

INCIDENCE OF POST EXTRACTION COMPLICATIONS AMONG PATIENTS UNDERWENT EXTRACTIONS - AN INSTITUTIONAL BASED RETROSPECTIVE STUDY

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Abstract

Background : Tooth extraction complication may occur like any other surgical procedure. The complications include prolonged bleeding, swelling and pain, infection, dry socket etc. Besides, not all complications are rare. There are frequent and debilitating complications including postoperative pain. Although the overall complications might be low and most complications are minor.

Aim : The aim of this study was to assess the post extraction complications among patients undergoing extractions at saveetha dental college and hospitals from june 2019 to march 2020.

Materials and methods: It is a single centered , retrospective study with a sample size of 45 patients. The data was collected from the patient record management system used at SIMATS from june 2019 to march 2020. The data analysis was performed using SPSS software and chi square test was done.

Results : The results of this study shows that pain and swelling (36.6 %) and dry socket (36.36%) are the most common post extraction complications and mostly seen in the age group of 26-40 years (31.82%). Males(61.36%) were more prone to post extraction complications compared to females (38.63%).

Conclusion: Within the limits of the study , the common post extraction complications include pain , swelling and dry socket . These complications are more common in males and in patients under the age group of 20- 40 years.

Keywords : Post extraction complications ; age ; gender ; pain ; swelling ; dry socket.

Introduction

In dentistry, various treatment procedures are done to treat dental problems.[1] Extraction is the most common procedure done in dentistry in India [2]. Third molar surgery is the most common procedure performed by oral and maxillofacial surgeons worldwide [3]. Post-extraction complications generally do not occur; however, there are times when the dentist is faced with post-extraction complications [4]. With an untrained or inexperienced

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dental surgeon, the incidence of complications post extraction is high.[5] Extractions are frequently carried out under local anesthesia and seldom under general anesthesia, in case of removal of multiple impacted teeth [6]. However the soreness and pain due to tooth extraction last for several days[7]. Maximum care and precaution are required to handle sharps as improper handling can lead to various health hazards.[8]

The common post extraction complications include dry socket, delayed wound healing, post operative infection, hematoma, pain, swelling or trismus [9]. Pain is one of the most common postoperative complications after extraction and might be caused by the release of pain mediators [10]. Dental anxiety is a common problem which results in the avoidance of dental care.[11] It is important to reduce anxiety before treatment to reduce pain during treatment [12], especially in pediatric patients. The negative consequences, such as haematoma and dehydration were observed in three children after surgical approach [13,14]

The oral cavity consists of many surfaces, each coated with various fluids which are a host to a plethora of microorganisms [14]. Pain in the adjacent tooth could be caused by injuries from the forces exerted during extraction, dislocation of large restorations, subluxations, and crown fractures.[15] About 35%–40% of tobacco consumption in India is in smokeless forms.[16] Excessive consumption of alcohol is strongly associated with maxillofacial trauma.[17] The knowledge of the risk factors for post extraction complications has clinical implications in treatment planning, patient management and prognosis.[18]

The main concern of the dentist for their patients is to minimize the experience of pain and its consequences after dental extractions. A significant reduction in pain intensity levels after dental extraction will result in rapid postoperative recovery and satisfactory outcomes. Various NSAIDs are tried to achieve this goal.[19] Chlorhexidine application showed less incidence of alveolar osteitis and also less pain, inflammation, infection, and better wound healing [20]. Tuberosity separation technique with the use of tranexamic acid is a best protocol for producing the least blood loss, minimizing the operating time, and providing the best surgical field [21]. Buccal fat pad graft has proven to give better results as the interposition material as it has a good patient acceptance, rapid epithelization, minimal donor site morbidity, minimal intra and postoperative complications.[22] There is need for improved education in the teaching curriculum for dental students regarding post extraction complications.[23] The ability to use proper medication as primary mode of the treatment for various post extraction complications provides better treatment options for dentists in the future.[24] The prevention methods for dry socket include avoiding smoking before and after surgery, atraumatic surgery, the use of required medication namely analgesics and antibiotics with mouthwash if necessary. Plasma rich in growth factors can also be effective in the reduction of dry socket incidence.[25] Good Quality of treatment can be maintained, if future dentists have a good knowledge of post extraction complications and the methods of preventing and managing them.[2] This study aims at assessing the prevalence of post extraction complications among patients undergone extractions at an institution from June 2019 to March 2020.

MATERIALS AND METHODS

It is a single centered retrospective observational study conducted in Saveetha dental college and hospital from June 2019 to March 2020. This study has got ethical clearance from an international review board. The study includes a sample size of 45 patients with post extraction complications. The case sheets were reviewed and cross verified by another examiner.

Retrospective Data of 86,000 patients between June 2019 and March 2020 were retrieved and the patient records were reviewed and analysed for overall patient-report for extraction.

The data collected were tabulated under following parameters - age, gender, treatment, post extraction complications. Inclusion Criteria includes treatment and post extraction complications. Exclusion criteria includes presence of systemic disease, personal habits, medical history.

The data analysis was performed using SPSS software of version 19. The chi square test and Pearson correlation was done. The chi square test was performed to compare the data and check for the distributions at p value 0.05 level of significance for effect of statistical significance.

RESULTS AND DISCUSSION

The study results showed that the patients belonging to the age group of 20-40 years faced post extraction complications such as pain and swelling (15.91%) and dry socket (15.91%). The chi square value was 0.005

which is statistically significant (FIGURE 1).

In this study it was observed that post extraction complications were more prevalent in males compared to females. The common complications seen in males included pain, swelling, dry socket, difficulty in mouth opening, root stumps, partial eruption and ulcers. The chi square value was 0.820 which is not significant.(FIGURE 2)

Complications after extraction include swelling and pain, dry socket, osteomyelitis, bleeding, and osteonecrosis of the jaw comprise another set of urgent dental problems that require prompt attention. The difficulties of extractions are multifactorial, and it is unpredictable. [6]

In this study it was observed that the patients belonging to the age group of 26 - 40 years (31.82%) have most commonly faced post extraction complications compared to other age groups (TABLE 1). The factors that contribute to these complications are numerous and includes the patient or may be tooth related, and also include the surgeon's operative experience.[10] Other factors found to affect the complication rate include age and gender of the patient.[26]

Smoking might increase post extraction pain by reducing blood supply in the alveolar socket [(10)]. The study conducted by Haraji and Rakhshan shows that in younger patients, when the effects of the operation difficulty, smoking and gender were not controlled for, younger people might show significantly greater pain. Age had a marginally significant negative role ($P = 0.0994$). [27]

In this study, males(61.36%) were found more prone to post extraction complications compared to females (38.63%) (TABLE 2). This can be mainly due to personal habits such as alcohol consumption, smoking and non compliance with post extraction instruction. Capuzzi et al. reported post-extraction pain among male patients which is in consensus with the present study[15]

The present study outlines that the most common post extraction complications include pain and swelling (36.36%) and dry socket (36.36%). In a study by H.Aravinth et al., among 150 dental students, about 22.3% of dental students mentioned that they have encountered complications after tooth extraction in the dental office. 59.1% of dental students reported that bleeding to be the most common postoperative complication which is followed by pain 19.1%, swelling 11.67%, and dry socket. However the previous mentioned study finding support the present study.[4]

The limitations of the study are it is single centered study with small populations and does not include past medical history, presence of systemic diseases and does not include any ethnic groups. The future scope of the study is it can be used for further studies with a greater population and to create awareness about post extraction complications in patients undergoing extractions as well as in dental students.

AGE	Pain and swelling	Dry socket	Difficulty in mouth opening	Root stumps	Partial eruptions	Ulcers and bony spicules	Total
6-25	1	1	0	1	1	0	4
26-40	7	7	2	0	0	0	16
41-60	3	5	0	0	0	6	14
>60	5	3	1	0	0	1	10

TOTAL	16	16	3	1	1	7	44
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TABLE 1 - Frequency of age and post extraction complications. Out of 44 patients, under pain and swelling there were a total of 16 patients where in the age group of 6-25 there was 1 patient, in 26-40 years of age there were 7 patients, in 41-60 years of age there were 3 patients and above 60 years there were 5 patients. Under dry socket there were a total of 16 patients where in the age group of 6-25 there was 1 patient, in 26-40 years of age there were 7 patients, in 41-60 years of age there were 5 patients and above 60 years there were 3 patients. Under difficulty of mouth opening there were 3 patients in which 2 patients were in the age group of 26-40 and 1 patient was above 60 year of age. Under root stumps there was 1 patient of age group 6-25 years and 1 patient under partial eruption (It is seen in pedo patients with improper extractions of primary tooth). Under ulcers and bony spicules there were a total of 7 patients out of which 6 patients were in the age group of 41-60 years and 1 patient in the age group of above 60 years.

	Pain And Swelling	Dry socket	Difficulty in mouth opening	Root stumps	Partial eruptions	Ulcers and bony spicules	Total
MALE	11	9	2	1	1	3	26
FEMALE	5	7	1	0	0	4	18
TOTAL	16	16	3	1	1	7	44

TABLE 2 - Frequency of Gender and post extraction complications. Out of 44 patients, under pain and swelling there were 11 male patients and 5 female patients. There were 9 male patients and 7 female patients with dry socket. Under difficulty of mouth opening there were 2 male patients and 1 female patient. There was 1 male patient with root stumps and 1 male patient with partial eruption (It is seen in pedo patients with improper extractions of primary tooth). And under ulcers and bony spicules there were 3 male patients and 4 female patients.

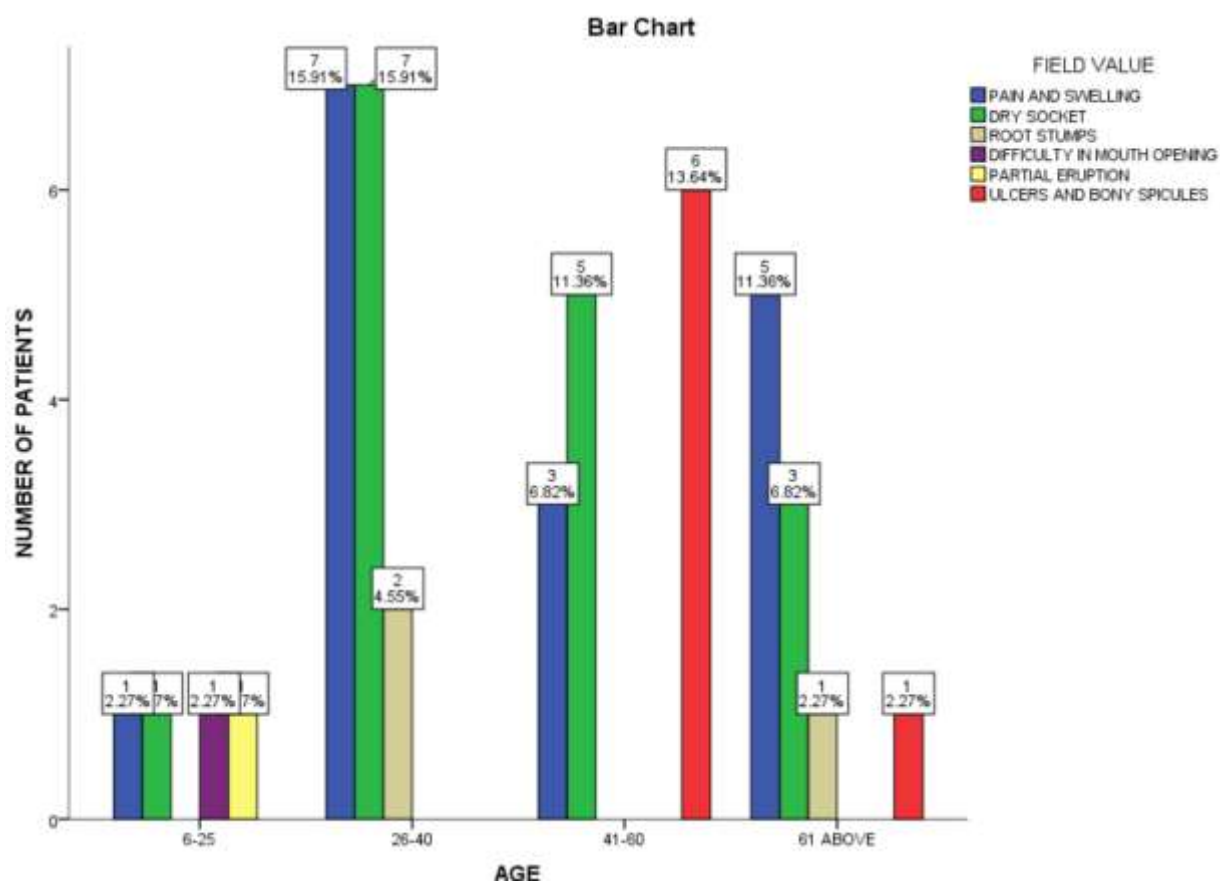


FIGURE 1- Bar graph depicting association between age and post extraction complication. X- axis denotes the age and Y-axis denotes the number of patients with post extraction complications. The blue colour denotes pain and swelling where in the age group of 6-25 there was 1 patient (2.27%), in 26-40 years of age there were 7 patients(15.9%) , in 41-60 years of age there were 3 patients (6.82%) and above 60 years there were 5 patients(11.36). Green denotes dry socket where in the age group of 6-25 there was 1 patient(2.27%), in 26-40 years of age there were 7 patients(15.9%) , in 41-60 years of age there were 5 patients(11.36%) and above 60 years there were 3 patients(6.82%). Light brown denotes root stumps, there was 1 patient of age group 6-25 years (2.27). Purple denotes difficulty in mouth opening, 2 patients were in the age group of 26-40 (4.55%) and 1 patient was above 60 year of age (2.27%). Yellow denotes partial eruptions,(It is seen in pedo patients with improper extractions of primary tooth). red denotes ulcers and bony spicules, 6 patients were in the age group of 41-60 years (13.64%) and 1 patient in the age group of above 60 years (2.27%). Chi-square test was performed and the association was found to be statistically significant. Pearson Chi square value;36.866a; df;18; P value = 0.005 which is statistically significant proving that 26-40 years individuals were more prone to post extraction complications commonly pain, swelling and dry socket.

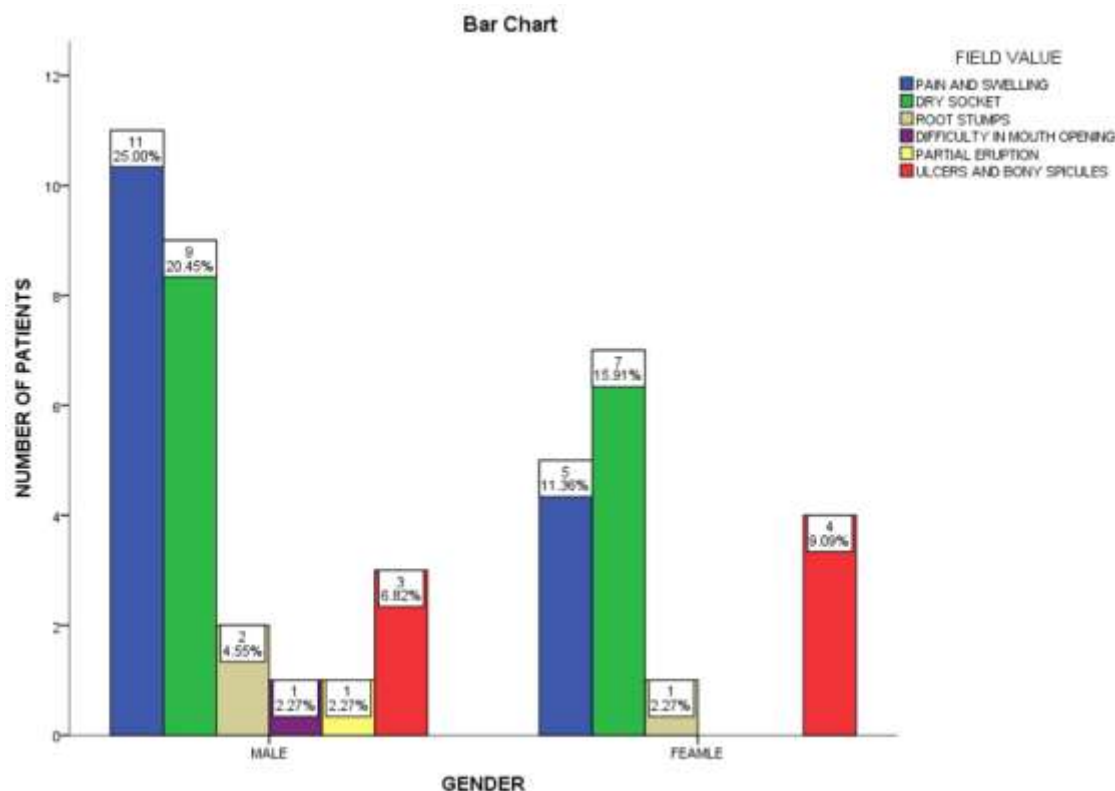


FIGURE 2 - Bar graph depicting association between gender and post extraction complications. X- axis denotes the gender and Y-axis denotes the number of patients with post extraction complication. The blue colour denotes pain and swelling, which includes 11 male patients (25.0%) and 5 female patients (11.36%). Green denotes dry socket, there were 9 male patient (20.45%) and 7 female patients (15.91%). Light brown denotes root stumps, where there was 1 male patient(2.27%). Purple denotes difficulty in mouth opening, there was 1 male patient(2.27%). Yellow denotes partial eruptions,(It is seen in pedo patients with improper extractions of primary tooth) there was 1 patient(2.27%). Red denotes ulcers and bony spicules, there were 3 male patients (6.82%) and 4 female patients (9.09%). Chi-square test was performed and the association was found to be statistically significant. Chi-square test was done and the association was not statistically significant. Pearson Chi square value;2.911a; df;6; P value = 0.820 >0.005 which is not statistically significant. Males were most affected with post extraction complications compared to females.

CONCLUSION

Within the study limits, pain, swelling and dry socket are the most commonly encountered post-extraction complications. Patients under the age of 25-40 years are more prone to post-extraction complications. Males are more affected than females. Further studies are needed for each type of post extraction complication independently. Therefore it is necessary to conduct study with a larger population for better understanding of associated risk factors and also for better treatment planning.

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AUTHOR CONTRIBUTION

The first author (Inchara.R) performed literature search, data collection, analysis , manuscript writing. The second author (Dr. Sivakumar. M) contributed study design , data verification and revised the manuscript. The third author (Dr. Subhashree.R) critically revised the manuscript.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

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