

Medicolegal issues of peri-anaesthetic dental injuries: A 21-years review of liability lawsuits in France

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Abstract

Background/Aim: Peri-anaesthetic dental injuries (PDI) represent a major source of potential malpractice claims against anesthesiologists. Studies about the medico-legal aspects of PDI have mainly focused on liability insurance cases thus not encompassing those cases brought to court. The aim of this study was to assess the medico-legal issues of PDI-related liability lawsuits in France.

Material and Methods: A review of judicial decisions pertaining to PDI was conducted on a French legal database, spanning the period between January 2000 and October 2021. Characteristics of decisions, patients and anesthesiologists, peri-operative care, dental injuries, and convictions were collected when available for analysis.

Results: Twenty-four judicial decisions fulfilled the inclusion criteria and were analyzed. All cases of dental injuries took place during elective surgery, 16 in the private sector and 8 in the public sector. Most injuries concerned two or more teeth and the most predominant dental injuries were luxation or avulsion (70.8% of cases). Eight cases resulted in a final verdict in favor of the plaintiff, four in the private sector (conviction rate: 25%), and four in the public sector (conviction rate: 50%). The causes of conviction were either a lack of information (5/8), a breach in the standard of care or technical negligence (3/8). The average amount of indemnification for the plaintiff was 3614 Euros (3753 Euros in 2022 inflation-adjusted Euros) excluding legal fees.

Conclusions: The analysis of PDI-related liability lawsuits shows that medico-legal issues differ from those of PDI-related insurance claims. Avulsion and luxation of multiple anterior teeth during elective surgery appear to be a risk factor for liability lawsuits. In addition, inadequacy of patient information about PDI-risk seems to be a risk factor for conviction. Lastly, dental injuries are less at risk of civil conviction than other anesthesia-related damages.

KEYWORDS

anaesthetic risk, dental injury, endotracheal intubation, liability lawsuit, mouthguards

Hadrien Diakonoff and Gaël de Rocquigny should be considered joint first author

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1 | INTRODUCTION

Peri-anaesthetic dental injuries (PDI) are common complications of general anaesthesia and account for a significant proportion of all medicolegal claims against anaesthesiologists,¹⁻³ especially in France where they represent 40% of these claims.⁴ According to several large studies, the incidence of PDI has been reported to range from 0.02% to 0.1%.^{3,5} A wide range of factors are commonly highlighted, such as: poor dentition, difficult intubation, incomplete anaesthesia and absence of neuromuscular blockade during the induction period, emergent procedures, lack of experience by the anaesthesiologist and/or inadequate or lack of supervision of trainees, lack of alternative intubation devices, and lack of correct prophylactic measures.^{3,6,7}

A thorough pre-anesthetic inspection combined with a skillful intubation procedure is not always enough to avoid PDI.⁸ It is important to point out that these injuries occur during surgical procedures unrelated to pre-existing dental trauma. It can be detrimental to the patient's well-being, especially when the patient should not expect complications such as pain, aesthetic, and functional problems resulting from dental trauma which significantly disrupt normal function and quality of life.⁹ In addition, the cost of replacing damaged or lost teeth can be significant.^{10,11} In a few extreme cases, even near-fatal complications such as esophageal perforation and mediastinitis following aspiration of a dental prosthesis or a tooth have been described.¹²⁻¹⁶

For all these reasons, the patient could file a complaint against the anaesthesiologist and/or the hospital. Many studies have focused on the epidemiology, prevention, and management of PDI by anaesthesiologists and dentists. Studies about the medico-legal aspects of PDI have mainly focused on liability insurance and out-of-court cases,¹⁷⁻²¹ thus not encompassing cases brought to court (Figure 1). Medico-legal consequences of malpractice depend on whether the procedure is judicial or insurance-based. Among other medical specialties, anesthesia is often involved in court decisions, with a high conviction rate.²² Therefore, the aim of this study was to assess the factors that involve the responsibility of the anaesthesiologist in case of PDI-related lawsuits in France.

2 | MATERIALS AND METHODS

A retrospective analysis of judicial decisions pertaining to peri-anaesthetic dental injuries was conducted on a French legal database, spanning the period between January 2000 and October 2021.

Judicial decisions were retrieved in October 2021 from the French Lamyline® legal database (Wolters Kluwer France), an exhaustive inventory of civil and administrative case law. This database was chosen over three other French legal databases (Daloz®,

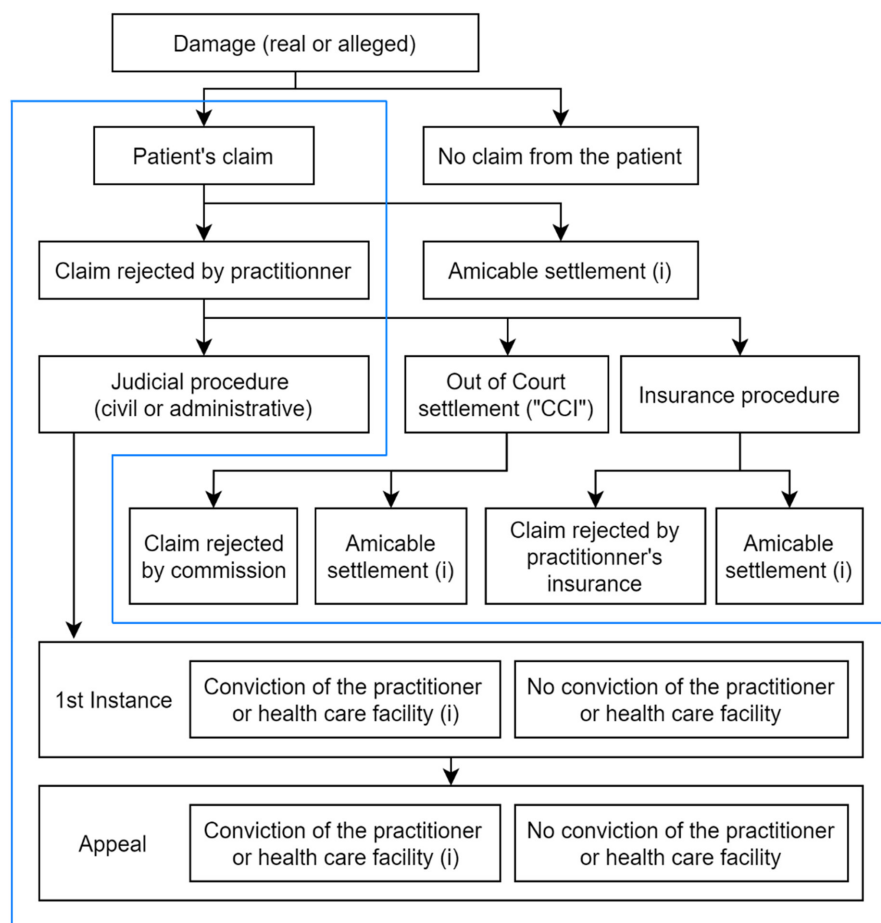


FIGURE 1 Claim process in the medical malpractice system in France (In blue: scope of study [i]: indemnification CCI: Compensation Commission)

Lextenso® and Lexis 360®) because of its comprehensiveness and ease of use. The database was searched using the following query: ["anesthesiologists" AND "dentist") OR ("dental trauma" AND "anaesthesia")].

Decisions were included in the analysis when they met the following inclusion criteria: (1) judicial decisions filed between January 2000 and October 2021, based on the year of ruling and not the year of complaint lodging, and (2) judicial decisions related to peri-anaesthetic dental injuries. After anonymization (except age and gender) and review, judicial decisions pertaining to open cases at the time of query or interim decisions involving only the appointment of an expert were excluded from the analysis (Figure 2). The searching of the database was performed by one senior dentist [HD]. Review and inclusion were performed by another senior dentist [AG] and one anaesthesiology resident [GDR].

The characteristics of the decisions were collected in a computerized file when available as follows:

- Characteristics of the included decisions: reference, type of jurisdiction (civil or administrative), alleged date of damage (date of the anaesthetic procedure that led to the dental injury, real or alleged by patient), date of first court ruling, date of final court ruling, duration of procedure (from damage to final court ruling),
- Patients and anesthesiologists characteristics: gender and age
- Operative data: type of surgery (urgent or non-urgent), pre-operative dental assessment (yes/no), intubation (yes/no), emergency intubation (yes/no), mouthguard (yes/no),
- Dental injuries characteristics: number of affected teeth, in-mouth position, nature of injury, injury mechanism, and
- Conviction data: conviction (yes/no), cause of conviction, amount of indemnification.

Data were collected anonymously, apart from the patient gender and age, on a secured EXCEL™ spreadsheet, with special care toward appropriate data protection. Data were synthesized and simple descriptive statistics were used to analyze them.

3 | RESULTS

A total of 54 judicial decisions were retrieved from the Lamyline® legal database, of which 23 did not meet the inclusion criteria and were excluded. Of the 31 remaining documents, seven were discarded because they concerned open cases at the time of query ($n = 2$) or because they were interim decisions involving only the appointment of an expert ($n = 5$). Finally, 24 judicial decisions related to 24 closed lawsuits fulfilled the inclusion criteria and were analyzed.

All eligible decisions were appeal court decisions, either civil (private practice, $n = 16$) or administrative (public practice, $n = 8$) courts of appeal. The average claim period from damage to verdict of the first instance court was 59.9 ± 39.9 months (mean \pm SD) and 82 ± 40.3 months from damage to verdict of the appeal court. Of

the included cases, 13 (58.3%) were female patients. The mean age of the patients was 55 years (55 ± 11.8) (age was known in 13 cases). The practitioner's gender and age remained unknown due to the publisher's anonymization of the records.

All cases of dental injuries took place during elective surgery. A pre-operative dental assessment was documented in 19 cases (79.2%) and unspecified in five cases (20.8%). When documented, a poor dentition was diagnosed in all cases: pre-operatively by the anaesthesiologist (15 of 19 cases, 78.9%) or post-operatively by an expert (four of 19 cases, 21.1%). Pre-existing periodontal disease was found in 16 cases (66.7%) and dental restorations or prostheses were found in seven cases (30.4%). The presence of pre-existing disease or a dental risk factor was unknown in three cases (12.5%). Intubation was performed in 21 cases (87.5%) and when it took place, a mouthguard was used by the anesthesiologist in only two cases (9.5%). In one case, the dental injury occurred during emergency intubation in the operation room.

Dental injury occurred during the intervention in 19 cases (79.1%). In other cases, a dental injury was alleged by the patient several days (three cases) or months (two cases) after the intervention. Damage involved one tooth in seven cases, two teeth in seven cases, and more than two teeth in ten cases. Incisors were involved in all cases except one (95.8%). The maxillary right and left central incisors were the most involved teeth (17 cases, 70.8%), followed by maxillary lateral incisors (11 cases, 45.8%) and mandibular incisors (three cases, 12.5%). Damaged teeth were unrestored in 87.5% of cases. The type of tooth injury had the following distribution by decreasing frequency: tooth avulsion (nine cases, 37.5%), lateral luxation (eight cases, 30%), subluxation (three cases, 12.5%), crown fracture (three cases, 12.5%) prosthesis loosening (two cases, 8.3%), root fracture (one case, 4.2%), alveolar fracture (one case, 4.2%), and prosthesis fracture (one case, 4.2%). When occurring to more than one tooth, more than one type of injury was noted. This explains that the sum of the individual incidence exceeds 100%. No case of ingestion or inhalation was reported. The therapy implemented after peri-operative dental injury was not described.

Of the 24 liability lawsuits, eight cases (30%) resulted in a final verdict in favor of the plaintiff, four from civil courts, and four from administrative courts. The conviction rates were 25% and 50%, respectively. Causes of conviction were either lack of information (5/8) or breach in the standard of care or technical negligence (3/8). Although patients alleged a breach in the standard of care or technical negligence more often than the lack of information about PDI, the latter led more often to a conviction (five of 14 cases, 35.7%) with a breach in the standard of care or technical negligence in three of 18 cases (16.7%) (Figure 3). In seven out of eight cases, PDI was reported on the day of surgery. Only one report of dental injuries was brought forward by the patient more than 24 h after receiving the anesthetic.

The average amount of indemnification for the plaintiff was 3614 Euros (3753 Euros in 2022 inflation-adjusted Euros) excluding legal fees (average amount of legal fees: 995 Euros or 1052 Euros in 2022 inflation-adjusted Euros). The amount of indemnification between

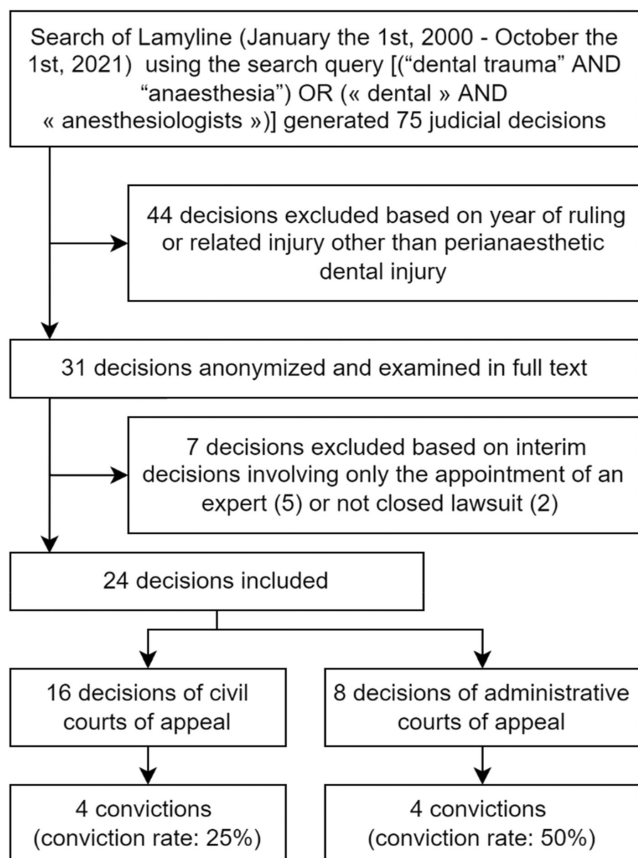


FIGURE 2 Flowchart of judicial decision selection

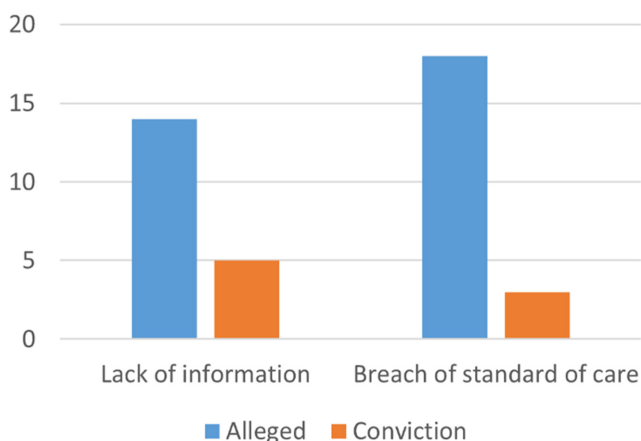


FIGURE 3 Conviction according to the patient's allegations

the first and second instances was increased by the judge in five cases, unchanged in one case and reduced in two cases.

4 | DISCUSSION

The current study provided an analysis of French litigation after peri-anaesthetic dental injuries (PDI) in private and public practice over the period 2000–2021. Avulsion and luxation of multiple

anterior teeth during elective surgery appear to be a risk factor for liability lawsuits while inadequacy of patient information about peri-operative dental injury risk seems to be a risk factor for a conviction.

PDI occurred primarily in the age group between 50 and 70 years, which is probably a result of the higher incidence of periodontal disease in this age group.² Just over half the plaintiffs were women (58.3%, gender ratio of 1/1.4) and the mean patient age was 55 years, which is similar to reported data of insurance claims in France.¹⁹

Throughout the literature, a pre-existing poor dentition and difficult intubation are the most significant risk factors for PDI. PDI incidence increases about to 12% in the case of pre-existing dental disease.³ Kuo et al. reported that the incidence of dental injury can be significantly reduced and remained at low levels after implementation of a standardized pre-operative dental examination, pre-operative care, and use of a dental protective device (mouthguard or impression putty). This protocol minimizes the PDI incidence from 0.108% to 0.009%.⁵ In this study, a poor dentition was the most common existing risk factor and was diagnosed pre-operatively in most cases by the anesthesiologist (65.2%) or post-operatively by an expert (34.8%), when documented (23 of 24 cases, 95.8%). Most patients had periodontal disease (60.9%), associated with previous dental restorations (8.7%) or no restoration (only previous dental restorations, 30.4%). In addition, although emergency surgery is a well-known risk factor of PDI, this study suggests that elective surgery-related PDI is a risk factor for claims.

Larger studies about PDI have shown that PDI occurs most often on a single tooth and the most reported injury is a crown fracture.²³ Insurance claims and out-of-court claims analysis report similar findings.^{20,21} Interestingly, most injuries concerned two or more teeth (70.8% of cases) and the predominant dental injuries were injuries causing traumatic movement of the tooth: avulsion, lateral luxation, and/or subluxation of at least one tooth (70.8% of cases). The number of patients with periodontal disease encountered in this study likely explains this type of traumatic injury.

The use of mouthguards to avoid PDI has been frequently reported in the literature.^{6,24} However, prefabricated or sports mouthguards do not guarantee an endotracheal intubation free from dental trauma. This type of mouthguard does not remain in position during impact and does not adequately provide the redistribution of impact forces. In addition, the instability of these devices reduces the mouth opening which limits the visualization of the larynx and increases the difficulty of intubation.⁶ Custom-made mouthguards are thinner, but expensive, and imply that the patient needs several appointments with their dental practitioner before the surgery, which is not possible in the case of emergency surgery. These limits explain the lack of use of these types of mouthguards.^{4,6,18} Some techniques should allow the creation of a custom-made mouthguard by the anesthesiologist, such as the use of silicone impression putty⁶ or intraoral scanning.²⁵ In

this study, despite pre-existing poor dentitions detected in many patients, mouthguards were used in only two cases and they did not prevent dental injury or conviction for technical misconduct in one of those cases. On the contrary, the absence of a mouthguard was considered as technical misconduct in only one case. Failure to use mouthguards may indicate a lack of awareness of the risk of PDI among anesthesiologists,²⁶ as they were aware of pre-existing poor dental conditions and did not use them. However, the French judges did not seem to take this failure into account.

The results underline that patients tend to seek the liability of the health professional or health institution in court when damage affects several teeth and leads to their loss, even though the pre-operative periodontal state is poor. This can be explained by the high cost of rehabilitating lost front teeth with little contribution of medical insurance companies in France. Insurance claims analysis show that most of the procedures are engaged for the loss of a single tooth or prosthetic restoration.¹⁹ The medico-legal consequences of a PDI would therefore differ depending on the type and the consequences of the injury, with the patient choosing the insurance or judicial route accordingly. However, the legal procedure does not always give satisfaction to the patient with a conviction rate of 25% for health professionals and private institutions (civil proceedings) and 50% for public health institutions (administrative proceedings). Compared to the 55% conviction rate described in the last Mutuelle d'Assurances du Corps de Santé Français (MACSF) review of decisions resulting from civil proceedings,²² it appears that dental injuries are less at risk of civil conviction than other anesthesia-related damages. Delayed declaration of damage by the patient was a protective factor for conviction. In case of conviction, lack of information rather than a technical fault was mainly sustained, as alleged by the patient. Pre- and post-operative information about the patient is essential to prevent conviction in PDI-related liability lawsuits.²⁷

In case of a complaint, the length of the court procedures is a concern for both victims and defenders. In this study, the median time between the date of damage and the verdict of the first instance court was 3.5 years [0.8–13.1] and the median time between the date of damage and the final verdict was 5.8 years [1.3–14.9], which are longer than insurance compensation procedures (1–2 years in France). As in liability insurance cases, the average amount of compensation for dental damages remains low compared to other intra-operative accidents during general anesthesia.²⁸ Finally, in the event of an appeal, there is a significant chance that the amount of compensation will increase in favor of the patient.

The main limitation of this study is that only appeal court decisions are published within the legal database, which omits first instance decisions. On the other hand, appeal court decisions are more relevant to medico-legal analysis because they reflect the state of law at the time of decision. Finally, there is currently no French legal database that exhaustively lists all first instance decisions, so it is not possible to perform a quantitative analysis. Another weakness of the study is the lack of completeness of some court decisions,

which did not allow all characteristics of injuries and damage management by dental practitioners to be assessed.

5 | CONCLUSION

Peri-operative dental injuries are one of the most common adverse events reported in association with general anesthesia. This study of PDI-related liability lawsuits showed that medico-legal issues differ from those of PDI-related insurance or out-of-court claims. While most insurance claims are for a single fractured tooth, liability lawsuits were for larger injuries, such as the luxation/avulsion of two or more teeth. The conviction rate of the health professional or the healthcare facility was low and was more related to a lack of pre-operative information than technical malpractice.

AUTHOR CONTRIBUTIONS

HD conceived the study, extracted the data, carried out the initial analysis and drafted the manuscript; GDR analyzed the data, reviewed the literature, and drafted the manuscript. HD and GDR equally contributed as first authors. AG analyzed the data and reviewed the literature; JPT contributed to the interpretation of the results and revised the manuscript. HD, GDR, and AG have full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. All authors made substantial contributions to the discussion of content, reviewed, and edited the manuscript before submission.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICAL APPROVAL

This study was approved by the Institutional Review Board of the Bégin Army Instruction Hospital, Saint-Mandé, France.

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