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Occurrence of dental involvement in victims of violence

Ocorrência de envolvimento dental em vítimas de violência

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ABSTRACT

Objective: To verify the occurrence of dental involvement described in medical examination reports on facial trauma resulting from interpersonal violence. **Material and methods:** an observational, analytical, and retrospective study that verified the dental involvement described in all the medical examination reports involving facial trauma, arising from interpersonal violence, issued by the *Instituto Médico Legal - IML* (Forensic Medicine Institute) of Taubaté, in São Paulo state, in a period of 24 months, considering gender and age group. **Results:** Of the 12,184 reports issued during the period studied, 1,971 (16.17%) described facial injuries resulting from aggression, and of these, 5.07% contained reports of dental involvement. The most frequent injury was a fracture (2.99%), in the age range between 16 and 24 years (31.42%), and the gender, male (56%). **Conclusion:** The facial injuries resulting from interpersonal violence in the analyzed period amounted to 16.17% of the total of cases, with 5.07% of these presenting reports of dental involvement.

KEYWORDS

Forensic Dentistry; Injuries; Violence.

RESUMO

Objetivo: Verificar a ocorrência de envolvimento dentário relatada em laudos de exame de corpo de delito com envolvimento facial decorrentes de violência interpessoal. **Material e métodos:** estudo observacional analítico, de caráter retrospectivo que verificou a ocorrência de envolvimento dental relatada em todos os laudos de exame de corpo de delito com envolvimento facial, decorrentes de violência interpessoal, emitidos pelo Instituto Médico Legal (IML) de Taubaté-SP em um período de 24 meses, considerando gênero e faixa etária. **Resultados:** Dos 12.184 laudos emitidos no período analisado, 1971 (16,17%) descreviam lesões faciais decorrentes de agressão, e destes, 5,07% continham relatos de envolvimento dentário. A lesão de maior ocorrência foi a fratura (2,99%), a faixa etária, entre 16 e 24 anos (31,42%) e o gênero, o masculino (56%). **Conclusão:** As lesões faciais decorrentes de violência interpessoal no período analisado totalizaram 16,17% do total dos casos, com 1,97% destes apresentando relato de envolvimento dentário.

PALAVRAS-CHAVE

Traumatismos dentários; Traumatismos faciais; Violência.

INTRODUCTION

Violence is one of the greatest evils plaguing modern society. Every day the media reports an increasing number of attacks and deaths attributed to various factors, denoting moral and social chaos and demanding more commitment from the authorities to improve public policies that address the topic. [1–3]

According to the World Health Organization, [4,5] there are different types of violence: *self-inflicted violence* (directed at oneself): suicidal behavior and self-abuse; *interpersonal violence*: family and intimate partner violence [child abuse, intimate partner violence, and elder abuse] and community violence [youth violence, random acts of violence, rape or sexual assault by strangers, and violence in institutions such as schools, workplaces, prisons, and rest homes]; *collective violence*: social violence [hate crimes committed by organized groups, terrorist acts, and mob violence]; political [war, violence of the State and similar acts performed by larger groups]; and economic [attacks motivated by economic gain, such as those performed to stop economic activity, to deny access to essential services, or to create economic segmentations and fragmentations].

As with other health problems in the world, violence is not evenly distributed between genders and age groups. The highest rates of homicide in Brazil are among men aged from 15 to 29 years. [4] It is important to consider the true burden of violence, since not all attacks result in the victims seeking medical attention, as well as the reasons related to the culture and intimacy of each person that sometimes prevent them from reporting the offender. [5]

In Brazil, in 2011, 39.3% of deaths of young people between 15 and 24 were caused by homicide. [6] In a report published in 2016 by the World Health Organization (WHO), this same rate of death in Brazil was 32.4 deaths per 100,000 inhabitants. [7]

The map of violence in Brazil, published in 2012, evaluated the patterns of homicidal violence in the country and showed that its interior region has been responsible for the increase in homicide rates, and no longer the capital cities or metropolitan areas.

Countless are the injuries caused by violence and many of these injuries, when not leading to death, leave physical or psychological sequelae. [8] Facial trauma can be considered one of the most devastating aggressions due to the emotional and functional consequences caused by the possibility of permanent sequelae and deformities, with great repercussions in society and significant economic impact on health care systems. [9,10] Facial traumas require multidisciplinary attention, chiefly involving the specialties of neurosurgery, ophthalmology, and plastic and maxillofacial surgery, because an act of aggression located on the face can, by extension, affect the brain, eyes, facial sinuses, and dentition. [9]

In social situations leading to violent behaviors that culminate in physical aggression there is a high rate of facial injuries with dental involvement that can cause permanent weakness of the masticatory, esthetic, and speech functions associated with the physical weakness of the stomatognathic system. These may be regarded as serious or very serious from a legal point of view, depending on rehabilitation difficulties: mostly the replacement of lost teeth by implants, which are not provided by the public health system. [8,10-13]

The objective of the present study was to verify the occurrence of dental involvement described in medical examination reports with facial trauma resulting from interpersonal violence.

MATERIAL AND METHODS

The data were collected through the medical examination reports from the *Instituto Médico Legal - IML* (Forensic Medicine Institute) of the city of Taubaté (SP) during the 24-month period between January 2005 and December 2007 and logged in a prepared chart to note the kind of injury, and the age and gender of the individual.

After collection, the data were organized in an Excel spreadsheet and submitted to a descriptive statistical analysis. This study was

submitted to and approved by the Research Ethics Committee of the PFO/UNICAMP under protocol 63/2006.

RESULTS

Of the 12,184 medical examination reports evaluated, it was found that aggression was the etiological factor of facial injuries in 1,971 cases (16.17%). Dental involvement was observed in 100 reports of facial injury (5.07%).

Among the reports of injuries involving the mouth, the most prevalent were fractures (2.99%), followed by reports of loosening or avulsion of one or more teeth (Table 1).

Among the fractures found in the reports examined, 78.51% of the cases were dental fractures and 20.66% were bone fractures. No information was obtained in 0.83% of cases.

Considering gender, the percentage of occurrence of facial injuries was greater in men (56%) than in women (44%).

Considering only the female gender, the most affected age group was between 16 and 24 years (11 cases), which represents approximately 31.42% of the cases. As to the type of dental involvement, the highest incidence was for fractures, with 18 cases, representing 51.42% of the cases evaluated (Table 2).

Table 1 - Number and percentage of reports with dental involvement among the reports of facial injuries

Involvement	Injuries	No. of reports	%
	LOO[1]	16	0.81
	AVU[2]	7	0.35
	AVU[2], LOO[1]	1	0.05
	AVU[2], FRA[3]	6	0.30
	CON[4]	1	0.05
Yes	PAI[5]	3	0.15
	DAR[6]	1	0.05
	FRA[3]	59	2.99
	FRA[3], LOO[1]	1	0.05
	LUX[7]	2	0.10
	PAR[8]	1	0.05
	No information	2	0.10
	Total	100	5.07
No		1871	94.92
Total		**1971**	**100.00**

Legend: 1. Loosening 2. Avulsion 3. Fracture 4. Contusion 5. Pain 6. Darkening 7. Luxation 8. Paresthesia.

As for males, the age group most affected was between 25 and 32 years (26.15%), followed by the ages between 17 and 24 years (24.61%) and between 33 and 40 years (15.38%). The most prevalent dental involvement in this analysis was also fracture, present in 63.07% of the total cases evaluated (Table 3).

Table 2 - Number of reports of aggression with dental involvement of females according to the types of injuries and age groups

Age	LOO[1]	AVU[2]	AVU[2] LOO[1]	AVU[2] FRA[3]	CON[4]	PAI[5]	DAR[6]	FRA[3]	FRA[3] LOO[1]	FRA[3] AVU[2]	LUX[7]	PAR[8]	No Information	Total
0 --- 8	0	0	0	0	0	1	0	0	0	1	0	0	0	2
9 --- 16	0	0	0	0	0	0	0	3	0	0	0	0	0	3
17 --- 24	1	1	0	0	0	1	0	6	0	1	1	0	0	11
25 --- 32	0	1	0	0	0	0	0	3	0	1	0	0	0	5
33 --- 40	1	0	0	0	0	0	0	4	0	1	0	0	0	6
41 --- 48	0	0	0	0	0	1	0	1	0	0	0	0	0	2
49 --- 56	2	1	0	0	0	0	0	1	0	0	0	0	0	4
No information	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Total	**5**	**3**	**0**	**0**	**0**	**3**	**0**	**18**	**0**	**4**	**2**	**0**	**0**	**35**

Legend: 1. Loosening 2. Avulsion 3. Fracture 4. Contusion 5. Pain 6. Darkening 7. Luxation 8. Paresthesia.

Table 3 - Number of reports of aggression with dental involvement of males according to the types of injuries and age groups

Age	LOO[1]	AVU[2]	AVU[2] LOO[1]	AVU[2] FRA[3]	CON[4]	PAI[5]	DAR[6]	FRA[3]	FRA[3] LOO[1]	FRA[3] AVU[2]	LUX[7]	PAR[8]	No Information	Total
0 --- 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 --- 16	0	2	0	0	0	0	0	1	0	0	0	0	1	4
17 --- 24	2	1	0	0	0	0	1	12	0	0	0	0	0	16
25 --- 32	1	0	0	0	0	0	0	12	1	1	0	1	1	17
33 --- 40	1	1	0	0	0	0	0	8	0	0	0	0	0	10
41 --- 48	2	0	1	0	0	0	0	4	0	0	0	0	0	7
49 --- 56	2	0	0	0	0	0	0	1	0	0	0	0	0	3
57 --- 64	0	0	0	0	0	0	0	1	0	1	0	0	0	2
65 --- 72	1	0	0	0	0	0	0	0	0	0	0	0	0	1
No information	2	0	0	0	1	0	0	2	0	0	0	0	0	5
Total	**11**	**4**	**1**	**0**	**1**	**0**	**1**	**41**	**1**	**2**	**0**	**1**	**2**	**65**

Legend: 1. Loosening 2. Avulsion 3. Fracture 4. Contusion 5. Pain 6. Darkening 7. Luxation 8. Paresthesia.

DISCUSSION

The implementation of effective public policies for the control of violence in its entirety depends on specific studies for the detection of the main causes of violence. The government's efforts to control violence are evident when we look at studies like the Map of Violence of Brazilian Municipalities, [6] published in 2008, which shows that awareness of the situation is essential to dealing with the problem, both by the authorities and by the various institutions of civil society. [6,9,11]

It is not just the creation of more severe laws, or better enforcement of the laws that are in force, but a matter of social contextualization that enables the understanding of the importance of Global Reports on Violence and Health. A survey of this magnitude assists governments in the development of public policies focused on their reality. Certain data are coincident worldwide, such as gender and age bracket of those most victimized by violence, but these proportions can vary enormously, due mainly to socioeconomic conditions and public safety. [4,6] The Brazilian society is one of the most violent in the world with very high levels of urban, domestic, and family violence. [1,3,4,6,7]

The primary group at risk for death by homicide is known to be "adolescents and young adults; males [...] living in poor areas [...]; black, or descendants of this ethnicity; with low education and little or no professional qualification." [4] The data of the present study do not escape this pattern: the main group of victims of aggression with dental involvement was precisely adolescents and young adult males (aged 16 to 40 years), agreeing with data from Mascarenhas et al. [3], Wulkan et al. [9], Barros et al. [10], Pereira et al. [11], Deus et al. [12] and Andrade [13].

Studying the causes of social diseases and situations in order to recognize and prevent risks to health and bodily integrity of each person is an obligation of health professionals, a fact which, unfortunately, has been neglected by Brazilian Dentistry, since the national scientific production on violence and forensic dentistry have not satisfactorily addressed these aspects. [14]

It is worth mentioning the World Report on Violence and Health, [5] developed by the WHO, and the Map of Violence in Brazil, [4] produced by Waiselfisz in partnership with the

Ministry of Justice. These reports and surveys also take into account statistical data to point to the growth and/or decrease in violence in various countries around the world and in different Brazilian regions. [3,7,11] The present retrospective study, following the trend of the reports cited, has also adhered to statistical data to demonstrate the relevance of a careful evaluation of facial injuries with oral and dental implications.

In contrast to the indices found in this study, a retrospective study on patients who had suffered facial trauma with varied etiology by Melo et al. [15] found that dental trauma has a significant incidence among facial traumas, affecting the teeth, the pulp, and the periodontal tissues. Those authors proposed a system to describe and classify dental-alveolar trauma based on clinical and radiographic examinations, because, in addition to the need for treatment of injuries caused by trauma, there is also the likelihood of later complications concerning the pulp, periodontal ligament, internal and external resorptions, and ankylosis, among other things.

Analyzing the causative events, it was found that the main cause of dental injuries (54.64%) was interpersonal violence. These data are corroborated by Santos et al. [17] in a cross-sectional study during a period of one year investigating the etiology of oral-maxillofacial trauma in patients treated in a hospital in Bahia, observing that interpersonal violence was the most prevalent cause. The most affected age bracket for males was between 25 and 32 years. Those authors emphasized the need for policies and actions aimed at raising awareness and control of violence.

Authors such as Pereira et al. [11] analyzed the profile of the hospitalizations of children and adolescents with fractures of the skull and facial bones over a period of two years in the Northeast region of Brazil. They observed a higher incidence of fractures in males aged from 15 to 19 years. As for dental involvement in cases of facial trauma, the percentage found in that survey does not seem reasonable when compared to the literature used in the present study and in the face of the significant percentage of facial injuries (16.17%) observed in the 12,184 reports evaluated here. Thus remains a doubt as to whether the intraoral region is affected, not only by differences in the number of occurrences, but also in view of the severity and extent of many of the facial injuries contained in the reports. This conflicting percentage might be attributed to the absence of a dental surgeon among the experts of the Institution.

In September of 2009, the Law No. 12.030/09 [19] was sanctioned, which regulates official criminal forensic examinations. This law establishes official standards for criminal expertise ensuring technical, scientific, and cultural autonomy for the professional stating in its article 5 that: “criminalists, coroners, and forensic dentists with the specific higher education stipulated by law are considered criminal experts, according to the need of each organ and by area of professional activity.” In this way, the law recognizes the professional forensic dentist, which makes it unacceptable that, three years after this law was sanctioned, these positions have still not been created and filled at the forensic medicine institutes of several states, such as São Paulo, for example.

Other facts to be highlighted were the inadequacies in describing the dental elements injured and in detailing the kind of injury, the nomenclature used, and the incompleteness of the analysis of adjacent structures; this, once again, leads us to point out how these omissions are due to the fact that there are no professionals with the necessary training for a correct assessment, which, in most cases, in addition to the problems arising from the lack of proper reporting, directly affects the victim’s guarantee of rights and provides an undue impunity to perpetrators. It is no longer admissible to allow injuries to the stomatognathic system to go unnoticed by the examinations of non-specialized professionals who work in the IMLs.

In the criminal ambit, one of the main goals of the medical examination reports is to clarify the existence of causal nexus, cause-and-effect relationship between the injury and the possible fact that generated it. In addition, it is crucial that the expert answer specific questions, in order to direct the magistrate to typify the bodily injury as mild, serious, or very serious. However, in situations in which there is impairment of the teeth and adjacencies, dental surgeons are the only professionals qualified to establish a causal nexus and deconstruct it, the only ones capable of responding to the questions with propriety, so as not to overstate the damage – thereby benefitting the victim, or understate – thereby benefitting the aggressor. With all due detail, the expert should distinguish the value of each damage, considering the masticatory, esthetic, and speech functions, in accordance with the interest of each exam. [2] The assessment of dentofacial trauma performed by a dental surgeon is an important tool for the clarification of the litigation, because the complexity of trauma requires the presentation of a complete profile of the injury, as well as the confrontation of the temporal nexus and/or causality with the allegation of the victim. [2] In studies like this, in addition to the high rate of disagreement and differences found, it is also difficult to create a legal framework of the injury, since a large portion of the reports contain no important technical details, which could only have been provided by dental surgeons. [2]

The access to justice, which is already extremely difficult for the less fortunate, becomes even more distant when the documents trying to prove their legal complaints are made by professionals who are not technically qualified and lack the due technical-scientific preparation. Thus, when a physician performs an examination that, technically, should be performed by a dental surgeon, the individual is having his rights usurped by the negative consequences arising from omissions and inadequacies resulting from improper technique.

CONCLUSION

The facial lesions in victims of violence surveyed in reports of the IML in the city of Taubaté (SP) within a 24-month period amounted to 16.17% of the total cases of violence assessed, with 5.07% of these presenting reports of dental involvement.

The possible omission of oral-maxillofacial injuries in medical examination reports complicates the framework and assessment of actual damage, to the detriment of the victim, constituting the urgency of including dental surgeons in the Institutes of Forensic Medicine in Brazil.

REFERENCES

1. Pinheiro P. A Violência do Rio às Portas da Emergência. Cad Saude Publica. 1994;10(1):223-5.
2. Simões MP, Possamai P. Documentação de Lesões buco-maxilo-faciais – Implicações Legais. Rev Bras Odontol. 2001; 58(6):3-395.
3. Mascarenhas MDM, Silva MMA, Moura L, Goes PSA, Moysés ST, Morais Neto OL. Perfil epidemiológico dos atendimentos de emergência por lesões bucodentais decorrentes de causas externas, Brasil, 2006 e 2007. Cad Saude Publica. 2012; 28:124-32.
4. Waiselfisz JJ. Mapa da violência: os jovens do Brasil. Brasília: FLACSO; 2014.
5. Organização Mundial da Saúde. Relatório mundial sobre violência e saúde. Genebra: Minimum Graphics; 2002.
6. Waiselfisz JJ. Mapa da Violência dos Municípios Brasileiros 2013. Brasília: FLACSO, Ministério da Saúde e Ministério da Justiça, 2013. [2016, August 16]. Retrieved from: http://www.mapadaviolencia.org.br
7. World Health Organization. World health statistics 2016: monitoring health for the sustainable development goals. WHO Library Cataloguing-in-Publication Data; 2016. [2016, December 23]. Retrieved from: http://who.int/gho/publications/world_health_statistics/2016/EN_WHS2016_TOC.pdf
8. Santos MAF. Traumatismos buco maxilo faciais por agressão: Estudo em um hospital na Periferia do município de São Paulo [Tese]. São Paulo (SP): Faculdade de Odontologia da Universidade de São Paulo - USP; 2002.
9. Wulkan M, Parreira Jr JG, Botter, DA. Epidemiologia do trauma facial. Rev Assoc Med Bras. 2005; 51(5): 290-5.
10. Barros TEP, Campolongo GD, Zanluqui T, Duarte D. Facial trauma in the largest city in Latin America, São Paulo, 15 years after the enactment of the compulsory seat belt law. Clinics. 2010;65(10):1043-7.
11. Pereira IF, Oliveira CR, Figueiredo CC, Cunha DA, Sales GLD, Valença AMG. Perfil das internações de crianças e adolescentes com fraturas do crânio e ossos da face na região nordeste do Brasil. Rev Bras Ci Saúde. 2013;17(3):275-80.

12. Deus DP, Pinho K, Teixeira ALS. Levantamento Epidemiológico das fraturas faciais no hospital regional de urgência e emergência de Presidente Dutra – MA. Rev Cir Traumatol Buco-Maxilo-Fac.

13. Andrade, SSCA, Sá NNB, Carvalho MGO, Lima CM, Silva MMA, Moraes Neto OL, Malta DC. Perfil das vítimas de violências e acidentes atendidas em serviços de urgência e emergência selecionados em capitais brasileiras: Vigilância de Violências e Acidentes. Epidemiol Serv Saúde. 2012; 21(1):21-30.

14. Santi LN, Mestriner Júnior W, Nakano AMS. Pesquisa sobre Violência e Odontologia Legal: Revisão da Produção Científica do Brasil. Rev odonto cienc. 2005;20(49):242-4.

15. Melo REVA, Vitor CMA, Silva MBL, Luna LA, Firmo. ACB. Traumatismo dentoalveolar. Int J Dent. 2003;2(2):266-72.

16. Roselino LMR, Bragagnolo LA, Pardinho MABS, Chiaperini A, Bergamo AL, De Santi LN, et al. Danos buco maxilo faciais em homens na região de Ribeirão Preto (SP) entre 1998 e 2002. Odontologia, ciência e saúde – Revista do CROMG. 2009;10(2):71-7.

17. Santos CML, Musse JO, Cordeiro IS, Martins TMN. Estudo epidemiológico dos traumas bucomaxilofaciais em um hospital público em Feira de Santana, Bahia de 2008 a 2009. Rev Baiana de Saúde Pública. 2012;36(2):502-13.

18. Bitencourt SB, Cunha AIO, Oliveira DWR, Jardim ATB. Abordagem terapêutica das fraturas dentárias decorrentes do traumatismo dentário. Rev Odontológica de Araçatuba. 2015;36(1):24-9.

19. Brasil. Lei n° 12030, de 17 de setembro de 2009. Dispõe sobre as perícias oficiais e dá outras providências. Diário Oficial da União 18 out 2009.

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