

Original Article

Assessment of complications in patients undergoing tooth extraction: An observational study

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ABSTRACT

Background: One of the common procedures being carried in dental clinic across the world these days is tooth extraction. Hence; we planned the present study to assess complications in patients undergoing tooth extraction. **Materials & methods:** The present study included assessment of various complications in patients undergoing tooth extractions. A total of 500 patients undergoing dental extraction procedures were included in the present study. Dental extractions were carried out under the local anesthesia. Patients were given adequate post-extraction instruction. Follow-up of all the patients was done and data was recorded. Presence of complications in these patients was assessed and were recorded in Microsoft excel sheet. **Results:** Pain & swelling, dry socket, post-extraction bleeding, post-extraction infection, tooth fracture, osteonecrosis, sinus perforation during tooth extraction and fractured cortical plates were the complications encountered in the present study among the patients undergoing dental extractions. **Conclusion:** Dental extraction procedure are frequently associated with complications, among which, occurrence of postoperative pain and swelling are the commonest. **Key words:** Complication, Dental Extraction, Post-extraction

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INTRODUCTION

One of the common procedures being carried in dental clinic across the world these days is tooth extraction.¹⁻³ Postextraction complications though rare may still occur and includes pain, swelling, infection, alveolar osteitis, and trauma to the adjacent teeth/tissues. Rarely is dental extraction associated with any systemic complications.^{4,5} In a dental setting, it becomes imperative to get a detailed case history of the patients undergoing extraction. Patients giving a history of previous recurrent facial edema may be considered to be at a higher risk of developing orofacial angioedema. The dictum that to prevent a complication from occurring is the best way to manage one remains time tested. Thus, it becomes imperative that the clinician is aware and recognizes the whole spectrum of complications and their implications.⁶ Hence; we planned the present study to assess complications in patients undergoing tooth extraction.

MATERIALS & METHODS

The present study was carried out in the department of oral surgery of the dental institute and it included assessment of various complications in patients undergoing tooth extractions. Ethical approval was obtained from the institutional ethical committee and written consent was obtained from all the patients before the starting of the study. Exclusion criteria for the present study included:

- Diabetic patients,
- Hypertensive patients,
- Patients with history of any known drug allergy,
- Patients with presence of any co-morbid condition

After meeting the exclusion criteria, a total of 500 patients undergoing dental extraction procedures were included in the present study. Detailed demographic and clinical details of all the patients were obtained. Complete medical history of all the patients was also obtained. Dental extractions were carried out under the local anesthesia. Patients were

given adequate post-extraction instruction. Follow-up of all the patients was done and data was recorded. Presence of complications in these patients was assessed and were recorded in Microsoft excel sheet. All the results were analyzed by SPSS software.

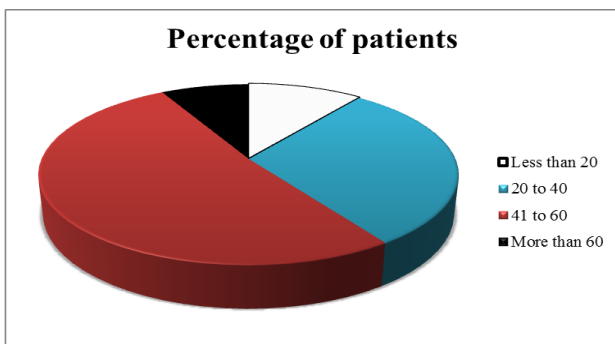
RESULTS

There were a total of 500 patients scheduled to undergo dental extractions, who were enrolled for the present study. Mean age of the patients of the present study was 45.8 years. Majority of the patients belonged to the age group of 41 to 60 years (258 patients). 150 patients belonged to the age group of 20 to 40 years. 40 patients were of more than 60 years of age. 289 patients in the present study were males while the remaining 211 patients were females. Pain & swelling, dry socket, post-extraction bleeding, post-extraction infection, tooth fracture, osteonecrosis, sinus perforation during tooth extraction and fractured cortical plates were the complications encountered in the present study among the patients undergoing dental extractions. Among these, pain and swelling were the most common complication, encountered in 16.4 percent of the patients. Dry socket was found to be present in 8 percent of the patients while post-extraction bleeding was found to be present in 6.4 percent of the patients. Tooth fracture, osteonecrosis and fractured cortical plates was found to be present in 3.6, 1.2 and 4.6 percent of the patients respectively.

Table 1: Demographic distribution of patients

Parameter		Number of subjects
Age group (years)	Less than 20	52
	20 to 40	150
	41 to 60	258
	More than 60	40
Gender	Male	289
	Female	211

Graph 1: Age-wise distribution of patients



Graph 2: Distribution of patients according to gender

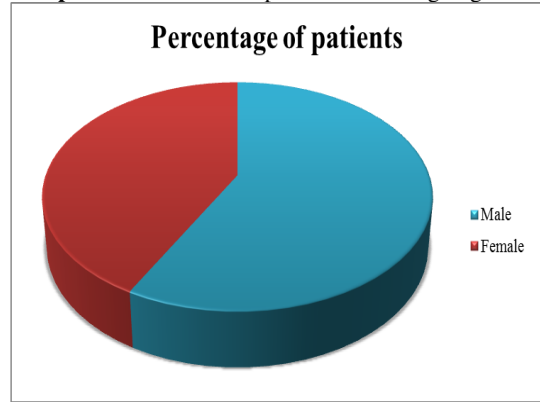
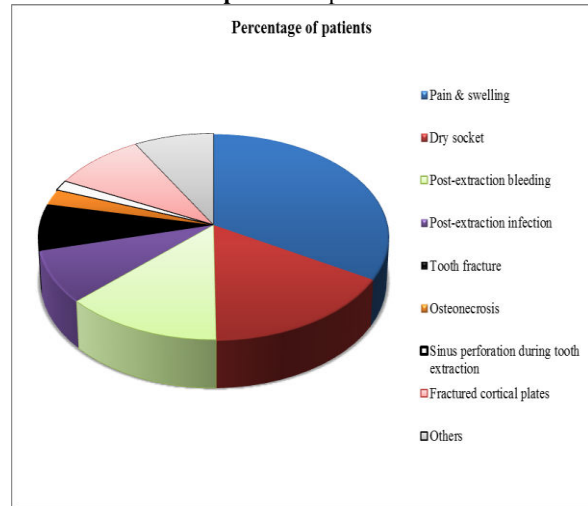


Table 2: Complications

Complication	Number of patients	Percentage of patients
Pain & swelling	82	16.4
Dry socket	40	8
Post-extraction bleeding	32	6.4
Post-extraction infection	20	4
Tooth fracture	18	3.6
Osteonecrosis	5	1.2
Sinus perforation during tooth extraction	4	0.8
Fractured cortical plates	23	4.6
Others	20	4

Graph 3: Complications



DISCUSSION

Dental extraction is one of the most commonly performed surgical procedures. Difficulties of extractions are multi-factorial. Depth and angle of impaction are obvious factors that should be assessed. Factors that are also important in the decision-making process are the age of the patient, general medical health, ethnicity, anatomy, mental status

(anxiety), and ability to cooperate.^{6, 7} Extraction difficulty increases when the following conditions exist: dense supporting bone, difficult root morphology, teeth with large restorations or decay, adjacent teeth with large restorations, and brittle teeth associated with endodontic treatment.⁸ Hence; we planned the present study to assess complications in patients undergoing tooth extraction. In the present study, there were a total of 500 patients scheduled to undergo dental extractions, who were enrolled for the present study. Mean age of the patients of the present study was 45.8 years. Majority of the patients belonged to the age group of 41 to 60 years (258 patients). 150 patients belonged to the age group of 20 to 40 years. 40 patients were of more than 60 years of age. 289 patients in the present study were males while the remaining 211 patients were females. Venkateshwar GP et al analyzed the incidence of various complications following routine exodontia performed using fixed protocols. A total of 22,330 extractions carried out in 14,975 patients, aged between 14 and 82 years, who reported to the Department of Oral and Maxillofacial Surgery, were evaluated for various complications. The most common complications encountered were tooth fracture, trismus, fracture of cortical plates and dry socket. Wound dehiscence, postoperative pain and hemorrhage were encountered less frequently. Luxation of adjacent teeth, fracture of maxillary tuberosity, and displacement of tooth into adjacent tissue spaces were rare complications. The practice of exodontia inevitably results in complications from time to time. It is imperative for the clinician to recognize impending complications and manage them accordingly.⁹

In the present study, pain & swelling, dry socket, post-extraction bleeding, post-extraction infection, tooth fracture, osteonecrosis, sinus perforation during tooth extraction and fractured cortical plates were the complications encountered in the present study among the patients undergoing dental extractions. Among these, pain and swelling were the most common complication, encountered in 16.4 percent of the patients. Dry socket was found to be present in 8 percent of the patients while post-extraction bleeding was found to be present in 6.4 percent of the patients. Tooth fracture, osteonecrosis and fractured cortical plates was found to be present in 3.6, 1.2 and 4.6 percent of the patients respectively. Nusair YM et al determined the prevalence, clinical picture, and risk factors of dry socket at the Dental Teaching Center of Jordan University of Science and Technology (DTC/JUST). Two specially designed questionnaires were completed over a four-month period. One questionnaire was completed for every patient who had one or more permanent teeth extracted in the Oral Surgery Clinic. The other questionnaire was completed for every patient who returned for a post-operative visit and was diagnosed with dry socket during the study period. There were 838 dental extractions carried out in 469 patients. The overall prevalence of dry socket was 4.8%. There was no statistically significant association between the development

of dry socket and age, sex, medical history, medications taken by the patient, indications for the extraction, extraction site, operator experience, or the amount of local anesthesia and administration technique used. The prevalence of dry socket following non-surgical extractions was 3.2%, while the prevalence following surgical extractions was 20.1% ($P < 0.002$). The prevalence of dry socket following surgical and non-surgical extractions was significantly higher in smokers (9.1%) than in non-smokers (3%) ($P = 0.001$), and a direct linear trend was observed between the amount of smoking and the prevalence of dry socket ($P = 0.034$). The prevalence of dry socket was significantly higher in the single extraction cases (7.3%) than in the multiple extraction cases (3.4%) ($P = 0.018$). The clinical picture and management of dry socket at DTC/JUST were similar to previous reports in the literature. The prevalence of dry socket, its clinical picture, and management at DTC/JUST are similar to those reported in the literature. Smoking and surgical trauma are associated with an increased incidence of dry socket.¹⁰

Tong DC et al determined the frequency and correlates associations of post-extraction complications at a dental school. Provider characteristics, patient demographic characteristics, patient medical history, teeth extracted and occurrence of postoperative complications. Of the 598 extractions (540 routine and 58 surgical) which were undertaken in the audit period, 74 (12.4%) resulted in post-operative complications. Dry socket and post-operative pain were the major complications. A higher complication rate was found among patients treated by fourth-year undergraduate students than among those treated by more senior students or staff. Post-operative complications were not significantly associated with patients' ethnicity or medical history. The rate of postoperative complications at the University of Otago's Faculty of Dentistry is consistent with reports in existing literature and inversely associated with operators' experience.¹¹

CONCLUSION

From the above results, the authors concluded that dental extraction procedure are frequently associated with complications, among which, occurrence of postoperative pain and swelling are the commonest. However; further studies are recommended.

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