainly males (63%) and until relatively recently it was not diagnosed until adulthood.

The most prominent and characteristic symptoms are:

- Typical facial expression (four principal facial features).

- General delay in mental development (varying from mild to moderate)

- Coronary defect consisting in a narrowing of the aorta (supravalvular aortic stenosis).

Other disturbances may appear depending on how the syndrome affects a person individually. Despite not having characteristic oral manifestations, it does require special management by pediatric dentists.

Two cases are described of children affected with this syndrome, who attended the Department of Pediatric Dentistry in the Hospital San Rafael in Madrid. On examination it was discovered that they had multiple caries. The diagnosis and treatment in both cases are provided, as well as the precautionary measures that should be kept in mind when carrying out this treatment.

The aim of this work is to present this pathology so that we can receive these patients in our dental offices, and so that we know what has to be kept in mind when carrying out dental treatment with regard to the possible complications that may arise.

## 20. TREATMENT OF A PATIENT WITH A HYPOCALCIFIED TYPE AMELOGENESIS IMPERFECTA

**Martínez E, Fernández E, Alcaina A, Hernández A, Ortiz A J**

*Universidad de Murcia*

**Introduction:** Hereditary Amelogenesis Imperfecta can be classified mainly into three groups: hypoplastic, hypomaturation and hypocalcified. The latter is characterized as having soft rough enamel, of a yellow-brownish color, small crowns, multiple diastemata and a susceptibility to the effects of attrition leading to sensitivity problems and a poor esthetic appearance.

An 11 year-old presented at the dental clinic of the Universidad de Murcia with growth well below normal percentiles, in height as well as weight, because he was unable to eat properly. The mother reported that the reason was a generalized hypersensitivity that required all his food to be blended and heated and he was unable to eat acidic food.

**Objective:** To eliminate dental sensitivity, restore masticatory function and improve the dental esthetics of the patient.

**Material and methods:** The patient showed considerable destruction of the four permanent molars, second premolars and upper central incisors. For the restorative treatment glass ionomer was necessary, (Amaris®) opaquer, composite, preformed crowns and electric bistoury. The upper molars were badly damaged on the occlusal palatal side, and metal crowns were therefore placed in order to protect the remaining enamel and in order to reestablish the vertical dimension. Tooth 3.6, given the extensive damage, had gingival overgrowth on the distolingual side that required a gingivectomy with an electric bistoury before the restoration. Tooth 4.6 was restored with composite after protection with glass ionomer as there was less damage to the crown. Lastly preventative treatment was carried out every 3 months with topical fluoride.

**Conclusions:** The elimination of hypersensitivity and the recovery of the occlusal form and vertical dimension allowed the child to recover masticatory function and enjoy a normal diet necessary for his growth.

## RESEARCH WORK

### 21. COMPARISON OF *STREPTOCOCCUS MUTANS* LEVELS IN A POPULATION OF CHILDREN AGED 15 DAYS TO 3 YEARS AND THEIR MOTHERS

**Domenech J, González F, Gandía A, Ribelles M**

*Universidad Cardenal Herrera-CEU. Valencia*

**Introduction:** The transmission of microorganisms from the saliva of a mother to her child was suggested for the first time in 1975 by Berkowitz and Jordan, who used the *mutacin* typing method for demonstrating that microorganisms in the samples taken from the mouths of children were identical to those found in the mouths of their mothers. The infection of a child's mouth by *Streptococcus mutans* from adult saliva, particularly that of the mother, is produced mainly on dental eruption between the ages of 6 and 24 months, although there are authors who consider that colonization is possible in the mouths of children with no teeth. Despite the difficulties for establishing the period known as the "window of infectivity", it is known that the earlier the colonization of the child's mouth with cariogenic bacteria, the greater the child's risk of caries.

**Objective:** to quantify the levels of salivary *Streptococcus mutans* in a sample of children aged between 15 days and 3 years and to compare these with the level in their mother's saliva, in basal conditions, and to assess the window of infectivity of *Streptococcus mutans* in the sample of children studied.

**Materials and methods:** The study was carried out in a playschool called Brèssols, located in Onda (Castellón) that was attended by children aged between 6 months and 3 years. The personal situation of the brothers of these children who were aged less than six months was also analyzed. The sample was made up of 60 children and their respective mothers who decided to participate in the study after giving their informed consent. After a clinical examination of the infants, which evaluated dental eruption, samples of non-stimulated saliva were collected from the children and their mothers, which were then cultivated in an enriched medium for *Streptococcus mutans* (CRT-Bacteria Ivoclar-Vivadent). After the incubation of 144 samples for 48 hours at 37°C in a stove, the levels of *Streptococcus mutans* was counted of the children and their mothers, and then compared.

**Preliminary results:** After the data were collected, this was analyzed following the Student's T-test. The preliminary results indicated that 40% of the *Streptococcus mutans* levels in the saliva studied in the children and in their respective mothers were similar. In 42% of the child-mother binomial, the child had a lower level of *Streptococcus mutans* in the saliva. Only 18% of the children participating in the study had greater levels of *Streptococcus mutans* than their mothers.

With regard to the establishment of a window of infectivity, there was a clear and evident increase in lev-



els of *Streptococcus mutans* in those children whose eruption process had begun in the deciduous dentition, with regard to those who did not have teeth at all.

**Conclusion:** The levels of *Streptococcus mutans* present in the saliva of the children were similar to those in the maternal samples and it can therefore be concluded that there is a direct relationship between both of them. Therefore, we have to carry out preventative campaigns in order to reduce, and even eradicate the mother-child infection of bacteria at birth. The window of infectivity of *Streptococcus mutans* is established with the start of dental eruption, specifically with the eruption of the first primary molars. Preventative campaigns on oral hygiene in children that are suited to the developments in their eruption process should be carried out.

## 22. DISTRACTION IN PEDIATRIC DENTISTRY BY MEANS OF RIMAX® PROJECTION GLASSES

**Ladrón de Guevara AC, Guinot F, Barbero V, Cuadros C, Lorente AI**

*Universitat Internacional de Catalunya (UIC). Sant Cugat del Vallès, Barcelona*

**Introduction:** Many professionals consider that children with non-cooperative behavior are one of the greatest problems in clinical practice. Many techniques have been developed that were aimed at reducing the anxiety of these children. The literature describes techniques or methods for child behavior management. Behind these we will find distraction using audiovisual methods.

**Objective:** To determine and compare the global behavior of a patient during their dental treatment on each visit, before and after the application of a distraction technique using an audiovisual medium with Rimax® projection glasses.

**Material and methods:** The sample was made up of 17 patients who were aged between 4 and 9 years, and who attended the dental university clinic of the *Universitat Internacional de Catalunya*. They had previously received treatment and had shown problems with dental anxiety or disruptive techniques, and they had treatment plans that required a minimum of two visits for pulp or restoration treatment: first visit (control visit) and a second visit (experimental) with a viewing of a video using Rimax® projection glasses.

The variables collected in both visits were: anxiety of the child as perceived by the parents, anxiety of the child before and after the treatment was carried out, pain suffered by the child during the visit, mean heart rate at different points during the treatment and global behavior of the patient.

The data were analyzed using the statistical program Statgraphics® Plus Version 5.1 (Software Científico S.L., Madrid, Spain) using factorial ANOVA.

**Results:** Significantly different statistics were found according to sex with regard to global behavior, as the boys showed worse behavior than the girls (P-

Value: 0.037) and, regarding anxiety as perceived by the parents, the girls showing less anxiety (P-Value: 0.028). Heart rate was assessed in both visits (P-Value: 0.003) together with anxiety as perceived by the patient before and after treatment (P-Value: 0.000). Of the patients, 100% showed their preference for video visits.

**Conclusions:** viewing a video with Rimax® projection glasses as a method of distraction in Pediatric Dentistry seems to lead to child patients who are better behaved globally, even though there may not be statistically significant differences.

## 23. SURVEY ON PREVENTION AND ORAL HEALTH HABITS IN A POPULATION OF PREGNANT WOMEN

**Oliveros P, Carmona M, Gandía A, Ribelles M**

*Universidad CEU-Cardenal Herrera. Moncada, Valencia*

**Introduction:** Midwives are in a privileged position with regard to pregnant women and their children, as they play a fundamental role in the prevention and promotion of orodental health. Information correctly given by health professionals to pregnant women regarding prevention and orodental health, not only affects the immediate present, but certain oral pathologies can be prevented in the not so distant future.

**Main objective:** To investigate the level of knowledge of a group of pregnant women on basic dental aspects regarding themselves and their children in order to establish a suitable action protocol.

**Material and methods:** A survey was carried out of a group of 150 pregnant women who were attending the healthcare centers of Mislata, Moncada and Godella (Valencia) for routine checkups with the midwife together with the information workshops depending on their stage of pregnancy. These were public primary care centers with highly qualified teams of professionals. The survey was put together in order to evaluate various aspects related to the oral health of these pregnant women and their children. They replied anonymously and voluntarily to a total of 37 questions that were divided into six blocks of information, and which evaluated the knowledge of the mothers on different dental areas.

**Preliminary results:** After collecting the data, the results of each of the items in the sample were analyzed independently and by blocks. The level of knowledge of the pregnant women on their own basic dental aspects was adequate. However, this did not occur in the same way when we referred to certain aspects regarding prevention and the habits of their children, in which the level of knowledge was much lower. Only 19 pregnant women (25%) had received information on the oral care of their babies, 63% of the women surveyed were unaware of the term pediatric dentist, and only 2 women (2.7%) knew when to take their child to a pediatric dentist for the first time.

**Conclusion:** The results revealed that the level of information that pregnant women receive from health professionals such as midwives on the oral care of their children is insufficient, and that it is necessary to establish action protocols as from the moment of the gestation. Information is one of the main pillars for preventing orodental disease. Health professionals such as midwives are in direct contact with pregnant women and their babies, playing a fundamental role in motivating, preventing and promoting oral health from the moment of gestation.

## 24. DENTAL AGE ESTIMATION IN CHILDREN FROM MADRID

**Feijóo G, Barbería E, De Nova J**

*Departamento de Profilaxis, Odontopediatría y Ortodoncia, Facultad de Odontología, Universidad Complutense de Madrid*

**Introduction:** Estimating dental age serves as a diagnostic complement when facing development disturbances, which is important when planning certain treatment. Similarly, determining dental age is important in Legal and Forensic Dentistry, and on occasions it is the only way of making a reliable estimate of the real age of certain individuals who are underage.

**Objectives:** The aim of this study was to apply the method for calculating dental age proposed by Demirjian and cols. in a sample of children in the Community of Madrid, and to carry out a comparison between dental age and chronological age in order to establish the validity of Demirjian's method in our population. We also aimed at putting together specific conversion tables for dental age using this data.

**Material and methods:** The present study was carried out using a final sample made up of 1.010 panoramic radiographies, corresponding to children who were aged between 2 and 16 years of age (485 boys and 525 girls), who attended the Dental Faculty of the U.C.M. They were randomly chosen and well-defined inclusion and exclusion criteria were applied. The comparison of dental age and chronological age was done using Student's T-test for equal measures. All the tests were carried out using a 95% confidence level.

**Results:** It was established that the mean dental age was greater than the mean chronological age in the boys as well as in the girls, with the mean difference being 0.87 and 0.55 years respectively. Statistical significance was found when most of the age groups were compared. From our data the Demirjian method was adapted to our study population, and specific conversion curves and tables were obtained.

**Conclusions:** Estimated dental age according to Demirjian in our sample was significantly ahead in relation to the chronological age in both boys and girls, with this increase being greater in the boys (0.87 years) than in the girls (0.55 years). Based on this, maturity curves and specific score tables are proposed that permit using Demirjian's method for calculating dental age in our population.

## 25. PREVALENCE STUDY ON TRAUMA IN THE PRIMARY DENTITION

**Ribas D, Biedma M, González E, Caleza C y Mendoza A**

*Facultad de Odontología. Universidad de Sevilla. Máster de Odontopediatría*

**Introduction:** Current epidemiological tendencies tend to make us think that dental trauma could constitute the main demand for dental attention in pediatric dentistry practice. During a child's early years, traumatic injury is particularly frequent given that the child starts to walk and to socialize, leaving the maternal breast.

When treating trauma to primary teeth one should not forget *the relationship between the apex of the primary tooth and the permanent tooth germ*.

In the primary dentition this prevalence varies between 4 and 33% with a maximum peak between 10 and 24 months. The high variability detected in the studies is due to many factors such as name for the lesions, place of study, population analyzed, etc.

**Objectives:** To determine the prevalence of dental trauma that arises in the primary dentition in patients seen on the Masters course in Pediatric Dentistry at the *Universidad de Sevilla* over the last five years, as well as the repercussions of these injuries in the permanent dentition.

**Material and methods:** A study was carried out on the prevalence of alveolar dental trauma in the children attending the Masters degree course in the Faculty of Dentistry of the *Universidad de Sevilla* from 2007 to 2011.

For the statistical analysis, the statistical program SPSS 13.0 was used for descriptive statistics, Fisher's exact test was used for qualitative variables as well as for statistical associations according to the type of trauma, treatment and complications.

**Results:** From the results it can be said that the most common age for traumatic injury was 1 to 2 years. Subluxation and intrusive luxation were the most common type of trauma, and there was a low percentage of disturbances to the permanent successor due to proper treatment being carried out effectively.

**Conclusions:** Necrosis has been shown to be the main complication in traumatic injury during the primary dentition. The potential complication that this can generate in the developing permanent tooth germ makes a follow-up and starting a treatment protocol early on of great importance.

## 26. EVALUATION OF THE ASSISTED POPULATION IN A HOSPITAL DENTAL UNIT

**Pino B, Pachón C, Cahuana A, González Y**

*Hospital Universitario Sant Joan de Déu. Universidad de Barcelona*

**Introduction:** it is known that the number of patients with special needs is continually increasing given their

survival as a result of the advances in health. These patients are at greater risk of suffering oral disease which can have an effect on their health in general.

There is also a healthy population that requires specialized attention such as patients who are of a young age and who are unable to cooperate, and those with oral diseases who require tests and more specialized treatment.

The special needs population is ample, and this includes patients with cognitive disabilities, followed by a wide population of patients with systemic involvement that may be acquired or not, such as oncologic, hematologic, cardiac, and transplanted patients, and those with compromised immunity.

Care for this population is generally limited to primary care centers as occurs in private care. An oral health plan should include early prevention plans for all these patients, and this would be possible by integrating the specialty of Pediatric Dentistry. The need for care entails having centers providing specialized dental care and this could be done in a hospital-type setting.

In this sense the Hospital Sant Joan de Déu in Barcelona has had a unit with dental care for patients with special needs for more than 4 decades.

**Objectives:** To analyze a certain period among the assisted population in the Hospital Sant Joan de Déu. To assess the reason for the referral to the hospital.

**Material and methods:** during the period January–February 2011, a consecutive register was made of the assisted patients in the dental department, taking into account:

1. Visits: first or following treatment
2. Underlying pathology to justify hospital visit.
3. Need for treatment under general anesthesia.

**Results:** total number of visits to the dental department: 1.101

Total number of patients: 964

Visits: First: 466, treatment: 212, check-up 309; Emergency 117

Healthy patients: 398 (41.3%); associated pathologies 566 (58.7%)

Requiring treatment under general anesthesia: 155

**Conclusion:**

1. There is a high demand for care for special needs patients in the hospital setting.
2. The existence of a Pediatric Dentistry Unit is totally justified in the hospital setting.
3. In this study referral from primary care centers was found to be well-grounded.

## 27. EVALUATION OF CARIES RISK IN A POPULATION OF NURSING BABIES AND TODDLERS USING THE CAMBRA METHOD

Alanís M, Álvarez T, Gandía A, Ribelles M

Universidad CEU-Cardenal Herrera. Moncada, Valencia

**Introduction:** Despite the measures taken over recent years to eradicate dental caries, it continues to be one of the most common childhood diseases. It sometimes

affects general health, stopping growth and proper development. Controlling caries risk factors from an early age constitutes the main method for preventing its prevalence. An individual evaluation of caries risk is the first step, playing an important part in the elaboration of a complete protocol for child oral care. Of the different methods for determining caries risk, the CAMBRA method is of particular relevance in pediatric dentistry, as it analyzes in detail, by means of a survey and examination, the main etiological factors that permit an individual evaluation of a child's caries risk in order to avoid the development of dental caries during the first years of life.

**Objective:** the main aim of the study was to evaluate caries risk in a population of nursing babies and preschoolers using the CAMBRA methods.

**Material and methods:** after the approval by the Ethical Investigation Committee of the *Universidad CEU-Cardenal Herrera*, our study was carried out in a nursery school called Brèssols, located in Onda (Castellón) that was attended by children aged from 6 months to 3 years. The personal situation of the brothers and sisters of these children who were under the age of six months was also analyzed. Once informed consent had been obtained from parents, the children and their mothers were given appointments to come and collect the CAMBRA questionnaire which was filled in by the mothers with the help of the same operator. The children then underwent a dental examination with the help of an odontogram for data collection. Salivary samples were taken from the mothers and their children in order to carry out a comparison of the levels of *Streptococcus Mutans* and to establish in this way the risk factor, which was represented as a complementary test.

**Preliminary results:** the data was grouped together and analyzed according to the 5 group factors established in the CAMBRA questionnaire for nursing babies and toddlers: *indicators of caries risk* (Interview); *caries risk factors – biological* (Interview); *biological protective factors* (interview); *non-biological protective factors* (Interview) and *caries risk indicators* (clinical examination). It was analyzed using a statistical system, Students T-test.

Among the factors analyzed it should be pointed out that, of the population total, 18.9% had *biological-type caries risk factors*, with the factor with the greatest incidence being constant bottle feeding with liquids other than water, followed by the sharing of glasses and/or cutlery with their children, as well as the presence of active dental caries in the mother over the previous six months. Some 14.3% of the population had *caries risk factors on examination*, with the low level of salivary flow and the presence of white stains standing out. Of the total number interviewed 33.9% had protective factors. The factor with the greatest incidence was tooth brushing, diet control and regular dental care by parents.

**Conclusions:** the use of the CAMBRA method for determining caries risk represents an individualized technique for preventing the development of the disease itself from the nursing stage. The population participating in the study had a caries risk of 18.9%. The individual and evident risk of caries in the children participat-

ing in the study indicates that precise information should be given to parents on the factors themselves in order to inform them of the oral hygiene habits that should be carried out as from the first months, because there is no knowledge of this information.

## 28. DENTAL EVALUATION OF MENTALLY DISABLED PATIENTS IN THE HOSPITAL SETTING

**Balda B, Cahuana A, Gonzalez Y.**

*Hospital Sant Joan de Déu. Universitat de Barcelona*

**Introduction:** mentally handicapped patients make up different groups but what they all have in common is that they are more vulnerable in the different health areas, and especially with regard to dentistry. These patients are difficult to handle, they do not cooperate when being examined nor when undergoing different therapies, and they are the least attended group.

**Objective:** To evaluate the different oral characteristics of patients with mental handicaps in order to determine their dental treatment needs.

**Material and methods:** a prospective study of mentally handicapped patients who were visited in the Hospital Sant Joan de Déu in Barcelona for 4 consecutive months over the 2010-2011 period.

General data was obtained: disabling disease, associated pathology, degree of mental retardation, diet, and oral hygiene habit: caries, gingivitis, malocclusion, trauma, habits and the type of care carried out (outpatient or under general anesthesia).

### **Results:**

1. A total of 117 patients were evaluated. Mean age 11.95 years, with a gender distribution of 72 boys and 45 girls.

2. The sample of patients with incapacitating pathologies was divided into 5 groups: encephalopathy – mental retardation: 31; cerebral palsy: 22; autism: 22; epileptic encephalopathy: 25, various genetic syndromes: 17.

3. The association with epilepsy was a common trait in the ICP group ( $p 0,0085$ ).

4. Oral hygiene with a brush was registered as 87% and as assisted in 52%.

5. Gingivitis was more prevalent in the population with severe MR ( $p 0,018$ ). The rate of caries was lower in the autistic group (3.1). Class II malocclusions and AOB were more frequent in the ICP group (40%). The traumatic injury group represented 16%.

Treatment under general anesthesia was more common in the autistic group (45%), with this being significant ( $p 0,02$ ).

### **Conclusions:**

—There is a large mentally handicapped population that obeys different etiologies, and which has different needs regarding dental care.

—Epilepsy was the most commonly associated pathology.

—In the IPC, AOB was the most significant malocclusion. The autistic group had the lowest caries rate,

however they required more treatment under general anesthesia.

—This group of patients should be given early dental care with preventative measures and parental education.

## 29. DEVELOPMENT OF DIETARY RISK FACTORS IN EARLY CHILDHOOD CARIES 2002-2010

**Aybar M, Cahuana A, Palma C**

*Servicio de Odontopediatría y Ortodoncia. Hospital Sant Joan de Déu. Barcelona. Master de Odontopediatría. Universitat de Barcelona*

**Introduction:** Despite many studies on early childhood caries (ECC), the prevalence of this disease has remained stable in various industrialized countries, including Spain, over the last decade. Among the caries risk factors, diet plays a fundamental role. The combination of prolonged breastfeeding without hygiene and the frequent consumption of fermentable carbohydrates have been widely studied, and this inter-relationship has been demonstrated to be highly cariogenic.

Given this, it is remarkable how many of the dietary errors in children's food are unknown by parents and/or guardians. The increase in visits because of rampant caries over the last nine years in the Hospital Sant Joan de Déu (HSJD) was the reason for this study.

**Objective:** To evaluate the development of dietary risk factors over recent years.

**Material and methods:** Comparative study of surveys was carried out over different periods from 2002 to 2011 of patients with ECC, who attended the HSJD in Barcelona. The registers were made up of 297 surveys distributed in: the period 2002-2003 (A, 122 cases); 2007-2008 (B, 71 cases); and 2010-2011 (C, 104 cases). Socio demographic factors were compared, together with hygiene habits and nutritional patterns.

**Results:** The mean age of the population studied was 3.8 years. The immigrant population in period A was 50%, B was 35% and C was 64%. With regard to socioeconomic level, in period A this was classified as low 22%, B was 11% and C was 55%.

In relation to prolonged nightly breastfeeding (more than one year) the prevalence in period A was 8%, B was 24% and C was 39%. The use of a nightly bottle in Period A was 60%, B was 62% and C was 64%. Other dietary habits registered were the daily consumption of buns, sweets and industrial juice.

**Conclusions:** the following study revealed that the education level and origin of the parents significantly influenced ECC as in other studies.

This study revealed that the dietary errors assessed, increased in prevalence over a nine year period in Catalonia (use of nightly bottle and nightly and prolonged breastfeeding with no hygiene). With regard to breastfeeding, the increase over the last nine years was gratifying however it should be noted that the extension of this habit is not being accompanied by the oral hygiene habits necessary for avoiding ECC.



### 30. RISK FACTORS IN EARLY CHILDHOOD CARIES

**Dalley D, Cahuana A, Palma C**

*Servicio de Odontopediatría y Ortodoncia. Hospital Sant Joan de Déu. Barcelona. Master de Odontopediatría. Universitat de Barcelona*

**Introduction:** Early Childhood Caries (ECC) is a prevalent disease and a public health problem. The etiology is multifactorial, the main cause being oral hygiene habits that are started late together with certain nutritional habits.

**Objective:** To evaluate the ECC risk factors in two different nursery school populations with similar ages.

**Material and methods:** Between November 2010 and February 2011, a comparative study was carried out of two populations: 104 children who attended the Hospital Sant Joan de Déu because of ECC (population A) were compared with 129 healthy nursery school children (population B) who were assessed in a school. Both populations were surveyed for socio-demographic data (place of origin, level of studies, occupation) and for their caries risk (nutritional factors, oral hygiene), and they underwent a clinical examination in order to determine caries index.

**Results:** The mean age was similar in both populations (3.94 years in A and 3.67 years in B). Some 59.62% of the children in population A were recent immigrants as opposed to 6.20% of population B.

The socio-economic level was low in 70.19% in A, as opposed to 9.16% in population B.

Oral hygiene habits were started late (at around the age of two) in 91.25% of population A, as opposed to in 40.15% of population B.

With regard to nutritional habits, 63.46% had nightly bottle feeds in population A as opposed to 35.15% in population B. Nightly breastfeeding was 39.42% in population A, as opposed to 10.20% in population B.

Caries rate in population A was 8.73 as opposed to 0.18 in population B, and there were only 3 patients with total caries.

**Conclusion:**

Of the populations studied, it was the immigrants who were most affected by ECC.

Oral hygiene habits were started late in both populations, especially those affected by ECC.

With regard to nutritional habits, bottle feeding stood out together with nightly breastfeeding accompanied by no oral hygiene.

Any project on ECC should include early prevention and the education of parents so that future generations do not suffer this disease.

### 31. MOLAR-INCISOR HYPOMINERALIZATION: A STUDY OF 100 CASES

**Bonafé N, Catalá M, Velló A, Aura I**

*Clínica Odontológica. Facultad de Medicina y Odontología de Valencia*

**Introduction:** Molar Incisor Hypomineralization (MIH) has caught the attention of many investigators in recent years and, little by little, more information has transpired on its prevalence in different countries, fundamentally on the European continent. However, prevalence studies not always permit knowing the real repercussion of the problem for the professional.

**Objectives:** The objective of this work was to study in depth the clinical characteristics with regard to the presentation, severity of involvement and treatment required in Molar-Incisor Hypomineralization syndrome.

**Material and methods:** A retrospective study was carried out on 100 patients diagnosed with MIH who were receiving treatment in a clinic dealing exclusively with Pediatric Dentistry.

The data was recovered from standard files that contained:

- Personal data and medical history.
- Type of defect and surface involvement.
- Treatment carried out and pain control.
- Disturbance to the mineralization of the other teeth.

The analysis of the data was carried out with the statistical package SPAA.

**Results:** The final sample was made up of 100 children, 53 boys and 47 girls who were aged 5 to 12 years when diagnosed with MIH.

A total of 43% were referred because of the pathology, and diagnostic difficulty was the most frequent reason for the referral. Of all the children, 39% had associated symptoms. In the anamnesis it was observed that 44% had suffered problems during pregnancy.

The four permanent molars were the teeth most commonly affected, followed by the two upper central incisors. The molar that most frequently was severely affected was the upper left molar. The most frequent treatment was of three or more dental surfaces. Only one child underwent an extraction.

In 68 cases nitrous oxide was used in addition of local anesthesia for pain control, and in 25 of these cases premedication was needed.

**Conclusion:** Children with Molar-Incisor Hypomineralization make up a considerable part of our current activity at the Pediatric Dentistry Clinic. A relationship between severity of involvement and medical history could not be established. It was observed that treatment can be anticipated according to the type of defect and its location. Asymmetric involvement was confirmed in this sample.

### 32. COMMUNITY DENTISTRY MEETINGS IN THE DOMINICAN REPUBLIC. PREVENTION IN PEDIATRIC DENTISTRY

**Jiménez W, Ribas D, Castaño A, Rodríguez F, Erickson L**

*Facultad de Odontología. Universidad de Sevilla*

**Introduction:** Since 2005, a community dentistry project is being carried out by undergraduate students of

the *Universidad Autónoma de Santo Domingo*. The *Universidad de Sevilla* has provided assistance services for combating the dental needs and deficiencies of the most disfavored population groups in the Dominican Republic. The importance of pediatric dental care should be particularly highlighted, as this permits improving orodental health in the child population. The meetings are aimed at prevention in oral hygiene, specific protection, diagnosis and early treatment, limiting damage and physical, psychological and social rehabilitation.

**Objectives:** To help needy children, to meet their dental needs, and to provide training for the students of the *Universidad Autónoma de Santo Domingo* and the *Universidad de Sevilla*.

**Material and methods:** The first four days of the meeting took place in Hata Mayor del Rey and after this they took place in the city of Puerto Plata where they have been held for the last two years.

For the execution and design of each community dentistry meeting, the contribution of an enormous group of people is necessary; more specifically of 30 students, 5 teachers of the *Universidad Autónoma de Santo Domingo*, 25 students and 4 professors of the *Universidad de Sevilla* and 5 students from the *Universidad de Salamanca*.

The assistance provided was free, and a diagnosis was made before and after the required treatment. The assistance included: hygiene demonstrations, prophylaxis, sealants, fluoride application, surgery, extractions and rehabilitation with prostheses.

**Results:** During each meeting, which lasted two weeks, around 2,000 children aged 3 to 13 years were treated. The most predominant disease was caries in the anterior facing and large destruction to molars. The lack of hygiene was also very evident as most children were not familiar with any of the oral hygiene methods. Given this, prophylaxis was carried out 690 times, and there were 260 teeth sealed, 500 obturations and 400 extractions per year.

**Conclusions:**

—The child population of the Dominican Republic has large treatment needs but most people have no access to treatment given their financial situation.

—Projects such as the one that we are carrying out, bring to light these deficiencies helping to reduce them.

—The level of oral hygiene of these children has been improved, while the professional and personal lives of future dentists have been enriched.

### 33. MELATONIN AS AN ALTERNATIVE TO MTA FOR PULPOTOMIES

**Germán C, Alcaina A, Martínez E, Pérez A, Ortiz AJ**  
*Universidad de Murcia*

**Introduction:** Pulpotomies are one of the most common forms of treatment to keep primary molars, with reversible pulp inflammation, asymptomatic until they are shed. There is currently a material that is nearly perfect for carrying out pulpotomies which is mineral tri-

oxide aggregate or MTA. The clinical, radiological and histological success rate is very high. Nevertheless, it has a disadvantage: its high cost. For this reason the search continues for a biocompatible agent, with a hermetic seal for preventing microfiltration, which does not damage the pulp, that encourages repair and which, in addition, does not have a high cost. Melatonin is a hormone which is synthesized mainly in the pineal gland. It is a strong antioxidant and it is an immunomodulator. It is not toxic, it is highly lipophilic, and it has a high capacity for reaching tissues. It encourages bone formation, stimulating the proliferation and synthesis of collagen fibers and it interferes with the function of the osteoclasts, inhibiting bone resorption.

**Objectives:** To study pulp response in rat molars to the Melatonin used as pulpotomy material, and to study the influence on pulp repair of the melatonin administered in drinking water.

**Material and methods:** A total of 16 male Sprague-Dawley rats were used, that were divided into 4 groups. Group 1: MTA 30 days. Group 2: Melatonin 30 days; Group 3: MTA and melatonin in drinking water 30 days; Group 4: Melatonin and melatonin in drinking water 30 days. Pulpotomies were carried out in the four upper molars of each rat. After 30 days the rats were sacrificed, the samples were processed and histological slices were made that were observed under an optic microscope. An assessment was made of the degree of pulp inflammation, the appearance and regularity of the odontoblastic layer, new dentin formation, and the presence of necrosis and fibrosis.

**Results:** In group 1 healthy pulp was observed with fibrosis formation and the presence of dentin. In group 2 the results were similar but the presence of dentin diminished and the presence of fibrosis increased. In groups 3 and 4 the results were worse than in groups 1 and 2.

**Conclusions:** Melatonin could be an alternative to MTA as an agent for pulpotomies. Melatonin in water that is drunk alters the pulp repair effects of the pulpotomy agents used.

### 34. BEHAVIOR MANAGEMENT USING AUDIOVISUAL MATERIAL

**Yuste S, Guinot F, Cuadros C, Mayné R, Lorente AI**  
*Universitat Internacional de Catalunya (UIC). Sant Cugat del Vallès, Barcelona*

**Introduction:** In pediatric dentistry managing a patient's behavior requires continuous interaction with the child and parent that is aimed at communication and education. It is through this communication that dentists can reduce the fear and anxiety that a child patient may have.

Many techniques arose aimed at reducing anxiety in these children. However, a new factor is playing an increasingly decisive role in this election, and it is the opinion of parents. Given this situation, pediatric dentists have been obliged to limit the use of certain techniques that are considered efficient but that are unac-

ceptable by parents, in order to promote other more delicate and better accepted techniques such as music, audiovisual instruments, hypnosis, help from child psychologists, etc.

**Objective:** To determine and compare the global behavior of a patient after dental treatment has been carried out, before and after the application of a distraction technique using audiovisual instruments.

**Material and methods:** The sample was made up of 25 patients aged between 4 and 9 years who attended the university dental clinic of the *Universitat Internacional de Catalunya*, and who had previously received dental treatment. They had to have problems with dental anxiety or disruptive behavior, a treatment plan that required a minimum of two restorative or pulp treatment visits: the first visit (control) and the second visit (experimental) with video viewing.

The variables collected on both visits were: anxiety of the child as perceived by the parents, anxiety of the child before and after-treatment, pain suffered by the child during the visit, heart rate at different points during the treatment and the global behavior of the patient.

The data was analyzed using the statistical program Statgraphics® Plus Versión 5.1. (Software Científico S.L., Madrid, Spain), and factorial ANOVA.

**Results:** Significant statistical differences were found with regard to global behavior between ages (*pvalue* 0,018) and visits (*pvalue* 0,0001), as well as anxiety perceived by the patient according to age (*pvalue* 0,0001). Video visits were preferred by 100% of patients.

**Conclusions:** Audiovisual instruments used as a method of distraction in pediatric dentistry are valid tools for achieving better behavior and collaboration in children suffering from dental anxiety.

### 35. SYSTEMIC MANIFESTATIONS DURING THE ERUPTIVE PHASE OF THE DECIDUOUS DENTITION

**Pérez A, Germán C, Fernández E, López L, Ortiz A**  
*Unidad Docente COII. Facultad de Odontología. Universidad de Murcia*

**Introduction:** The emergence of primary teeth, at about the age of 6 months generally leads to local and systemic manifestations. Some studies suggest that dental eruption leads to a kind of stress in children and an imbalance, resulting in the appearance of various signs and symptoms that may have or not a direct relationship with the physiological eruption process.

**Objective:** The aim of this study was to register the signs and symptoms found by parents and tutors of children in the city of Lençóis Paulista (São Paulo, Brasil).

**Material and methods:** Surveys and questionnaires were used for 100 parents or guardians of children aged between 6 months and 2 years who attended the practice of 5 pediatricians in the city of Lençóis Paulista (20 per pediatrician).

**Results:** The manifestations can be divided into: behavior disturbance and systemic manifestations. Dur-

ing the pre-eruptive period there was behavior disturbance in at least 56% of the children, with irritability being the most common manifestation. During the eruptive process 76% presented systemic manifestations. Hypersalivation was most commonly reported, followed by diarrhea (16%), fever (10%) and other manifestations (11%).

**Conclusions:** Most parents, tutors and pediatricians recognize the existence of some type of local or systemic manifestation or disturbance in the behavior of children during tooth eruption. Investigating these signs and symptoms is necessary as they may be hiding early childhood diseases.

### 36. MEASURING ANXIETY IN PEDIATRIC DENTISTRY PATIENTS BY USING A PULSE OXIMETER

**Ávila D, Espí M, Beltri P, Costa F, Sánchez M**  
*Universidad Europea de Madrid*

**Introduction:** Anxiety and fear of dental treatment has been a big problem for managing pediatric dentistry patients over the years.

Studies for measuring anxiety levels in children have been based on self-report test (interviews, questionnaires) on parents or children, which provides subjective data on the response of the child at each operative point during the dental treatment.

The measures most used in objective evaluations of anxiety are cardiovascular response and in particular heart rate, given that this can be monitored easily and widely applied.

The pulse oximeter is an instrument that measures oxygen saturation, allowing more information on a patient's heart rate, and we believe it may be very useful for pediatric dentistry patients, given that it is an objective test and not painful at all for evaluating anxiety, especially in very small children.

**Objectives:** To measure anxiety in children attending the pediatric dentistry clinic of the *Universidad Europea de Madrid* by means of an evaluation of heart rate and oxygen saturation with a digital pulse oximeter.

**Material and methods:** the study population was made up of boys and girls attending the Pediatric Dentistry masters degree course of the *Universidad Europea de Madrid* who were aged between 3 and 12 years.

The data variation supplied by the pulse oximeter was recorded in a table.

**Exclusion criteria:** children receiving some kind of tranquilizer or sedative.

**Results:** We found variations in heart rate as well as in oxygen concentration at different points during the dental treatment. A significant increase was observed in heart rate and there was a reduction in oxygen concentration in these pediatric dentistry patients in moments of greatest anxiety, such as during the administration of local anesthesia.

**Conclusions:** The increase in heart rate and the reduction in oxygen concentration can be used as parameters to indicate anxiety and fear in pediatric dentistry

patients. The pulse oximeter can be considered an efficient and convenient measuring instrument.

### 37. POSITION OF THE HYOID BONE IN PEDIATRIC PATIENTS WITH ORAL BREATHING

**Chung Leng I, Bermúdez M, Bartolomé B, Albero G, Pérez F**

*Máster de Odontopediatría. Universidad Europea de Madrid*

**Introduction:** Cephalometric studies in common practice do not incorporate the cervical region. However, the craniocervical position and that of the hyoid bone provide information with regard to the function and stability of the craniomandibular system.

**Objective:** The aim of this investigation was to study the position of the hyoid bone in pediatric patients with oral breathing with regard to the position of the mandible and the cervical vertebrae, comparing these with patients using nasal breathing.

**Material and methods:** The teleradiographies of 30 pediatric patients in the university dental clinic of the *Universidad Europea de Madrid*, 13 girls and 17 boys, aged between 4 and 12 were studied. A total of 17 patients had oral breathing and 13 had nasal breathing. None of the patients had had tonsil or adenoid surgery. Only one variable was studied in each radiography, the Hyoid Triangle (Rocabado M. *Análisis biomecánico craneocervical a través de una teleradiografía lateral*, Rev. Chil. Ortod. 1, 1984, 42-52).

**Results:** It was found that the hyoid bone of most patients with oral breathing was situated above the RGn – C3 plane or at the same height. However, in the patients with nasal breathing it was observed that the hyoid triangle was under the RGn – C3 plane, and the hyoid triangle was in a positive position.

**Conclusions:** This study showed that most of the patients with oral breathing had an elevated hyoid bone with regard to the position of the mandible and the cervical vertebrae, compared to the patients with nasal breathing.

### 38. PREVALENCE OF ANKYLOSIS IN PRIMARY TEETH IN A POPULATION IN BARCELONA

**Menon D, Cuadros C, Martínez P, Sáez S, Lorente AI**

*Universidad Internacional de Catalunya (UIC). Sant Cugat del Vallés, Barcelona*

**Introduction:** Ankylosis is the fixation of a tooth as a result of the fusion of the cementum to the alveolar bone, with the obliteration of the periodontal ligament. There are various theories on the etiology in primary teeth, but none have been completely approved.

Infraoccluded primary teeth, especially posterior teeth, are common findings in pediatric dentistry. This phenomenon arises because the vertical growth of the affected tooth is stopped because of ankylosis.

**Objective:** To determine the prevalence of ankylosis in the primary molars of children aged 6 to 14 years who were attending the university dental clinic of the *Universitat Internacional de Catalunya*.

**Material and methods:** After the approval of the Ethics Committee, all the patients aged 6 to 14 years who were attending the clinic for the first time between September 2010 and April 2011 were invited to participate in the study. All the patients agreed to participate, signing the informed consent. A routine dental examination was carried out in order to determine the presence of ankylosis. If ankylosis existed, the degree of severity was analyzed (according to the Brearly et al classification) in the orthopantomographies using a ruler, and in the patients mouth using a periodontal probe.

The data collected was analyzed using the Statgraph-ics Plus computing program Version 5.1 and the confidence test.

**Results:** A total of 240 patients participated in the study and the prevalence was of 3.3%. Of the 240 patients, 108 were boys and 132 girls and their ages ranged from 8.2 to 9.8 years. Of the 8 patients with ankylosis (3 girls and 5 boys) all had more than one molar affected by ankylosis. It was observed that the molar that was affected the most was the lower first molar. With regard to the degree of ankylosis, molars affected with moderate ankylosis were the most frequent.

**Conclusions:** The prevalence of ankylosis in the population studied was relatively low, and there was a greater tendency for the male sex to show this disturbance.

### 39. INDIRECT PULP CAPPING IN THE PRIMARY DENTITION: BIOCOMPATIBILITY OF MATERIALS

**Saura D, Cortés O, García C**

*Departamento de Odontopediatría. Universidad de Murcia*

**Introduction:** The trend in dentistry, and in particular in pediatric dentistry, is to abandon radical treatment in favor of conservative treatment, providing this is appropriate. Currently, given our increased knowledge on the basic biological and molecular aspects of pulp disease that intervene during the repair process, the value of certain treatments is being reinforced, and one of these is pulp capping. Indirect pulp capping in the primary dentition consists of eliminating carious dentin, preserving the last layer of the hypomineralized dentin. This is not eliminated in order to avoid entering the pulp chamber of primary teeth with deep carious lesions that do not have any clinical or radiographic symptoms. On this layer cement will be placed, favoring odontoblastic response to the lesion.



The material should adhere well to the dentin and have a similar elasticity module. It should resist the forces of occlusion, and have a suitable seal in order to isolate the remaining bacteria. It should be radiopaque and most importantly, it should be biocompatible.

**Objectives:** To evaluate the cytotoxicity of 2 cements used in direct pulp capping: self-curing glass ionomer and photo-curing calcium hydroxide.

**Material and methods:** A toxicity test was carried out on a rat fibroblast cell line (L-929) using an indirect contact test, and cell viability was assessed after exposure to the different materials.

**Results:** The glass ionomer cement showed higher viability percentages than calcium hydroxide.

**Conclusions:** Although indirect pulp protection is a treatment that gives good results in the long term regardless of the material used, we should use materials that produce the least reaction in pulp cells, and among these materials glass ionomers should be considered as good alternatives.

**Funding source:** Universidad de Murcia.

#### 40. RELATIONSHIP BETWEEN HYGIENE, DIET, CARIES AND *STREPTOCOCCUS MUTANS* IN PRESCHOOL CHILDREN

**Saavedra G, Real M, Mourelle MR**

*Facultad de Odontología. Departamento de Estomatología IV. Universidad Complutense de Madrid*

**Introduction:** Caries is an infectious multifactorial disease caused by *streptococcus mutans* among others. The early colonization and infection by these bacteria is a key factor in the risk for developing caries. In preschoolers it is to be found in low concentrations, and the factors that predispose young children to the proliferation of this microorganism are dietary habits that are rich in saccharose, a lack of oral hygiene and infection by a family member/care giver who is carrying this microorganism.

**Objectives:** The aim of this study was to analyze in preschool children the early colonization of *S. Mutans*, the relationship between dietary and hygiene habits, and the appearance of dental caries.

**Material and methods:** The sample was made up of children from educational centers in Madrid. There were a total of 101 children aged between 2 and 4 years (43 boys and 58 girls).

The following materials were used: Saliva-check mutans test, pH test, Saliva-check buffer and Plaque Indicator Kit (GC Corporation®)

A descriptive test was carried out that included Chi square and Student's T tests, as well as Pearson's correlation coefficient.

**Results:** 11.9% of the children had dental caries. The presence of *streptococcus mutans* could be demonstrated in all the children with caries.

With regard to diet, it was observed that 58.4% of the children had a feeding bottle as part of their usual diet, and 50.5% had a semi-bland diet.

With regard to oral hygiene we observed that most of the children brushed their teeth once a day (48.5%).

In our study there was a significant relationship between saliva pH and the presence of *streptococcus mutans*, but not between plaque pH and the presence of this germ.

**Conclusions:** our results showed a strong relationship between the presence of caries and *streptococcus mutans*.

We found a significant relationship between caries development and the consumption of sweets among pre-school children.

*Streptococcus mutans* was detected with a greater frequency in children whose diet included drinking from a bottle.

A relationship was not found between orodental hygiene in preschoolers and the presence of *streptococcus mutans*.

#### 41. PARTIAL REMOVAL OF CARIOUS TISSUE: CONVENTIONAL ADHESIVE SYSTEM VS CALCIUM HYDROXIDE

**García M, Mayne R, Barbero V, Cuadros C, Lorente AI**

*Universidad Internacional de Catalunya*

**Introduction:** The partial removal of carious tissue PRCT is carried out in primary teeth with deep carious lesions that are asymptomatic, in which removing the affected tissue completely would mean a high risk of pulp exposure.

The object of PRCC is to maintain pulp vitality. It has been observed that in the residual layer of dentine, the number of microorganisms remaining is reduced when certain materials are applied.

**Objective:** To determine and compare clinically and radiographically the success of PRCC in first and second primary molars using a system for conventional obturation or by applying a base of calcium hydroxide before the restoration.

**Material and methods:** After approval by the Ethics Committee, 40 primary molars with deep caries and no symptoms were included in the study. The teeth were randomly divided into two groups, according to the application of the pulp capping material: 1. Control group with calcium hydroxide and 2. Experimental group with conventional adhesive system (Scotchbond Multipurpose®, 3M). After this the dentin was classified according to consistency and color. All the teeth were restored under total isolation with composite Filtek Z® 250.

Clinical and radiographic tests were carried out after 2 weeks, 1 month, 3 months, 6 months, 9 months and 12 months in order to evaluate: the continuity of the restoration margin, presence or absence of spontaneous pain, absence of fistula, abnormal mobility, bifurcation or periapical radiolucency, external or internal resorption. The data were analyzed using the Statgraphics® Plus program version 5.1 using the multifactorial ANOVA technique.

**Results:** None of the primary molars studied in either group over the 12 month control period showed: spontaneous pain, presence of fistulas, abnormal mobility, periapical radiolucency, or external or internal resorption. However, the experimental group showed a greater incidence of failures (lack of continuity in restoration margin) compared with the control group, with 7 and 4 failures respectively. The greatest failure was due to yellow coloring and soft consistency ( $p=0.037$ ).

**Conclusions:** The protection of the dentin-pulp complex with a conventional adhesive system gave unfavorable results, clinically as well as radiographically, compared with the application of a calcium hydroxide base before the restoration.

## 42. PULP RESPONSE TO MTA AND MELATONIN IN PULPOTOMIES

**Germán C, Alcaina A, Martínez E, Pérez A, Ortiz AJ**  
*Universidad de Murcia*

**Introduction:** Despite the advances in prevention, the premature loss of primary teeth due to caries continues being a common occurrence. Pulpotomies help to maintain the integrity of the dental arch preserving those teeth that otherwise would have to be extracted. Many agents have been used for pulpotomies. Up until now the clinical and radiographical results for mineral trioxide aggregate (MTA) have been very favorable as it is a biocompatible material. However, it is used less because of the significant changes in color that it has on dental structure and its high cost.

Melatonin is a hormone that is synthesized and secreted by the pineal gland, and that participates in a large number of cellular, neuroendocrine and neurophysiological processes. It has been demonstrated that melatonin has an antioxidant and a mediating effect in the stimulation and formation of bone.

**Objectives:** To evaluate pulp response in rats' teeth when melatonin is used as a pulpotomy agent, and to compare the histological effect, at pulp level of melatonin and MTA.

**Material and methods:** 16 male Sprague-Dawley rats were used with an approximate weight of 230g. Four groups were established, according to the agent used (MTA and melatonin) and the time span (30 and 60 days). Pulpotomies were carried out in the first and second molars of each rat. Once they had been anesthetized with an intramuscular injection of ketamine and xylazine chlorhydrate, the pulp was exposed and the material applied. Next a base of zinc-oxide eugenol was placed and then filled with amalgam. Once the time had passed, the rats were sacrificed and the teeth were extracted for later decalcification and histological examination.

**Results:** After 30 days and 60 days of treatment with MTA, healthy pulp tissue was typically found with a regular odontoblastic layer, together with dentin formation. The melatonin group, in some sam-

ples of pulp tissue was healthy but there was no formation of dentin.

**Conclusions:** Pulpotomies with MTA gave more favorable results as inflammation was not observed histologically. Although with melatonin the results were acceptable, more studies are required in order to consider it a valid material for carrying out pulpotomies.

## 43. EVALUATION OF HOSPITAL CARE FOR AUTISTIC CHILDREN

**Pachón C, Pino B, Cahuana A, González Y**  
*Hospital Sant Joan de Déu. Barcelona*

**Introduction:** Autism is a severe disorder affecting communication and behavior, with a severe social deficit that appears during the first years of life. The etiology is unknown although many authors consider it to have a multifactorial origin (brain damage, abnormal neurochemical findings, genetics, etc.). In the first stages it is difficult to diagnose and there is no cure for it, but there are different ways to help the patient, especially in educational, psychosocial and biological areas.

There is no characteristic oral pathology but the behavior disorders and problems make dental treatment as well as oral hygiene for their families/care givers difficult.

They are sometimes unable to express their feelings or perceptions such as fear or pain, which makes managing the latter more complicated and a challenge for dentistry professionals.

**Objectives:** To describe the characteristics related to the oral health of autistic children and to analyze the type of treatment and under what conditions this is carried out in hospitals.

**Materials and methods:** Questionnaires and clinical evaluation sheets were filled out regarding 50 patients who attended the dental clinic of the Hospital Sant Joan de Déu in Barcelona between January and April 2011.

**Results:** The patients were aged between 4 years and 18 years (mean 10,8 years) and 80% were males.

Some 84.4% lived with their families and oral hygiene was carried out by their parents in 78.8% of the time, and it was observed that they had great interest in following the recommendations given.

Despite that 59% of patients had gingivitis, in most (43.7%) this was mild, and 34.4% had caries.

The patients had a low caries rate but in most cases carrying out dental treatment on an outpatient basis entailed considerable difficulties, to the extent that 50% were treated under general anesthesia.

**Conclusions:** The autistic patients in our sample had a low caries rate and slight to moderate gingivitis, but due to the considerable difficulties that exist for their management in a dental chair a large percentage required treatment under general anesthesia.

In non-complex procedures, it may be possible through behavior management to carry out the treatment in a dental chair.

#### 44. EVALUATION OF THE BIOCOMPATIBILITY OF A NEW OBTURATION MATERIAL FOR ROOT CANALS WITH AN MTA BASE

**Cortes O, García C, Austro D, Castejón I**  
*Odontopediatría. Facultad de Odontología. Universidad de Murcia*

Obturation materials for root canals are initially designed so that they are located on the inside of the canal, however they frequently become extruded through the apical foramen, coming into contact with periapical tissues. As a result, cellular biocompatibility is an important quality.

There are different types of obturation materials for root canals that are divided according to the main component; calcium hydroxide, epoxy resin, etc. There is currently a new obturation material for root canals based on mineral trioxide aggregate.

**Objectives:** The aim of this study was to evaluate and compare the cytotoxicity of different obturation materials for root canals; Sealapex®, AH plus® y Mta Fillapex®.

**Material and methods:** For this a cytotoxicity study was carried out on a cultivation of L929 fibroblasts using classic obturation materials. Sealapex and AH Plus against a new material with an MTA base, MTA Fillapex®, using an indirect method by means of extracts, and following the regulations of in vitro cytotoxicity tests (ISO 10993-5).

**Results:** A high percentage of viability was observed in all the materials, and the least biocompatible was AHPlus®. The statistical analysis showed significant differences regarding the effects of the different concentrations of the materials on cell viability. When the materials were compared significant differences were also observed.

**Conclusion:** The cell viability of this new material was acceptable and comparable to classic cements with a calcium hydroxide base.

logical behavior, encouraging the formation of hard tissue when the adherence of the osteoblasts stimulates the material, encouraging the cementoblasts to produce a mineralized matrix on its surface.

The use of MTA for pulp capping in young permanent dentition has advantages over calcium hydroxide: it is not reabsorbed, it has low solubility, greater mechanical resistance, better marginal adaptation, and it has a greater sealing capacity in the long term. Various histological studies have compared the reaction of vital pulp cells when the pulp enters into direct contact with the MTA and with calcium hydroxide. Most of these studies have found MTA to be superior to calcium hydroxide.

**Objectives:** a) to revise the current scientific literature on the use of MTA for pulp capping in the young permanent dentition in Pediatric Dentistry; and b) to present and analyze various clinical cases in the young permanent dentition.

**Material and methods:** A revision of the scientific literature was carried out in databases (PubMed, Cochrane, Science Direct) and various case reports were analyzed.

**Conclusions:** MTA could be an alternative for pulp capping in young permanent dentition. It has advantages with regard to pulp capping treatment with calcium hydroxide as it possesses superior physical and biological properties. Nevertheless, further long term studies are necessary in order to establish clear conclusions.

#### 46. DIMENSIONAL CHANGES IN THE DENTAL ARCH ASSOCIATED WITH THE USE OF THE LIP BUMPER

**López C, Pérez L, de la Cruz J, Correa E, Pérez F**  
*Máster Odontopediatría. Universidad Europea de Madrid*

**Introduction:** The "Lip Bumper" is a functional apparatus with a mainly indirect action that does not generate forces of its own, as it transmits the forces generated by the muscles.

It is used in the mixed dentition particularly for the correction of habits such as lip sucking. However, it is a therapeutic option that is interceptive in character and this should be kept in mind when the aim is to increase the width and length of the arch in patients with space problems, as it helps to minimize the number of extractions in the permanent dentition.

**Objectives:** Description of the design, components, indications and action mechanism (direct and indirect), as well how it adapts to the mouth and the possible problems and contraindications, concentrating our work on presenting the different studies that have been carried out in relation to the use of the "Lip bumper" for increasing the dimensions of the mandibular arch.

**Material and methods:** For this work a revision of the literature was carried out using: PubMed, the webpage of the Dentistry Faculty of the *Universidad Complutense de Madrid* and the library of the UCM dental

## LITERATURE REVIEW

#### 45. UPDATE ON PULP CAPPING WITH MTA

**Cuesta L, Hernández A, Maroto M**  
*Facultad de Odontología. Universidad Complutense de Madrid*

**Introduction:** Mineral trioxide aggregate (MTA) is a material used in pulp therapy. It has been demonstrated to be very efficient for apicogenesis in young permanent teeth with vital pulp. It is made up of silicates which, when mixed with sterile water, form a colloidal gel with a pH that varies between 10.2 and 12.5, which hardens in 3 hours with humidity. It has excellent bio-

faculty. The keywords used were “lip bumper, arch dimension, lip habits and orthodontics”.

**Conclusions:** All the studies were in agreement as to the lip-bumper being an effective device for increasing the dimensions of the dental arch in the mixed dentition, and that it should be a therapeutic option, given that its design is simple and it is easy to use. It should be considered for all patients with slight or moderate space problems.

#### **47. DEVELOPMENT OF MALOCCLUSION: RELATIONSHIP WITH CRANIOCERVICAL AND VERTEBRAL POSITION**

**Pérez L, López C, Diéguez M, de la Cruz J, Barros JJ**

*Máster Universitario Oficial de Odontopediatria. Universidad Europea de Madrid*

**Introduction:** The relationship between dental occlusion and body posture has been investigated since 1926, and it is a constant source of interest. The cervical area is principally in charge of maintaining the orthostatic position of the skull on the vertebral column, but it also influences the development and function of the craniofacial structures. An important aspect that should be considered is the study of the cervical vertebrae in patients with malocclusion, and the possible association between the position of the head and craniofacial morphology.

**Objectives:** The aim of this literature review was to study the relationship between craniofacial position, the curvature of the vertebrae and malocclusion, as well as the different materials and methods that the authors have used in order to reach their conclusions.

**Material and methods:** A search was made in the databases of: Medline (EBSCO), Medline (OVIDSP) and Pubmed. The keywords used were: head posture, crowding, abnormal posture, malocclusion, cervical vertebrae.

**Conclusions:**

1. The studies carried out up until now mostly describe the correlation between the different craniocervical and vertebrae positions and a greater incidence in the appearance of malocclusions.

2. Future investigations will permit establishing new multidisciplinary therapeutic criteria for preventing the development of these pathologies.

#### **48. WORK RELATED DISEASES IN PEDIATRIC DENTISTRY**

**Rojas Villa G, Pérez Veras A, Sanz Coarasa A, Barbería Leache E**

*Departamento de Profilaxis, Odontopediatria y Ortodoncia. Facultad de Odontología. Universidad Complutense de Madrid*

**Introduction:** Dentistry is a profession with certain features that make it especially vulnerable to many work-related illnesses. It is a well-known fact that from the first half of the last century, there was a high rate of

dentists with problems related to the locomotor apparatus, essentially the spine, as a result of bad postures and repetitive movements. On occasion high levels of emotional tension and stress are involved, as health professionals run the risk of “burning out”. They are exposed to iatrogenic biological samples, as well as to chronic venous insufficiency, neuropathies, frequent headaches, together with visual and hearing problems. It has been confirmed that certain procedures, such as extractions for example, are particularly stressful and that patient anxiety is more stressful than even the extraction itself. These stress levels are particularly high when carrying out dental treatment in pediatric patients. All this involves considerable physical discomfort to those working in the sector, and there is in addition lower work performance and considerable financial loss.

**Objectives:** The aim of this presentation is to highlight the work-related diseases that may appear in dentists, not only those that involve physical problems as importance is given to psychological problems.

**Material and methods:** A literature search was made in Medline, Pubmed and books specializing in work related diseases that commonly affect dentists and the occupational risks that these involve.

**Conclusion:** There is no specific mental condition that affects dentists, but problems do arise from feeling isolated, from carrying out work that requires great concentration, from giving a patient direct attention and from feeling under pressure to renew technology constantly. This leads to tiredness, stress and feelings of depression and loneliness. Increased psychological tension, monotony or a bad relationship with colleagues are risky situations. If to this we add having to work with children, it appears obvious that the practice of pediatric dentistry may lead to these types of symptoms appearing.

#### **49. INFLUENCE OF BARRIER METHODS IN PEDIATRIC DENTISTRY**

**Ventura I, Duart A, Boj JR, Espasa E, Hernandez M**  
*Universitat de Barcelona*

**Introduction:** This work aims to carry out a revision of the literature regarding the influence that barrier techniques can have in the practice of pediatric dentistry.

**Presentation objectives:** We aim to show pediatric dentists, and dentists in general, the different barrier methods and how these can influence the behavior of children. We aim to find out, from the view of both patients and dentists, why some elements produce certain aversion, meaning that their use is reduced.

**Material and methods:** In order to obtain all the literature on the subject a search was made in PubMed with the keywords “barrier techniques AND pediatric dentistry”, “use of gloves, masks, glasses and caps AND pediatric dentistry”

**Conclusion:** The barrier methods and techniques for controlling infection that are currently used are very different to those used before 1986 (when the use of gloves was first introduced into Spain). Most patients know that dentists should wear gloves but the use of face



masks, glasses and caps remains somewhat in the background. Many manufacturers offer specific barrier methods for pediatric patients, but we should reflect on this given the different ages of the patients that attend the clinic, as we should not treat a 3 year-old the same way we treat a 15 year old. We personally believe that gloves that taste of strawberry or chewing gum are a good option and they can be used for all ages. The use of colorful pajamas without drawings is suitable for the whole patient age range. The use of face masks with drawing would be suitable for patients up to the age of 8-10 years, and from this age on colored face masks could be used but with no drawings.

## 50. THE PEDIATRIC DENTISTRY PRACTICE IN THE 21<sup>ST</sup> CENTURY

**Martínez C, del Castillo G, Jiménez-Ortega L, Planells P**

*Universidad Complutense de Madrid*

**Introduction:** Most authors currently agree that the dental procedures that cause the most stress in the dental practice are the procedures that are more invasive and potentially traumatic. The conventional techniques of stimulation and behavior control are well-known. The triple E technique, desensitization and the model technique, make the pediatric dentistry practice pleasanter and easier. However, in the 21st Century, which is known as the era of new technologies, there is a clear new tendency. Authors such as Trapscott in 1977 defined this new culture: "the culture of interaction". The linear learning model is now more interactive with the new technologies. Children imitate, explore and share what they see and hear, and this is reproduced by turning the new technologies into a type of learning. Not to mention teenagers, who control and manage all the technology they have within their reach, using it to share tastes, music, and web pages. There are two clearly defined aspects with regard to the new technologies: One that is purely educational and technological, and the other that is more social.

**Objectives:** To educate and motivate patients beforehand in the dental practice and to familiarize them with the dental procedures, introducing the current systems of audiovisual interaction.

**Material and methods:** Scientific data bases, Scielo, PubMed, Cochrane. U.C.M. databases. Search for audiovisual material in the newspaper libraries of the U.C.M.

**Conclusions:** There is growing interest in the new technologies which can be used as tools to provide motivational help in pediatric dentistry practices, given that audiovisual consumption, and the use of the new technologies by children is increasingly extended.

## 51. STEM CELLS FROM THE PULP OF DECIDUOUS TEETH (SHED)

**Gutiérrez N, González E, Vilches A, Mendoza A**

*Facultad de Odontología. Máster Odontopediatría. Universidad de Sevilla*

**Introduction:** Over the last years there has been particular interest in the development of regenerative therapy using stem cells, as these cells self-renovate through infinite divisions and they can differentiate themselves into different types of cells that specialize in generating various types of differentiated cells.

Recently, after much investigation, it was established that dental pulp was an important source of stem cells originating from the neural crest. Differences have been found between the cells in adult dental pulp (DPCS) and deciduous teeth (SHED). On being immature, the latter are faster at differentiating and multiplying. These cells can differentiate into odontoblasts, adipocyte, or fibroblasts and, as a result, they should be considered for tissue repair or regeneration.

**Objective:** The aim of this work was to carry out a literature revision of the studies published on stem cell properties of primary dental pulp, and to evaluate this as an alternative treatment in tissue regeneration.

**Material and methods:** A review was carried out of the more recent literature, as from 2003, on stem cells of deciduous teeth pulp (SHED) in the databases of Pubmed, Medline, Scopus using keywords and phrases that included the words "stem cells, dental pulp and deciduous teeth". From the data obtained, a selection was made of the more relevant content in order to find out more about the properties of these cells.

**Conclusions:**

1. Therapy using stem cells has many advantages because, since the transplant is autologous there is no need for immunosuppressive therapy and there is a significant reduction in transmissible diseases.

2. Numerous studies have found that stem cells in the dental pulp of primary teeth contain pluripotent stem cells that can be used for forming and regenerating tissues.

3. Stem cells from the pulp of primary teeth have a considerable osteoinductive capacity in which *in vivo* cell receptors intervene.

4. Dental pulp stem cells can give rise to neuronal cells as they originate from the neural crest, and they can be very useful for patients suffering from spinal cord injuries.

## 52. BEHAVIOR MANAGEMENT OF PATIENTS WITH AUTISTIC SPECTRUM DISORDERS (ASD)

**García L, Domínguez G, Martínez E, Carrasco P, Gómez B**

*Especialista en Atención Odontológica Integral en el Niño con Necesidades Especiales. UCM. Directora Profa. P. Planells. Hospital Universitario La Paz. Madrid*

**Introduction:** The term Autistic Spectrum Disorders (ASD) covers a series of development disturbances that involve qualitative impairment in social interaction, communication and imagination. The special characteristics of children with autism require the implementation of desensitization protocols before any type of activity or procedure that involves facing a new situation. Evidently pediatric dentistry treatment for these children is not an exception. The problem is that very few pediatric dentists know how to manage autistic

patients and, although they may be familiar with the normal protocols used in special education centers, they do not always find behavior management techniques based on communication, and systematic desensitization, efficient and on occasions, using other behavior management methods will be necessary.

*Objective:* The revision of the literature was aimed at carrying out a synthesis of the usual techniques for managing the behavior of autistic patients in the dental office, in order to be able to establish the protocols for carrying out treatment according to their needs but under proper conditions.

*Material and methods:* A literature search was carried out using the databases of Pubmed, Cocharane, Medline...) and the newspaper library of the *Universidad Complutense of Madrid*.

*Conclusions:*

1. We consider using desensitization protocols before pediatric dentistry treatment to be fundamental as on many occasions these are very efficient providing there is collaboration with the special education centers.

2. On occasions there is no time for carrying out proper desensitization (because the treatment has to be performed quickly) or because communication with the patient is extremely difficult, and using other methods such as physical restraint or treatment under conscious sedation or general anesthesia becomes necessary.

### 53. DENTAL MANAGEMENT OF MASTOCYTOSIS: A REPORT OF 2 CASES

**Moya López M, Delgado Castro N, Martín Olivera E, Juárez Villar E**

*Hospital San Rafael. Madrid*

Mastocytosis is a heterogeneous group of diseases characterized by the proliferation of mastocytes in one or more organs or tissues. The etiology of mastocytosis is unknown.

Most cases are sporadic and only on rare occasions are other members of the family affected. Both sexes are equally affected and it is more common in whites. The skin version is generally typical in childhood. The clinical presentation varies from a slight skin disorder to processes with systemic repercussions that can put the life of the patient at risk. Degranulation of the mastocytes may be triggered by various factors leading to anaphylactic shock.

Special care should be taken with these patients with regard to not only how they are managed in general, but also with regard to drug prescriptions, as they are especially prone to anaphylaxis and other peri- and post-operative complications. Different products that are frequently administered or prescribed by pediatric dentists trigger the mastocytes into action, and these may be: local anesthetics, zinc oxide, eugenol, penicillin, metal and oral hygiene products.

The aim of this work was to review this type of disease and to suggest a series of guidelines that may help pediatric dentists treat these patients successfully in the dental practice.

### 54. METHODS FOR EVALUATING DENTAL ANXIETY IN CHILDREN

**Arner C, de la Hoz A, torres L, Albero G, Vilar C**

*Máster de Odontopediatría. Universidad Europea de Madrid*

*Introduction:* A child's anxiety may interfere or even prevent the normal course of dental treatment. For this reason dentists should be capable of evaluating the degree of anxiety in order to carry out treatment that is more efficient. For this there are two methods that go from drawings carried out by the children themselves and questionnaires, to even behavior observation and measuring the professional's psycho-physiological response.

*Objectives:* To describe the methods used to evaluate dental anxiety in children and to try and determine which is the most suitable for each age group.

*Material and methods:* A literature search was carried out in Pubmed, introducing the keywords "dental anxiety children" and "anxiety tests".

*Conclusions:* Questionnaires are currently the most used method for evaluating dental anxiety in children, as they are both valid and reliable according to most investigations. However, they cannot be used interchangeably as each one has its own indications and limitations. In very small children the use of questionnaires with diagrams and drawings is particularly useful and efficient.

### 55. HYPERACTIVE CHILDREN: ARE THEY SPECIAL PATIENTS IN PEDIATRIC DENTISTRY?

**Franco V, Gorricho B, Irúrzun E, Gorricho A, Franco N**

*Departamento de Estomagología. Universidad del País Vasco*

*Introduction:* ADHD refers to Attention Deficit and Hyperactivity disorder. Attention deficit, motor hyperactivity and impulsiveness were three different problems up until a decade ago, when they were grouped together using the letters ADHD. These are the symptoms of boys and girls who find it difficult to concentrate, who move around a lot or who have no self-control.

*Objective:* The aim of this presentation is to carry out a revision of the literature on the prevalence, etiology, clinical manifestations and treatment of this disturbance. The dental considerations that should be kept in mind with these children are also described, with the aim of being able to give them the care that is best suited to their characteristics.

*Conclusions:*

1. The diagnosis of ADHD is noticeably more common in recent years, and we should in fact ask ourselves if it is being over diagnosed with unnecessary drug treatment.

2. The result of medical treatment from an early age that is aimed at halting the manifestations in the child without changing his surroundings may have long term secondary effects, as they are frequently given treatment that is a derivative of amphetamines with methylphenidate being the most used.

3. We should make an effort to study the characteristics of each child, taking into account the influence of any environmental factors that may be associated and the degree of intellectual development of each patient, in order to specifically channel the behavior management of each particular child.

There are no oral manifestations directly associated with these disturbances, although the presence of caries is common, together with traumatic injuries and lost teeth associated with motor hyperactivity.

The strategies for managing the behavior of a hyperactive child are based on understanding and patience. The dentist should be able to achieve psychological harmony and meet the exact needs of each child.

In our pediatric dentistry practice we see an increasing number of children diagnosed with ADHD and we have to bear this in mind when recording their medical history.

A complete medical history should be made in order to find out:

- The level of knowledge of the patient, as this affects his level of cooperation and the way in which he should be addressed.

- The medication history of the patient and current prescription.

- The degree of integration at home and socially and the patient's behavior within the family. In this way treatment can be established according to the characteristics of each patient.

## 56. A NEW SCALE FOR THE ASSESSMENT OF ORAL MUCOSITIS IN ONCOLOGY CHILDREN

**Perdomo N, Abadía T, Albajara L, Costa F, Campo AP**

*Máster de Oontopediatría. Universidad Europea de Madrid*

**Introduction:** Oral mucositis is the most common adverse effect when treating cancer. It is a debilitating pathology that alters the patients' quality of life and the treatment plan for the cancer. Currently the risk factors are not completely known, but it is thought that factors are involved that depend on the patient as well as on the oncological treatment. In order to minimize the severity of the oral symptoms, starting early treatment is necessary and special importance should be given to a preventative program. Moreover, there are many investigations that try to provide reliable data for assessing these symptoms, but it is particularly difficult to do this in pediatric patients due to their physical and mental peculiarities.

**Material and methods:** A bibliographic search was carried out in the following databases: Medline, Pubmed, and the virtual library of the U.C.M. The key-

words used were *oral mucositis in children, chemotherapy in children and mucositis scales*. The study was carried out in conjunction with the Department of Oncology of the *Hospital La Paz* in Madrid.

**Objectives:** The aim of this work was to study the different assessment scales of oral mucositis in oncological patients and the application of these in the pediatric and teenage population.

**Conclusion:**

1. There are currently numerous scales that are valid for assessing oral mucositis in adults but there are very few instruments available for use in children. This may be because children, depending on their age, may not cooperate during an oral examination and they may have problems in conceptual comprehension.

2. Investigations should be carried out in the future so that instruments are obtained that are reliable, valid, sensitive and easy to use in pediatric patients and so that prevention programs can be established together with oral mucositis treatment that is more efficient.

## 57. NEW CLUES ON ODONTOGENESIS AS A RESULT OF STEM CELL INVESTIGATION: BIOTOOTH™

**Aura I, Estrela F, García E, Borrás C, Catalá M**

*Departamento Odontopediatría. Fundación Lluís Alcanyís. Universitat València*

The studies on tooth regeneration and formation based on the potential uses of stem cells (Biotooth™) have lead to new investigation paths in dentistry.

At the start of these studies, the objectives were centered on finding out the biological mechanisms regulating odontogenesis, such as a tooth's eruptive mechanism, which is a process that even today is not known in depth.

In the future these investigations may permit knowing the etiology of genetic and environmental pathologies such as amelogenesis/dentinogenesis imperfecta, molar-incisor syndrome, etc., and if the genetic mechanism creating this, as well as the regulating mechanism, can be deciphered.

The aim of this work is to gather the more relevant findings regarding odontogenesis, which is a secondary consequence of these investigations that are aimed at developing a tooth from stem cells: Biotooth™.

## 58. NITROUS OXIDE

**Estrela F, Martínez P, Zaragoza A, Catalá M**

*Clínica Odontológica. Facultad de Medicina y Odontología de Valencia*

**Introduction:** When a patient develops behavior control problems, carrying out invasive treatment for dental caries may be impeded. Although behavior techniques are necessary and very important for controlling anxiety, many children find tolerating dental restoration pro-

cedures very difficult. In these cases sedation may be considered as a method for drug support for facilitating behavior management. Among the different drugs that can be used, AAPD considers that inhaling nitrous oxide is a safe and effective technique for reducing anxiety and for facilitating communication with the patient. Nitrous oxygen is a gas that is administered together with oxygen using a nasal mask for 3-5 minutes before the procedure and until the intervention is finished.

**Objective:** To carry out a revision of the literature in order to provide an update on the different areas of sedation. To provide the recommendations of these authors with regard to patient selection, and to give the indications and contraindications.

**Material and methods:** In this revision of the literature an analysis was made of the definition of sedation, of its indications, contraindication, patient choice, action mechanism and pharmacologic interactions.

**Conclusions:** When nitrous oxide is used, it is important to be familiar with the selective guides regarding the different levels of conscious sedation.

## 59. SELF-MUTILATING PATHOLOGIES AND SYNDROMES

**Plaza Santos R, García Catalán V, Samarán Saló C, Muñoz Caro J, Adanero Velasco A**

*Especialista en Atención Odontológica Integral en el Niño con Necesidades Especiales. UCM. Directora Profa. P. Planells. Hospital Universitario La Paz. Madrid*

**Introduction:** Self-mutilation is a feature that can arise in different pathologies or syndromes such as in sensitive neuropathy, encephalitis, autism, Cornelia de Longue syndrome, Tourette syndrome, Lesch-Nyhan syndrome, etc. We will concentrate on this last syndrome given its particular features and the lack of literature on it.

**Objectives:** a) To become familiar with the different pathologies and syndromes that involve self-mutilation; b) investigate the etiology, diagnosis, prognosis and clinical manifestations that take place with Lesch Nyhan syndrome (LNS), concentrating on self-mutilating behavior; and c) establish the different treatment methods in order to avoid this behavior pattern, especially in the dental environment.

**Material and methods:** The revision of the literature was made using electronic databases, using keywords such as: "automutilation syndrome", "lesch-nyhan oral lesions", "lesch-nyhan dental".

**Conclusions:**

1. Self-mutilating behavior arises in many pathologies and syndromes.
2. It is not completely clear why compulsive acts of mutilation occur, and there are many hypotheses in this regard.
3. No treatment method for self-mutilation has total-

ly predictable results. The different therapeutic approaches are directed mainly towards pharmacology, behavior modification, physical restraint and the construction of oral apparatuses.

## 60. REVASCULARIZATION OF IMMATURE PERMANENT TEETH: A SYSTEMATIC REVISION

**Caleza C, Moreno MC, Iglesias A, Mendoza A**

*Facultad de Odontología. Máster de Odontopediatría. Universidad de Sevilla*

**Introduction:** Recently a better alternative has been developed to conventional apexification with calcium hydroxide for immature permanent teeth with periapical lesions.

This new procedure makes the most of the pulp's potential to deposit dentin, and the continuous formation of the root length and thickness of the wall is achieved.

The revascularization of necrotic pulp in immature roots is based on vital stem cells located in the apical papilla that can survive pulp necrosis, even when there is root infection.

**Objective of the study:** The aim of this work was to carry out a systematic revision of the studies published in the literature on pulp revascularization and to assess the scientific evidence.

**Material and methods:** A search was made in the databases of Pubmed and Medline, using the following Mesh terms: Apexification or apexification or "tooth revascularization" or "immature tooth". A total of 311 articles were found of which 9 were used in the revision after applying a series of inclusion and exclusion criteria. We then carried out a manual search in which we found another three studies that were valid for our systematic revision. A table was made to sum up the more relevant data of the 12 studies, and another table that assessed quality.

**Conclusions:**

1. Pulp revascularization of a permanent immature tooth with apical periodontitis is possible and potentially preferable to traditional apexification treatment.
2. Numerous studies have demonstrated that using a triple antibiotic combination (metronidazole, ciprofloxacin and minocycline), which is applied locally, is effective for disinfecting immature teeth with apical periodontitis.
3. Nevertheless, there is no definite consensus among the different authors with regard to a clear treatment protocol.
4. The studies carried out in this field and which have been summed up in the systematic analysis allow us to conclude that in these publications there is a high risk of bias together with low quality, and that new rigorous clinical studies should be carried out to contribute solid scientific evidence to this field.