

The role of forensic odontology in the quantification of dental and facial aesthetic impairment. A case report from the civil jurisprudence

El papel de la odontología forense en la valoración del daño estético dental y facial. Un relato de caso de la jurisprudencia civil

Abstract

Despite uncommon in the scientific literature, the quantification of aesthetic impairment (AI) figures among the procedures performed by forensic dentists in Court. During this procedure, the dentist (as expert witness) must be able to provide a scientific report with forensic evidences to support legal decisions, such as towards indemnifications or not. The present study aims to report a case adjudicated in the civil jurisprudence involving a plaintiff with dental and facial AI that underwent forensic examination with a forensic dentist. A lawsuit founded on financial indemnification was demanded by an adult male against a county in South Brazil. The plaintiff claimed AI after falling with his bicycle into a hole in the asphalt. The expert witness' report provided to the civil Court indicated dental loss and several maxillofacial lesions observed through the physical exam. The quantification of these lesions suggested substantial severity of AI. After considering all the aspects involved in the case, the civil Court ruled against the county, establishing indemnification of nearly \$5,000.00. The present study highlights the important role of dentists as expert witnesses in the civil scenario. Forensic training must be encouraged to enable optimal performances in Court.

Key words: Impairment. Aesthetics. Teeth. Face. Forensic odontology.

Resumen

A pesar de ser poco frecuente en la literatura científica, la valoración del daño estético (DE) figura entre los procedimientos realizados por los odontólogos forenses en la Corte. Durante este procedimiento, el dentista (como perito) debe ser capaz de proporcionar un informe científico con pruebas forenses para apoyar las decisiones legales, como aquellas que implican indemnizaciones. El presente estudio tiene como objetivo informar de un caso juzgado en la jurisprudencia civil que involucra a un demandante con DE odontológico y facial que se sometió a un examen forense. Una demanda fundada en la indemnización financiera fue asegurada por un hombre adulto contra un condado en el sur de Brasil. El demandante reclamó DE después de caer con su bicicleta en un agujero en el asfalto. El informe del perito ante el tribunal civil indicó una pérdida dental y varias lesiones maxilofaciales observadas en el examen físico. La valoración de estas lesiones sugirió gravedad sustancial de la DE. Después de considerar todos los aspectos involucrados en el caso, la Corte Civil decidió contra el condado, estableciendo una indemnización de casi 5.000 dólares. El presente estudio pone de relieve el importante papel de los dentistas como expertos en el escenario civil. El entrenamiento forense debe ser estimulado para permitir un desempeño óptimo en la Corte.

Palabras clave: Daño. Estético. Diente. Cara. Odontología forense.

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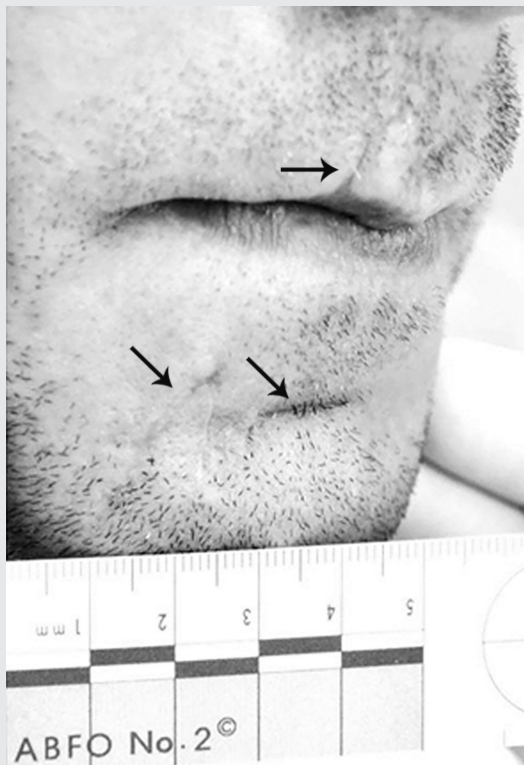
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Introduction

Legally, physical injuries may be associated with patrimonial (material) and also extra-patrimonial (non-material) losses. The first, are related to the injury itself, while the second may result from the moral harm caused by the injury. A person injured may be affected temporarily or permanently. According to its own etymology, temporary injuries consist of physical conditions that trend to heal, while the second is characterized with consolidated injury sequels. In both cases, the injuries may be assessed by forensic experts to investigate partial or total impairment. This information will be used to support scientifically decision in Court¹.

The aesthetic impairment caused by a physical injury consists of an extra-patrimonial loss. This modality of impairment is characterized by any pejorative alteration that harms aesthetic physical integrity of a person. Moreover, the physical integrity may be affected both during dynamic and static functions² (e.g., aesthetic impairments that manifest only when the person starts speaking). Quantifying the level of impairment is important during forensic expertises to provide more detailed information and contribute optimally to the needs of justice.

Figure 1.
Facial scars (arrows) observed and registered during the forensic expertise.



The problem-based scenario behind the quantification of the level of aesthetic impairment lies in the subjective analysis performed by the expert-witness during the assessment of the injured person³. To minimize the subjective bias in forensic expertises, scientific techniques were developed. Forensic Odontology benefited from science with techniques that proposed protocols³, tables^{2,4-8}, scales⁹ and formulas¹⁰ to quantify the aesthetic impairment involving facial and dental injuries.

The present study aims to report a case of forensic expertise performed in the civil Court to quantify aesthetic impairment involving dentomaxillofacial injuries.

Case report

A forensic expertise was requested in the civil Court for the examination of physical injuries in a 31-year-old male who claimed material, moral and aesthetic indemnification against a county in South Brazil.

According to the plaintiff, he experienced a facial trauma riding a bicycle 12 years ago in a rainy morning and falling into a hole full of water in the asphalt. After receiving emergency treatment in a public medical unit in the county, the plaintiff was referred to a specialized maxillofacial service. In that occasion, dental loss was observed in the anterior region of the maxillary arch—specifically, both central incisors. Other injuries consisted of a fractured maxillary right lateral incisor and facial wounds. No fracture was detected in the maxillofacial bones.

The plaintiff spent the following days under analgesic drugs for pain control. For 15 days he was unable to attend his job. For 20 days he had a liquid diet. Only 30 days after the accident he was able to eat solid food. For 8 months, the plaintiff was unable to interact socially in a proper way due to the embarrassment with facial scars and missing teeth. During this period, he searched for dental treatment twice. However, the treatment attempts were not successful.

In the forensic physical examination, several scars were observed mainly in the right side of the mental region and in the right side of the upper lip (Figure 1). The scars had keloidal aspect with whitish color and stiff under palpation. The intraoral exam confirmed the plaintiff's report of traumatic dental loss (Figure 2). The maxillary right lateral incisor presented a brownish color and a large opening to the root canal in the palatal surface. Traces of filling material could be observed in the root canal.

For the assessment of aesthetic impairment, a scale of seven levels was used according to Thierry and Nicourt⁹. The application of this technique considers the injury sequels, analyzed dynamically and statically, in the aesthetic integrity of a person. Additionally, in a custom way, the technique investigates how these sequels (impairment) are perceived by the person affected and the society. In this case, the forensic evidences used guide the technique towards a specific score were the scars and missing teeth, as well as the altered smile observed with smile photographs before and after the accident (Figure 3). Based on that, score 5 was reached, which indicates a considerable level of impairment. The other levels addressed in this scale consist of: 1) very discrete; 2) discrete; 3) moderate; 4) average; 6) important; and 7) very important impairment.

When questioned about the financial compensation needed to cover the injury sequels, the expert-witness suggested the amount of nearly \$5,000.00. This amount was proposed to cover the estimated cost of prosthetic rehabilitation of the plaintiff; 5-year follow-ups; and eventually new prosthetic interventions after 10 years.

Finally, the Court decided in favor of the plaintiff and established the indemnification according to the amount proposed by the expert witness.

Discussion

Inferences on post-traumatic aesthetic impairment under the needs of justice require a detailed description of the injury sequels observed during the physical exam. Each of these sequels must be analyzed and interpreted based on their deleterious influence on the stomatognathic system –especially over the aesthetic function. This method is called descriptive and may be used not only in the civil Court, as reported in the present case, but also in the criminal Court to typify bodily injuries (e.g., minor, moderate and severe injuries).

The expert witness must be aware and updated on the several techniques available for the quantification of aesthetic impairment. In this context, it is also important to verify if the technique was validated previously in country-specific Courts, because stronger scientific support is given using techniques validated nationally. Specifically, the present case occurred in the Brazilian jurisprudence, in which techniques are becoming validated gradually¹¹. Techniques validated also support forensic odontology because they encourage



Figure 2.
Missing teeth observed and registered during the forensic expertise.

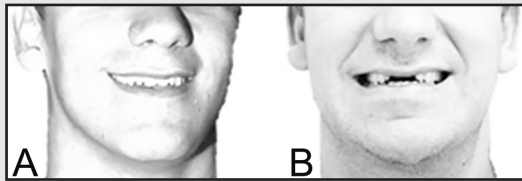


Figure 3.
Pre- (A) and post-traumatic (B) photographs of the plaintiff revealing the aesthetic differences in static function (smiling).

the Courts to point out dentists for expertises in the stomatognathic system. In specific for the Brazilian jurisprudence, the forensic expertise is expressed with the forensic report, which results from the examination of evidences available. The forensic expertise is regulated by the Code of Civil Procedure and recently it incorporated the need for a clear description of the forensic techniques applied^{12,13}.

Essentially, the quantification of aesthetic impairment takes a subjective pathway to provide levels and scores of injury sequels. In the present case, a qualitative-descriptive technique based on seven severity levels⁹ was used. This technique has the advantage of combining the impact of injury sequels in static and dynamic functions of a person with the perception of the potential impairment by the own person and the society. Similarly, this approach is studied in European countries, such as Spain, Belgium and Portugal¹⁴.

Still in relation to the techniques, some may figure against constitutional standards in many countries because they request sex and age information of the affected person for application^{15,16}. In this context, these techniques do not consider every person equal under the Law, but indeed may confront human rights for quantifying differently the impairment between males and females and youngsters and elderly. E.g., in Spain, the forensic expertise is divided in two parts: a physiological one (50%) that includes sex, age and work-related information for calculating the

indemnification; and an aesthetic part (50%) that assesses exclusively psychometric parameters to make inferences on impairment¹⁷.

For more recent cases in Brazil, a validated technique is available². In 2016, Fernandes *et al.*¹¹ translated and adapted culturally the Spanish instrument for the Analysis of Aesthetic Impairment Perception and Impact (AIPE) proposed by Cobo Plana². In order to validate the technique, the authors used a method applied previously for education in nursing¹⁸. Specifically, a simulation was performed using fake scars made artistically in the face of a sample of models and asked forensic dentists to quantify the aesthetic impairment. The validation came from the intra- and inter-observer agreement tested with interclass correlation coefficient. In the present case, a different technique was used⁹ justified on the familiarization of the examiners and because the AIPE approach was not yet validated.

Further studies are necessary to validate additional techniques to support more scientifically forensic expertises founded on aesthetic claims in the civil Courts. Questions arise to guide these studies ethically in the current needs of forensic sciences, such as: how to study aesthetic impairments without violating human rights and injuring other animals? How to perform studies reproducing traumatic injuries without violating the ethical standards for scientific research? How to describe traumatic injuries before and after the trauma without reproducing injuries in a person? The answers for these questions culminate with guidelines to validate techniques in different populations and cultures.

The present study contributes to the scarce literature involving forensic expertises in the civil scenario, and encourages training and education in the field for expert witnesses. The quantification of aesthetic impairment remains a subjective process. With training, education and support of science it may evolve into a more accurate and reliable expertise in Court.

Conclusion

The aesthetic impairment may be quantified by few techniques developed based on country- and cultural-specific standards. The application of these techniques depends on the compatibility and similarities between these standards among different legal systems. The concept of technical validation must be disseminated worldwide to enable expertises more scientifically supported in Court.

The quantification of aesthetic impairment in the dentomaxillofacial complex and stomatognathic system must be performed by expert witnesses trained in the field. Based on that, Forensic Dentists must be aware of the need for continuous education in order to be able to support the justice optimally when requested by law.

Los autores declaran no tener ningún conflicto de intereses.

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