

A Review of Medicolegal Considerations of Endodontic Practice for General Dental Practitioners

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Received : 02-06-18.

Accepted : 29-06-18.

Published : 18-07-18.

ABSTRACT

Treating a live human being to their health has been considered as a noble profession since the ancient times. Doctors are duty bound by their professional ethics to provide the best treatment to their patients. Endodontics is the specialty branch of the dental science of saving natural teeth in the oral cavity. During endodontic procedures, a mishap can occur any time in a day-to-day practice and may be treated as negligence which in turn ends into some legal complications. To prevent and tackle such future medicolegal issues related to endodontic treatment, the knowledge of the legal aspect of such clinical situation is necessary.

KEYWORDS: *Doctors, endodontics, medicolegal issues, mishap, negligence*

INTRODUCTION

Previously, doctors were treated as demigods and the doctor–patient relationship was considered as a trustworthy relationship. This relationship has been deteriorated when medical profession has been covered under the ambit of Consumer Protection Act (CPA) after its enactment in 1986. In CPA, patients were considered as consumers and doctors as health service providers. Due to the enactment of CPA, doctors have to become more vigilant and provide good ethical treatment to patients. On the other hand, frivolous complaints are filed against doctors regarding negligence by some deceitful patients for monetary benefits out of the case. Ultimately, there is continuous degradation of the doctor–patient relationship in the modern times.

Dentistry is an art and science where new technology provides better treatment and convenience to both the patient and the dentist. In the past, advised treatment for the decayed tooth was the extraction of such tooth; however, in the recent era of health awareness and modernization, patients demand retention of their natural teeth in the oral cavity for a longer period. Endodontics has emerged as a promising dental specialty to preserve the natural tooth to their function and esthetics and to avoid the need for extraction in many cases.

Dentists have a profound responsibility and follow codes of conduct to act in the best interest of the patient. It is a patient's right that they might accept or reject the advice

from the dentist. The vital concern of every patient is that they should be treated as a human being, i.e., as the unique and individual person. Any circumstances causing lack of duty amount to negligence and may give a chance to a patient to proceed in the court of law. To understand the legal status of the clinical error and to prevent future litigations in the court of law, knowledge regarding the medicolegal aspects of particular clinical scenario with respect to the provision of law is required as a need of an hour.^[1-3]

The dentist must be aware of the legal provisions regarding negligence and CPA.

WHAT IS THE DUTY TO TAKE CARE AND STANDARD OF CARE?

In doctor–patient relationship, there is an obligation on the doctor to take proper care and avoid causing injury (causing no harm) to the patient. Standard of care is considered as the degree of prudence and caution required by the professional who is under a duty of care in the law of Tort.

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How to cite this article: Ramugade MM, Sagale AA. A review of medicolegal considerations of endodontic practice for general dental practitioners. J Int Soc Prevent Communit Dent 2018;8:283-8.

Access this article online

Quick Response Code:



Website: www.jispcd.org

DOI: 10.4103/jispcd.JISPCD_206_18

Doctors' duty comprehensively includes consultation, counseling, maintaining confidentiality, diagnosis, giving or prescribing any treatment, informing the patient about decided treatment with its adverse effects, communicating the risk involved, and referral to the specialist when required.

WHAT IS MEDICAL NEGLIGENCE?

In the law of Tort, negligence means the breach of the legal duty or obligation which is cast on the professional by his/her professional morals and ethics. Dental practitioner should have sufficient knowledge and skills to perform the treatment, and he/she is bound to have the certain standard of duty and care in his/her practice. A breach in it causes negligence and legal action can be taken against the dentist.

CERTAIN ACTS ARE CONSIDERED AS NEGLIGENCE BY THE LAW

1. When a person fails to accomplish duty and care to which he/she is bound by his/her profession
2. An act of negligence must show the element of "guilty mind," i.e., mens rea
3. That act causes injury/damage
4. That act and subsequent damage should be closely related (nexus). The well-known Latin maxim in the law is "Res Ipsa Loquitur," i.e., "the thing speaks for itself" is applied for the determination of the negligent act.^[4]

In dental practice, dentist performs various endodontic procedures including root canal treatment, apexification and apexogenesis, and post and core restorations. During such procedures, mistakes or errors could occur at any stage and the treatment might go wrong.

Various questions arise in such cases are as follows:

1. Should such situation be considered as the mishap or a procedural error or the negligence?
2. What were the legal point of view and lawful provisions of such situation if found to be negligent?
3. How could dentist prevent such mishap and save themselves?

Some of the clinical situations in the field of endodontics were considered as neglect or deficiency in service or standard of care, which may lead to filing the suit in the court of law:

VALID INFORMED CONSENT

For every therapeutic, medicinal, or surgical procedure, consent of the patient is mandatory in eyes of the law for major (18 years and above) as well as the minor. For minor patients, i.e., below 18 years of age, consent

of parents is a must. Similarly, for aged and dependent patients, medicolegal considerations are related to the patient's capacity, competence, and the role of substitute decision-makers. Dentists must assess the capacity of such patient to give informed consent for proposed endodontic treatment.^[5]

For a valid consent, the consent given should be free consent, i.e., it has not been given under coercion, undue influence, fraud, misrepresentation, or mistake. Similarly, the consent should mention the diagnosis of the disease with probable etiology, nature of the treatment to be carried out along with possible alternative treatment options, foreseeable risks, complications, and overall prognosis with or without treatment.^[6,7] In cases where proper informed consent has not been obtained and if the mishap occurs, it may be considered as a deficiency in service and neglect.

The consent should be preferably taken in the language which is well understood by the patient either in local, in national, or in the English language so that substantial protection to the dentist against unwanted allegations and litigations is warranted. When written consent is not obtained, the patient may put an allegation on the dentist of negligence, trespassing his/her privacy, or breach of morality and decency.^[8,9] On the contrary, consent is not required for managing medical emergencies in the dental office to save the patient's life.

Case law: *Parmley v. Parmley*

In the landmark case of *Parmley v. Parmley*, the patient was anesthetized for the purpose of tonsillectomy by the doctor. The doctor with the dentist removed some of her teeth without her consent.^[10] Thus, the patient sued both dentist and doctor for negligence, regarding unauthorized extraction of her teeth. The dentist took third party proceedings against the doctor, claiming the indemnity or contribution in respect of liability found against him.

IMPROPER DIAGNOSIS

Proper diagnosis is paramount for initiating any treatment. Sometimes, the diagnosis is ambiguous, and in an emergency situation, treatment has to be started. For proper endodontic diagnosis, case history and various vitality tests play a major role. Referred pain may also lead to wrong diagnosis in some cases.^[11] Treating the wrong tooth without proper diagnosis or valid written consent is considered as neglect.^[12] Similarly, patient has right to know about his/her condition and treatment to be done for his/her illness. This patient must be well explained by informed, written, and oral consent before initiating the treatment.

INTRAORAL PERIAPICAL RADIOGRAPH, ORTHOPANTOMOGRAM, OR CONE-BEAM COMPUTED TOMOGRAPHY

Preoperative intraoral radiograph is mandatory for initiating any endodontic procedure to diagnose the status of tooth and surrounding structure. Orthopantomogram or cone-beam computed tomography (CBCT) scan should be advised for preoperative assessment in cases of complication, full mouth rehabilitation, traumatic injuries, implant, or any surgical procedure. The consent should be obtained for any radiography mentioning the nature of radiation, dose, and risk and benefits of scanning.^[13] The dentist may feel that they are already overburdened with paperwork, legal duties, and responsibilities, but keeping record of all intraoral periapical (IOPA) radiographs could act as safeguard for unnecessary future litigations by troublesome patients.

ANTIBIOTIC PROPHYLAXIS

Taking proper case history, including medical, medicinal, and family history, is required for proper treatment and prescribing medications. Patients with a history of rheumatic fever, cardiac problem, or immunocompromised patients are at the potential risk of acquiring the systemic infections easily. Thus, these patients required antibiotic prophylaxis, 1 h before treatment as a preventive measure.

Prescribing antibiotic prophylaxis for infection control at the operated site or distant site is the dentist's responsibility. The dentist must evaluate all local and general factors which may increase the infection risk. It is not recommended to prescribe antibiotics always, discriminately, or randomly unless indicated for patients to treat local infection or in the probability that severe infection may appear soon.^[14] Failure to record the case details, not prescribing or medicating high-risk patients accordingly, is considered as negligence when found to be life-threatening.^[15]

TREATING WRONG TOOTH OR MISSED CANALS

Treating a wrong tooth by a primary or assistant doctor after administration of local anesthesia is considered as neglect. Due to wrong treatment, a patient may suffer the pain continuously and lost the vitality of another healthy tooth. Before starting endodontic procedure, identification of painful or offended tooth is important. It is usually confirmed with the patient by showing the affected tooth in a mirror or asking the patient to show the tooth by pointing with finger or tongue. After obtaining the valid consent and permission from the patient, anesthesia should be administered.

For endodontic treatment, it is always recommended to take multi-angulated radiographs to rule

out the presence of any additional root canal. Same-lingual-opposite-buccal rule helps locate any extra canal. Similarly, when canal anatomy is not clearly visible, it is advisable to take CBCT scan after obtaining patient's consent. Fail to do so may be considered as neglect and the dentist would be held responsible for the future failure.

NOT REFERRING TO THE SPECIALIST WHEN IT IS REQUIRED

Referral to an endodontist is required when a patient demands referral, for the management of difficult cases, calcified canals, retreatment cases, teeth requiring post and core, endodontic surgery cases, or mentally and medically compromised patients.^[16]

The dentist must have adequate knowledge and skills similar to that acquired by his/her colleagues and required by profession along with current upgrades. Operating dentist must not undertake a case which is beyond their expertise or experience and must refer the case to the appropriate specialist. When the dentist does any work beyond his/her qualification, skills, or expertise, and if any mishap occurred, he/she will be held liable for the act of negligence.^[17]

PROLONG POSTOPERATIVE PARESTHESIA OR ANESTHESIA

Endodontics is a surgical procedure, and anesthesia is given to make procedure painless and comfortable for the patient. Administration of nerve block anesthesia is a blind procedure, and it has been given according to the tooth to be operated. "Hot tooth," i.e., tooth does not anesthetize even after adequate and optimum doses of anesthetic injection, is more common in mandibular molars. Mandibular posterior teeth usually require inferior alveolar nerve block anesthesia. For such teeth, it is necessary to use additional anesthetic techniques or to increase the anesthetic dose.

Sometimes, due to anatomical variation near nerve block area, the anesthetic solution may get deposited into or near the facial nerve extensions which might lead to paresthesia or anesthesia of area supplied by the facial nerve. This anesthesia is usually reversible without any permanent effects, but unfortunately, this effect may get prolonged and resulted in temporary or permanent paresthesia or anesthesia. This could lead to loss of trust on operating dentist and become a reason to file a case of negligence against the dentist.

INSTRUMENT ASPIRATION OR INGESTION

The basic principle of endodontics is isolation, and the best method to do is by rubber dam application. In endodontics, it is considered as a standard of care. Rubber dam application not only makes the procedure convenient

to the operator but also protects the patient from instrument aspiration or ingestion. Unfortunately, if an endodontic instrument slipped from dentist's hand and aspirated or ingested by the patient, it gives rise to a life-threatening medical emergency which needs to be managed timely. Thus, to avoid such complications and life-threatening emergency, it is better to adopt the practice of applying rubber dam regularly in every case.^[18-22]

INSTRUMENT BREAKAGE IN THE ROOT CANAL OR BEYOND APEX

In endodontics, pulp tissue is removed and the root canal is shaped with hand or rotary files to receive obturating material. During canal shaping procedure due to unusual canal anatomy, severe curvature, calcifications, improper working length determination, forceful instrumentation, and overzealous use of instrument, breakage of hand or rotary endodontic file is common. It is usually considered as a mishap and not negligence. When the root canal is already cleaned and shaped, and then if a file is broken, it usually does not cause any problem and the patient remained asymptomatic. However, when file breaks and causes symptoms, it leads to litigations.

In clinical situations, operator must obtain the informed consent of patient mentioning all possible complications such as file breakage or perforation. Unfortunately, when file breaks in the canal, it is a duty of operating dentist to inform the patient regarding such mishap and inform about all possible complications and further treatment options. Instrument separation in the root canal or beyond apex during the treatment would be considered as the procedural error or mishap in the literature; however, hiding the present mishap situation from the patient amounts to negligence.^[23]

When the patient is cooperative, the operator must try to remove or bypass the broken instrument depending on the size, location, and type of instrument. Mentioning the mishap in patient's record with patient's sign regarding the knowledge of such mishap as well as keeping regular follow-up with the patient would act as a safeguard for avoiding further court proceeding.

CROWN OR ROOT PERFORATION

The dentist is expected to know the tooth anatomy and operate accordingly. Crown or root perforations may occur due to improper access cavity preparation, post space preparation, or canal instrumentation and it may be considered as neglect. Taking preoperative IOPA radiograph helps the operator to know the canal anatomy, calcification, canal curvature, root length, and root diameter. When perforation occurred, it must be informed to the patient and sealed immediately whenever possible. The possibility of root perforation

during removal of the broken file from the root canal must be intimated to the patient in prior.

EXTRUSION OF INTRACANAL MEDICAMENT, IRRIGATING SOLUTION, OR OBTURATING MATERIAL BEYOND THE APEX OR SHORT OBTURATION

For successful endodontic treatment, the root canal should be filled in three dimensions to avoid apical leakage. In the literature, it was considered that the best results for canal obturation could occur when the apical end of gutta-percha is at 0–1 mm near the apex, and on the contrary, when it is >1 mm (short or over the apex), the results are less favorable.^[24]

Passage of irrigating solution of sodium hypochlorite beyond the apex may lead to burning and soft-tissue necrosis. The passive irrigation is always recommended with ultrasonic agitation. The endodontic sealers may have cytotoxicity that can induce periradicular inflammation or necrosis of the periodontal ligament. Overfilling not only induces postoperative pain and swelling but also might require endodontic surgery. In case of the extrusion of material beyond the apex near or into maxillary sinus or the mandibular canal, persistent sinusitis or neurological damage or mechanical compression may result. Thus, overfilling should be prevented to avoid failure or long-term prognosis.^[25-35] The American Dental Association recognizes the extrusion of material >2 mm beyond the apex as an error and may give a chance to the patient to file a case against the dentist.

Givol *et al.* studied cases of medicolegal liability claims in related to persistent altered sensation following endodontic treatments. They found 16 claims of persistent altered sensation following endodontic treatments in Israeli females who claimed to have endodontic treatment of mandibular second molar with overfilling. A significant correlation between the tooth location and the suggested cause of nerve injury was found.^[36]

CONTINUOUS PAIN OR DISCOMFORT AFTER ROOT CANAL TREATMENT

Pain is a subjective symptom. Usually, the pain is subsided after endodontic treatment, but it would not be guaranteed always. Causes of postoperative discomfort or pain are multiple, but the patient must be made aware of some discomfort or pain postoperatively. Pain due to improper treatment may lead to legal consequences.

SODIUM HYPOCHLORITE ACCIDENT SUCH AS EXTRUSION BEYOND APEX OR INJECTING HYPOCHLORITE SOLUTION

Passive irrigation of root canal is always recommended to avoid its extrusion beyond the apex which might result in hypochlorite accident. It is a duty of an

operating dentist to inject a proper anesthetic solution to the patient. By mistake or due to overlooking if irrigating solution of sodium hypochlorite is injected, it may cause soft-tissue damage and necrosis which would be considered as negligence. To avoid such negligence, it is always better to do color coding for syringes and when in doubt, throw the syringe and use fresh needle, syringe, and anesthetic solution.^[37-41]

CONCLUSION

Treating a live human being is a challenging task, and assuring positive results is not always possible in the medical field. In clinical practice, taking necessary precautions are better than managing bigger problems at a later date. To avoid loss of time and money due to future litigations in the courtroom, knowledge and implication of basic protocol as a routine practice in clinics must be adopted. The treatment may vary from dentist to dentist, but it must adhere to the basis of dental science and medical literature. Even if the expected results are not evident after following proper scientific treatment, the dentist could not be held liable in the eyes of law. For successful and litigation-free endodontic practice, always promise less and deliver more to the patient.

FINANCIAL SUPPORT AND SPONSORSHIP

Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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