Myths and misconceptions in general public toward ocular complications followed by the removal of upper teeth

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Introduction

Ocular complications after oral and maxillofacial procedures have been reported in many publications. These complications can be because of administration of local anesthesia or extension of dental infections from maxillary teeth or other neighboring structures to orbital spaces and tissues surrounding eye. The prevalence of ocular complications is low in dentistry relative to other local anesthetic complications, as well as most complications are local and temporary.

Indian population consists of people from different cultural backgrounds and there is a very strong influence of the various myths on health seeking behavior in our population. Myths are defined as stories shared by a group of people which are a part of their cultural identity. They have a strong influence in the life of individuals and their way of living including seeking treatment during illness. A taboo among many people that the removal of upper teeth affects vision is established in the general public very commonly. This kind of misconception is inherited due to false exaggerated information promulgated by those who had previous personal negative dental experiences. This might be attributed to lack of awareness, low educational levels, anxiety, apprehension, and myths about dental treatment entrenched in their minds.

Hence, we initiated this survey to assess the myths and misconceptions in general public toward ocular complications followed by extraction of teeth.

Abstract

Introduction: The upper jaw forms the floor of the maxillary sinus and the upper teeth are continuous with the whole midface and cranium, therefore while treating these teeth, it is important for the practitioner to consider the possibility of ocular complications. Ocular disturbances such as blurring of vision, mydriasis, ptosis, diplopia, enophthalmos, miosis, and blindness are rare complications due to intraoral local anesthesia. So far at present, the general population is having myths and misconceptions regarding the extraction of teeth and vision loss; hence, we evaluated the same. Methods: A cross-sectional prospective survey targeting the general public was conducted using a self-administered questionnaire. A total of 300 standardized self-administered questionnaires were given and the data were analyzed. Results: Out of 300 patients, 148 were educated and 152 were uneducated. The study population was analyzed based on their age, sex, and literacy, i.e. the level of education. Seventy-six percent of uneducated and 48% of educated groups had false belief of ocular complications followed by the removal of upper teeth and among them uneducated females of older age group showed higher prevalence. Conclusion: The general public’s knowledge about ocular complications due to tooth extraction in our study group is not adequate and needs improvement. Although the practice of informing by dentists is satisfactory, there is a need for creating awareness in the general public against such complications.

Keywords: Loss of vision, misconceptions, ocular complications, tooth extraction
Materials and Methods

A cross-sectional questionnaire-based study was conducted over 1 month at our institute. All the individuals aged above 18 years reporting to the outpatient department (OPD) and voluntarily accepting to participate in the study were included. The questionnaire was framed after interacting with people and ten questions related to myth and demographic data were formulated and included in the study. Questionnaire included demography, knowledge of the occurrence of ocular complications, immediate reaction, prevention, and ophthalmologist consultation. It was designed which would take approximately 5 min to complete. The patients were requested to mark the appropriate answer. A total of 150 individuals were included in the study. The identity of the persons participating in the study was kept confidential. The questions were in the local language, i.e., Marathi. For uneducated people, it was explained by our personnel. Ethical clearance was obtained from the Institutional Ethical Committee. The collected data were subjected to statistical analysis. The responses to the questionnaire items were reported as percentages. Data were entered and analyzed using SPSS version 16.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were obtained and percentage distributions of responses to questions were calculated. Chi-square ($\chi^2$) test was employed for intergroup comparison of variables. For all tests, a $P \leq 0.05$ was used for statistical significance.

Results

A study was conducted among 300 patients who reported to the OPD of our institute in a month and voluntarily accepted to participate. Among them, 55% were male and 45% were female participants. The participants were divided into two groups on the basis of education. Out of 300 patients, 148 were educated and 152 were uneducated. The study population was analyzed based on their age, sex, and literacy, i.e., level of education. Seventy-six percent of uneducated and 48% of educated groups had false belief of ocular complications followed by the removal of upper teeth and among them uneducated females of older age group showed higher prevalence [Graph 1]. Major source of information for the same belief was from the colleagues or friends or society. Personal experience of ocular complications by the removal of upper teeth was 8% and 4%, respectively, in uneducated and educated group. Out of them, 2% encountered the problems of loss of vision and double vision each. Along with these, transient dizziness, difficulty in reading, drooping of the upper eyelid, and decreased sensation on the lateral aspect of the upper and lower eyelid were also noted in 1% of the uneducated group. However, only for few minutes, these symptoms were lasted. Three percent of educated people who experienced ocular complications consulted ophthalmologists, whereas only 1% from the illiterate group did it, which was statistically significant. This showed awareness of educated people toward their health. Not a single person from both the groups suffered from the problem of permanent blindness.

Discussion

Oral diseases are the fourth most expensive disease to treat. In many low-income countries of the developing world, the total cost of traditional operative dental care would exceed the entire health-care budget. A further significant influential factor is the awareness and educational level of population which is reflected by a country’s literacy rate. For an individual, education is the means of empowerment and an opportunity to nurture creative thinking and imagination. This may also enhance positive perceptions toward general as well as oral health.

India, being a developing country, faces many challenges in rendering oral health needs. The majority of Indian population resides in rural areas. It is a fact that cultural beliefs are still affecting the oral health of the population. The reasons for these cultural beliefs and traditional practices are complex and multifactorial. They may reflect a combination of limited knowledge regarding the importance of oral health. Various myths related to the dental treatment are present in the society such as ocular complications followed by the removal of upper teeth. The reasons for this misconception may be complex and reflect a combination of limited knowledge regarding the link between oral health and well-being of the body.

There could be a possible link between dental extraction and intraocular complications. Authors reported a case of 49-year-old healthy female who underwent surgical extraction of root canal treated second right upper molar tooth. One day after the procedure, the patient felt a strange sensation of blurred vision and threads in the right eye and later a white curtain covering the same. Retinal tears and vitreous hemorrhage in the right eye were diagnosed and appropriately treated with laser. One week later, the vision was completely restored. According to the author, mental stress during the treatment and local epinephrine could cause blood pressure elevation. However, this is no more than an unproven theoretical explanation. Structures further from the oral cavity, including the middle ear and the eye, can also
be affected by intraoral local anesthesia. Distant complications to the eye have been reported more frequently than middle-ear problems. The administration of local anesthetic is one of the most common procedures in dentistry. Hundreds of thousands of patients received anesthetic agents locally without serious complications.[10] Nevertheless, this procedure carries the risk of a number of potential complications for the patient, which can be classified as local, distant, or systemic.[21]

Paralysis of the sixth nerve following nerve block, as given in dental surgery, was first reported in English literature by Goodside and Weiggeist in 1946 for a sphenopalatine block.[12] Since then, various dental anesthetic-related ophthalmological complications have been reported in the available English literature.[13‑15] A posterior superior alveolar nerve (PSAN) block injection is a routine and reliable procedure employed for effective pain control for the posterior maxillary teeth and surrounding structures supplied by this nerve, when the recommended protocol is followed. Case reports of patient's experiences of ophthalmological visual or motor problems from PSAN injections are seldom in English Literature.[13] Visual problems include blurring of vision[14,15] and blindness, which can be temporary[16] or permanent.[17,18] Motor problems include mydriasis, palpebral ptosis, and diplopia. Horner-like manifestations involving ptosis, enophthalmos, and miosis of the eye have also been reported.[19] Fortunately, most complications, reported in English literature, in the eye have been transient. The patients have experienced visual or motor problems either from a PSA injection or an inferior alveolar injection. Horner-like manifestations involving ptosis, enophthalmos, and miosis of the eye have also been reported.[2] Fortunately, most complications in the eye have been transient.[20]

Maxillary local anesthetic injections, particularly those deposited near the pterygoid canal, are known to cause diplopia of the ipsilateral eye and are estimated to occur in about 35.6% of cases. This often results from the local anesthesia diffusing superiorly and medially to anesthetize the orbital nerves. There are no known reports in literature of permanent diplopia.[21] The hypothesis for ophthalmological manifestation of an inferior alveolar nerve block has been proposed as local anesthetic solution reaches the orbit through vascular, neurological, and lymphatic network.[22] They proceed to describe that oculomotor disturbance after injection of dental local anesthetics is that of inadvertent deposition of some of the drug into the inferior alveolar artery, mandibular canal, or PSA artery. By reverse flow, the anesthetic agent then reaches the internal maxillary and middle meningeal arteries, the orbital branch of the latter anastomosing with the lacrimal branch of the ophthalmic artery.[23] A patient whose abducen nerve is involved may complain of double vision and may exhibit limitation of abduction of the ipsilateral eye as well as paresthesia of the lateral side of the upper and lower eyelids in limited cases.

Although these effects are not permanent, still the general population is having myths and misconceptions regarding the extraction of teeth and vision loss. General physicians’ as well dental practitioner should be aware of these misleading myths. It is better to avoid anesthetic misadventure. Awareness of these rare complications and urgent referral to an ophthalmologist may give a chance in the mean of reversal of the ischemic retinal damage where the minutes count. Hence, coordinated efforts by dentists, public health specialists, nongovernmental organizations, and grass-root-level workers are needed to impart dental health education that can be effectively incorporated in developmental programs in promoting the prevention of diseases and dental care targeted to the general population.

Conclusion

Although in dentistry thousands of patients receive local anesthetic injections daily, only a few neuro-opthalmological complications are reported. Fortunately, most complications in the eye have been transient. However, nowadays people’s expectations of health care are rising dramatically, henceforth understanding the myths and misconceptions about oral diseases is important in providing excellent care and health education to both patients and healthy individuals. Although the practice of informing by dentists is satisfactory, there is a need for creating awareness in the general public against such complications.

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Conflicts of interest

There are no conflicts of interest.

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