

## Evaluation of Knowledge and Awareness of Interns and Final Year Undergraduate Dental Students Towards Complications and it's Management of Exodontia, A Survey in Gujarat, India

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### Abstract

**Introduction:** Extraction of teeth is the most performed procedure by dentist in the dental clinic. All dentists need to be aware of these complications that can happen during extraction of teeth. Having basic knowledge about post extraction complication can prevent the future untoward effects on the patients.

**Objective:** The aim of our study is to find out the information and knowledge that undergraduate dental students (final year and intern) possess regarding the complication during tooth extraction along with spreading awareness about management of complications.

**Materials and Methods:** The present cross sectional study was done among the final year students and interns of Gujarat conducted by private dental hospital, Gujarat. 400 students were selected randomly for this study. The study was done with the help of pretested and pre validated, self-designed questionnaire that include 15 close ended question of post extraction complications and its management. It was made by Google form and link was sent by e- mail to final year students and interns of Gujarat.

**Results:** This survey included 400 undergraduate dental students (final year and intern). Among these 327 dental students participated in this survey. 87.5% dental students reported that they have enough information about post-operative complication. 40.1% dental students didn't face any complication and 25.4% reported pain to be the most common post-operative complication, followed by prolonged bleeding (19.3%), swelling (8.6%), dry socket (6.7%). 97.9% dental students agreed for the usefulness of thorough medical history for treating complication. 87.2% dental students answered that packing the socket with a gauze under pressure will arrest bleeding after tooth extraction. 65.1% dental students preferred to give an antibiotic prophylaxis in case with infective endocarditis. Majority of students were aware about management of dry socket, hematoma and trismus.

**Keywords:** Exodontia; Haemorrhage; Complication; Dental; Bleeding; Surgery; Post-Operative

### Introduction

Exodontia is the most performed procedure by dentists and oral surgeons in dentistry [1,3,4]. Indications for tooth extraction are abscess, cyst, caries that can't be restored, third molar impaction, advanced periodontal diseases and extraction of tooth for orthodontic or prosthodontic treatment plan [1,3]. Complications of tooth extraction can be intraoperative complications (immediate) like fracture of tooth or root, alveolus, mandible, maxillary tuberosity, mucosal laceration, displacement of root or tooth in facial space, maxillary sinus, aspiration of root or tooth in to the phar-

ynx, nerve injury, TMJ dislocation, primary hemorrhage; or post-operative complications (delayed) like secondary and reactionary hemorrhage, severe pain, dry socket, postoperative swelling, trismus, infection, hematoma, oro-antral fistula; or late complications like nerve damage, chronic pain, chronic osteomyelitis, osteoradionecrosis [2,3]. Complications depend on multiple factors like local and systemic factors. Some risk factors like oral hygiene of the patient, some habits (tobacco smoking), some medications (oral contraceptives), medical history of the patient, age, gender, surgical site of extraction (chances of maxillary tuberosity fracture

and oroantral fistula because of proximity of the apices of maxillary molar to the maxillary sinus), extraction difficulty in complicated extraction cases, increases the risk of complications in exodontia. Also, the level of experience of operator, duration of the procedure are relevant risk factors for complications [1,3,5,6]. Among all complications common ones are dry socket (more frequent in mandibular third molar), fracture of tooth or root and prolonged bleeding [3,4,9]. Complications can be prevented by taking proper medical and dental history of the patient, giving proper post-operative instruction in understandable language by patient and accurate surgery planning [1,3,5-8]. in literature, it is not yet known whether using antibiotics before or after tooth extraction is effective to alveolitis [1]. The aim of our study is to survey the dental students and find out the information and knowledge that they possess regarding the complications encountered during tooth extraction along with spreading awareness about management of complications.

### Materials and Methods

This present study was cross sectional study which carried out among the final year students and interns of Gujarat conducted by private dental hospital, Gujarat. 400 students were selected randomly for this study. Inclusion criteria were final year students and interns of Gujarat. Dental students who were from outside of Gujarat and 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year dental students of Gujarat were excluded. A digital version of pretested and pre validated, self-designed questionnaire that include 15 questions of close ended of the cross-sectional study regarding complications after tooth extraction and its management was made by Google form and link was sent by e- mail to final year students and interns of Gujarat. Data was collected between June 2022 to August 2022 and cross-sectional study was done.

### Results

The E survey was done and its result is shown in pie charts below. The total number of responses is shown in the fig. below

In this study among 327 dental students, 40.1% responded to the question saying that they haven't faced any complication during their clinical work which is followed by 25.4% pain, 19.3% prolonged bleeding, 8.6% swelling and 6.7% dry socket (Figure 4) Almost 87.5% responded to the question correcting saying that they have enough information about complications in exodontias

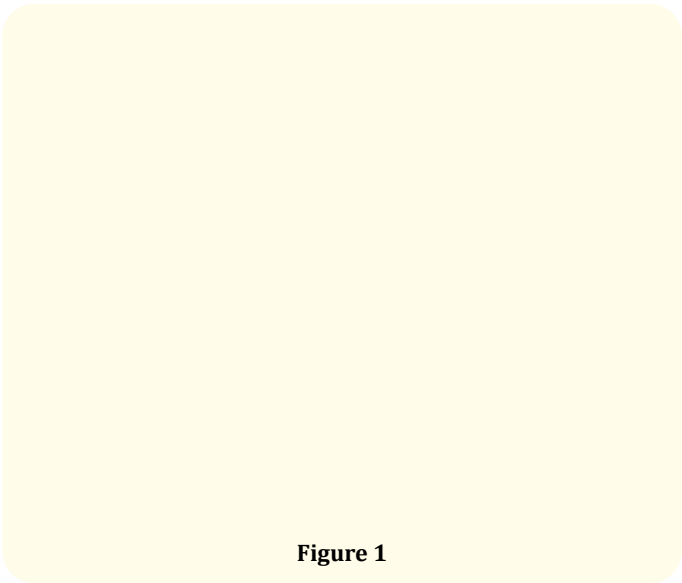


Figure 1

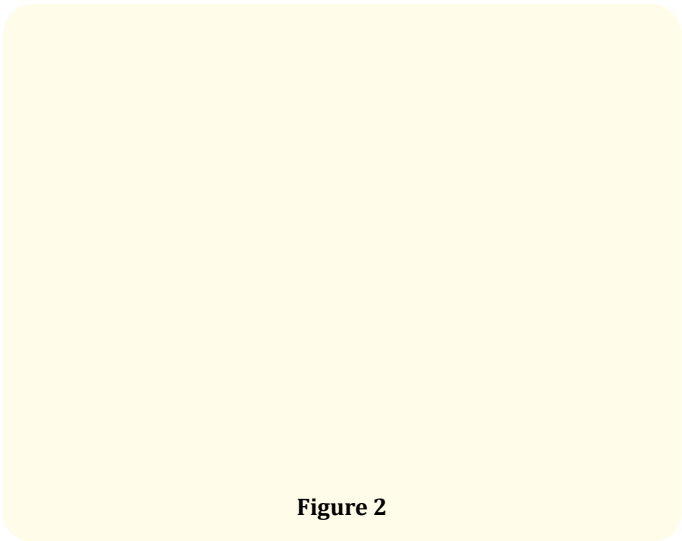


Figure 2

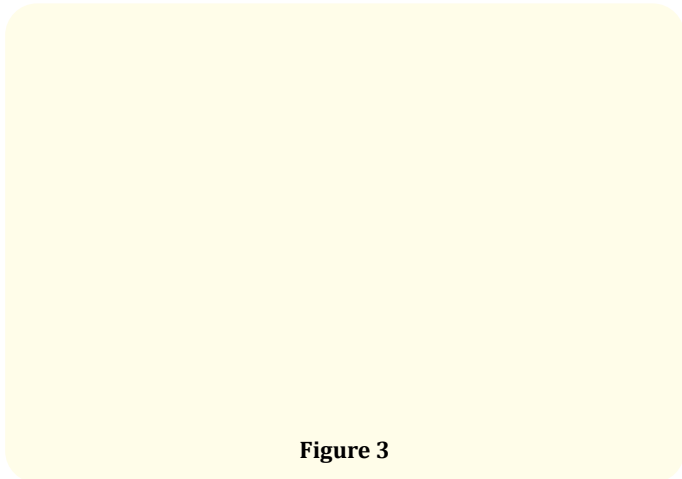


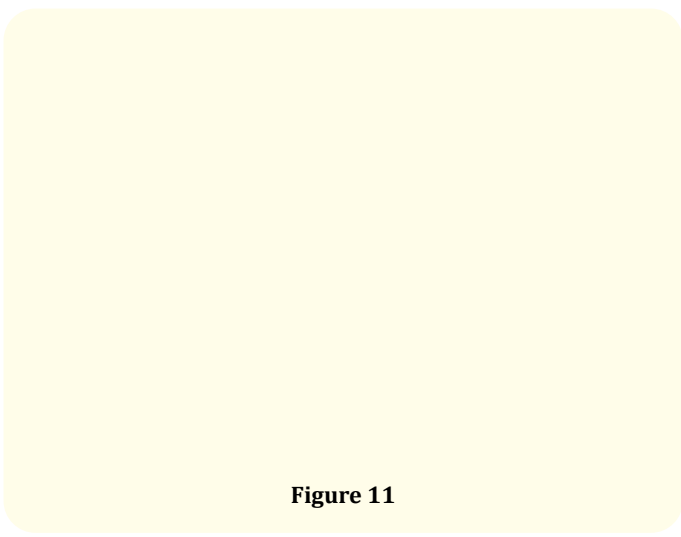
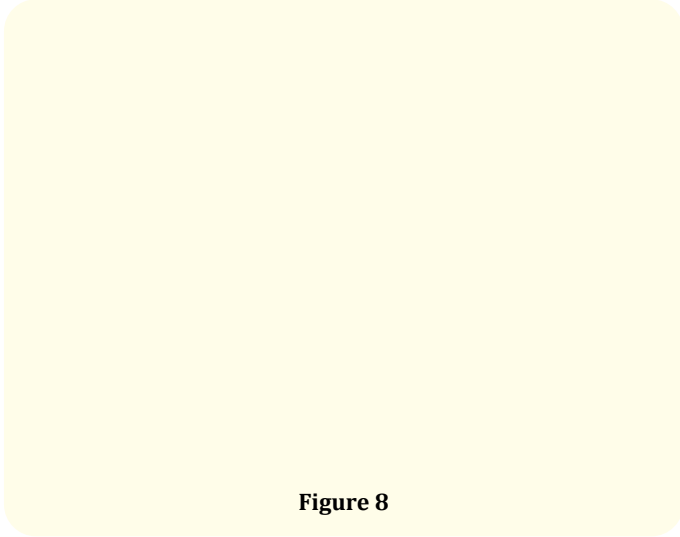
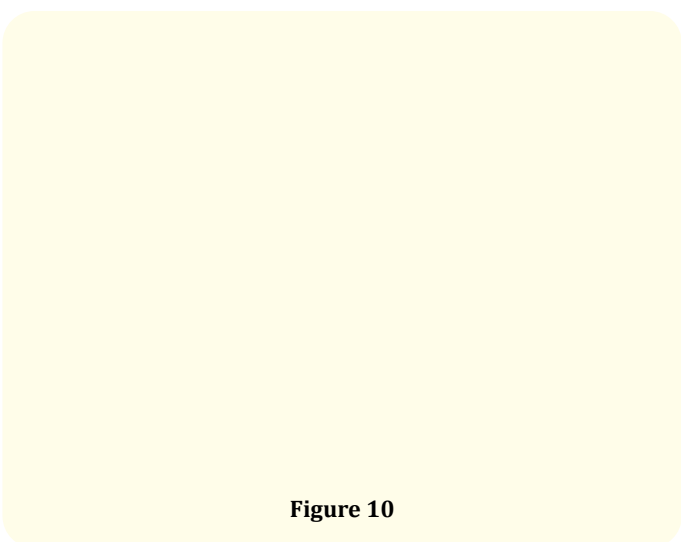
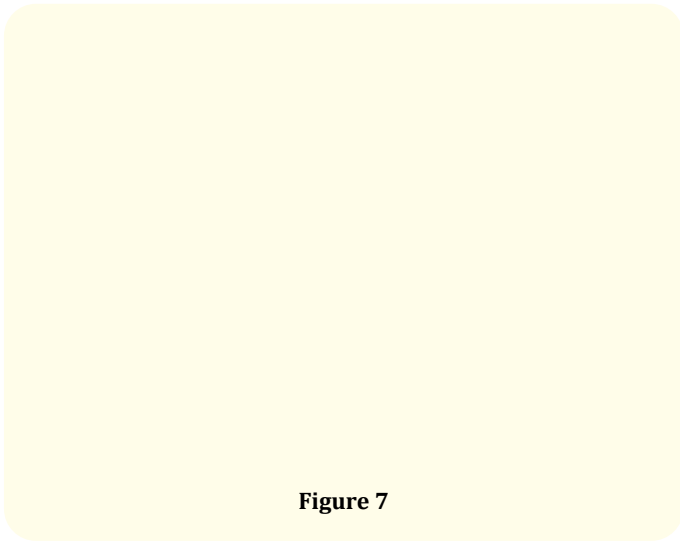
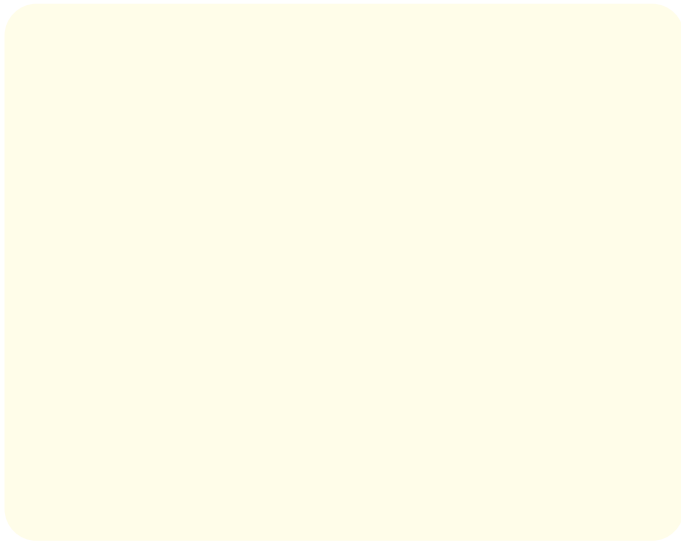
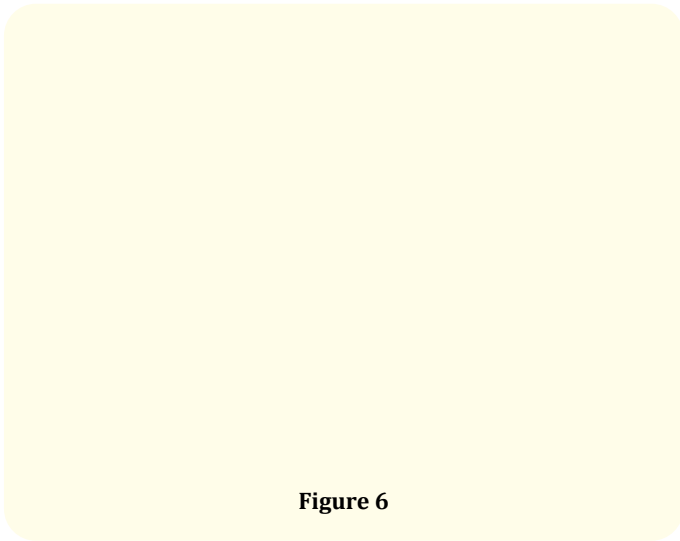
Figure 3

Figure 4

and the rest students (12.5%) replied no to this question (Figure 5) 60.2% saying that they send patients to oral surgeon and 39.8% handle a complication by themselves (Figure 6). 82.6% respondent given the correct answer as it is necessary to tell the patient about any complication that occur during extraction and rest 17.4% students given negative response to this question (Figure 7). Out of the 327 dental students, 97.9% respondent given the correct answer and 2.1% said no that having a medical history of patient is important to prevent complications in exodontias (Figure 8). 97.2% respondent given the correct answer as it is important to take preoperative x-ray to prevent surgical complications and rest 2.8% students given negative response to this question (Figure 9). 93.9% responded to the question correcting saying that there is an increase chance of complications in medically compromised patients and rest 6.1% students replied no to this question (Figure 10). When the students were questioned about the measures that they would prefer to arrest the primary bleeding from the socket, 87.2% respondents agreed with the option of packing a gauze in the socket, followed by those who agreed with application of gel foam formula, followed by those who would send the patients to an oral surgeon and a very little percentage of respondents went for suturing and crushing of the Bony channels (Figure 11). 51.4% of students manage a dry socket with irrigation and debridement of the socket by using warm saline, followed by 31.2% (medicated dressing of zinc oxide eugenol), 12.8% (send the patient to oral surgeon) and rest of them using other techniques for managing dry socket (Figure 12). Among 327 dental students, 50.8% of dental students send the patient to the oral surgeon followed by 29.4%

(removing it yourself by open method), 19.9% (letting it stay inside) for the question what will you do if 2 mm of the root apex is fractured during 3<sup>rd</sup> molar extraction (Figure 13), 83.5% of respondent given the correct answer as they haven't performed an extraction with a patient having a sinus tract in the intra oral buccal sulcus region relating to the grossly decayed mandibular second molar along with extra oral swelling and rest 16.5% students given negative replied to this question (Figure 14). When asked about when would it be necessary to give an antibiotic prophylaxis regime to a patient (prior to surgery), it was found that 59.6% respondents responded with a correct answer which is majorly for the case of infective endocarditis (Figure 15). When faced with the question about what can one do if a patient was unable to open their mouth after a lower third molar extraction (before 15 days), 75.9% responded with a correct answer saying it is necessary to prescribe muscle relaxants and isometric mouth opening exercises in a case of trismus, followed by those practitioners who believed it would be best to refer the patient to an oral surgeon and then a minority of the respondents wanted to wait and watch (Figure 16). Furthermore when questioned about the management of Hematoma, 59% of the respondents responded correctly to this question saying that it could be resolved by using ice pack and antibiotic therapy (Figure 17). Lastly when asked how it would be best to proceed with a person having an oroantral communication, 82% of dental students preferred to send the patients to oral surgeon followed by 10% who wanted to refer them to an ENT specialist, and a minor 8% wanted to go for the option of treating the patients by themselves (Figure 18).

Figure 5



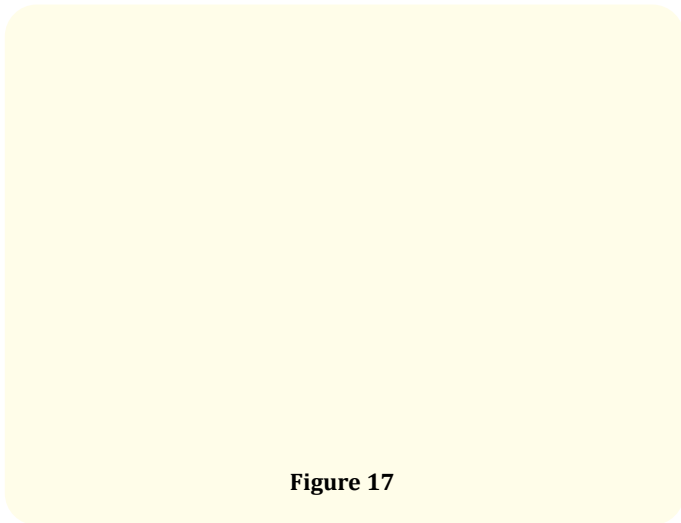
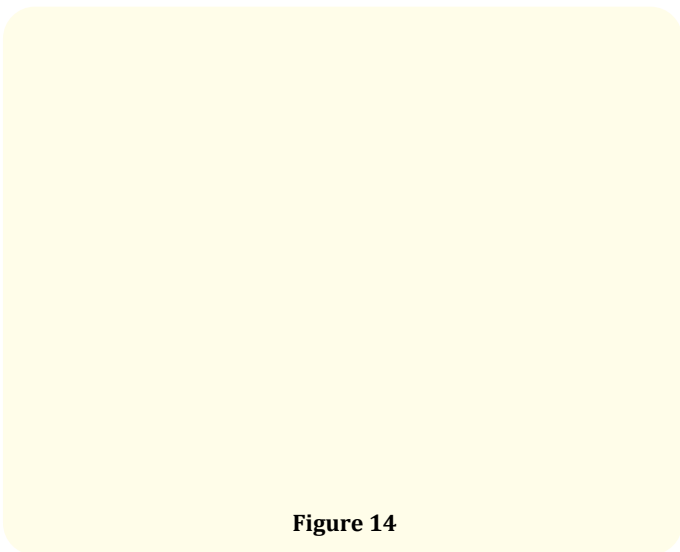
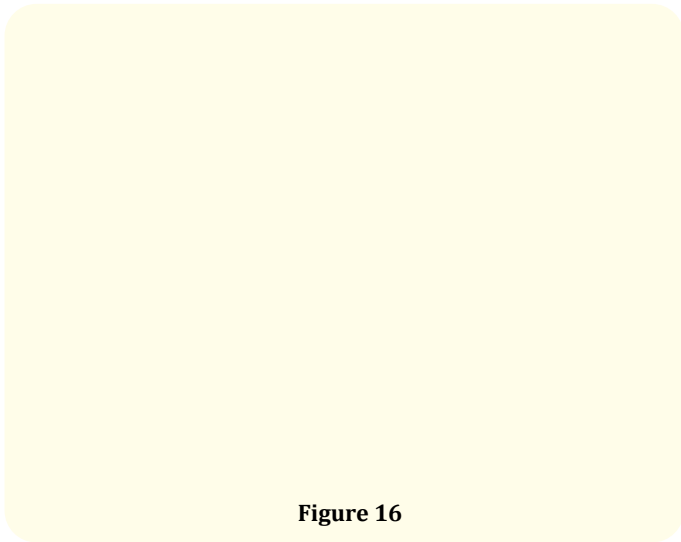
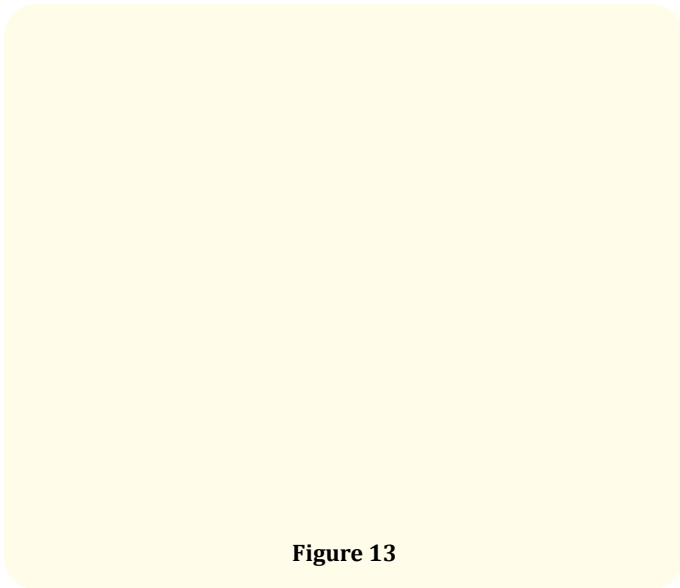
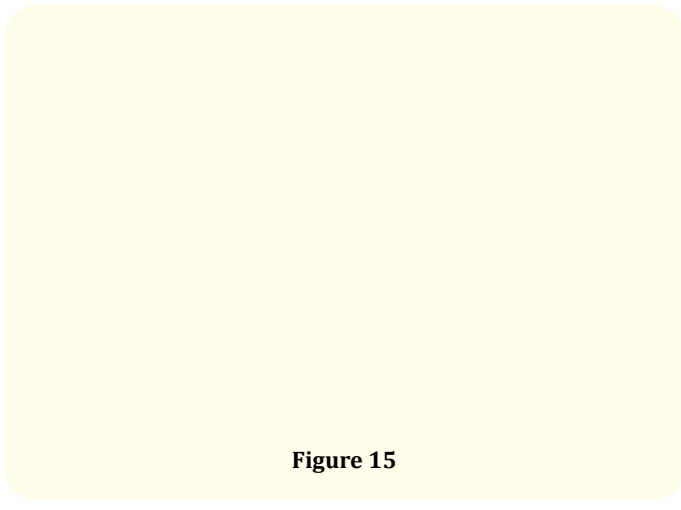
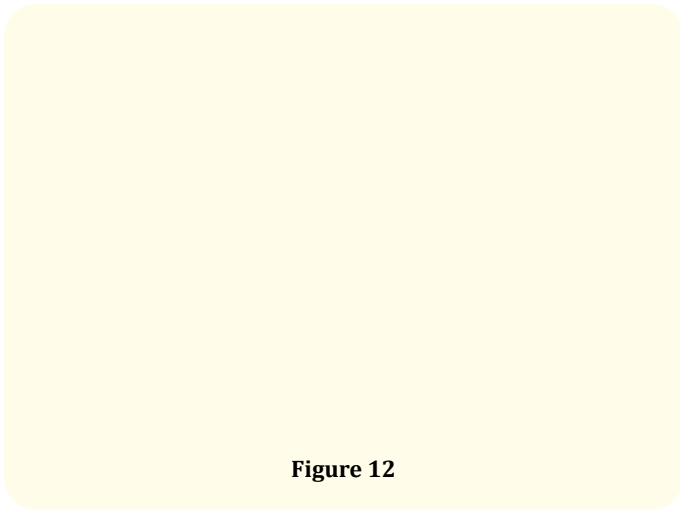


Figure 17

## Discussion

In this present study, we have tried to know the knowledge of interns and final year undergraduate dental students toward post extraction complications. Dental extractions are minor procedures and post extraction complications are unpredictable [10]. Evaluation of surgical site before extraction and obtaining dental history is one of the most important key factors for preventing post extraction complications [11]. However, being dental students, they don't know much about some rare complications and the methods to deal with it because they have not treated such patients during their career as a student. Therefore, with this idea We have tried to evaluate the knowledge of intern and final year undergraduate dental students regarding post extraction complications. In our study, we found that 87.5% of dental students had good knowledge of the post extraction complications and its management. We found that 97.9% agreed for the usefulness of thorough medical history for treating complications. A similar study by Santosh Kumar, *et al.* to evaluate the knowledge of dental students regarding post extraction complications found 78.3% agreed for the usefulness of thorough medical history for treating complications [12]. In our study, various post extraction complications observed were pain (25.4%), prolonged bleeding (19.3%), swelling (8.6%), dry socket (6.7%). Pain was the most common complication in our study. Taiseer hus-sain., *et al.* found 82% of patient experienced moderate pain after simple tooth extraction on evening of extraction day, and up to 16% of patients continued to experience of this post extraction pain after a week [13]. In our study, we found that 51.4% dental students managed a dry socket by using warm saline irrigation which is fol-

lowed by 31.2% used medicated dressing of zinc oxide eugenol. Dr. Denise C., *et al.* found 26% chose saline to rinse the socket and 56% chose a non resorbable obtundant dressing (Zinc oxide eugenol dressing) for dry socket management [14]. Another study was conducted for finding various methods to control post -operative haemorrhage after tooth extraction. According to the study the first choice used by dentist to control post-operative bleeding is by placing a gauze pack. (54.5%) [15] This result matches with our study. Previous study held in (Padova, Italy), a case control study was conducted to further assess the incidence of bleeding complications after dental extractions in patients. Local hemostatic measures (i.e., gelatin sponge, sutures and gauze saturated with tranexamic acid) were used. All the procedure were performed in an outpatient setting [16]. Nidhi G., *et al.* mentioned that application of ice immediately after developing hematoma helps in minimizing the size by vasoconstriction. Ice pack 30 minutes per hour for the first 24 hours after surgery following which intermittent hot moist pack can be used resolve the hematoma [17]. Infective endocarditis is an uncommon but life-threatening condition. Antibiotic prophylaxis not only acts by destroying bacteria, but also by inhibiting bacterial adherence. It is indicated in high risk dental procedures in patient with preexisting high rate cardiac disorder [18]. In our study, 65% dental students know about antibiotic prophylaxis. Previous survey held in (Karachi), study was conducted to evaluate the level of awareness, diagnostic approach and management offered to the patients having trismus. In this study, about 24.3% dentist prescribed muscle relaxants as a symptomatic treatment of trismus. 50.7% of oral health professionals advised physiological mouth opening exercises along with oral hygiene instructions [19]. This result matches with our study. questions were also included regarding management of oro-antral communication and removal of fractured apex of the root (it seems only 2 mm) during 3<sup>rd</sup> molar extraction answered correctly that such cases much be referred to an oral surgeon.

## Conclusion

The survey has led us to a provisional finding regarding the knowledge, attitude, and practice of undergraduate dental students regarding the complexities that one could face while performing a basic dental procedure-extraction. Bleeding, hematoma, pain, fracture, infection is one of the frequently encountered situations in everyday clinical practice that although not significant but is always a worrying sign for the patient, given the high frequency of the dental extractions. The absence of appropriate knowledge

could be deemed to be a result of lack of engagement in similar cases, improper exposure, and guidance along with indifferent personal interest to acquire further information for the ramifications of the state of affairs. The obvious take away is that students need to have adequate caseloads to transform their theoretical knowledge into practical expertise (Appendix).

### Appendix

The following questionnaire was used for Evaluation of knowledge of intern and final year students toward tooth extraction complications and its management: A Survey in Gujarat, India

**(1) Which Complications have you face during your clinical work?**

- a. Dry Socket
- b. Prolonged bleeding
- c. Pain
- d. Swelling

**(2) Do you have enough information about complications in exodontia?**

- a. Yes
- b. No

**(3) Do you personally handle complications or send the pt. to oral surgeon?**

- a. Handle a complication by yourself
- b. Send patient to oral surgeon

**(4) If any complications occur, it is always necessary to tell the patient?**

- a. Yes
- b. No

**(5) It is important to know the patient's medical history to prevent complications in exodontia?**

- a. Yes
- b. No

**(6) It is important to take preoperative x ray to prevent surgical complications?**

- a. Yes
- b. No

**(7) Do you believe that there is an increase chance of complications in medically compromised patients?**

- a. Yes
- b. No

**(8) What would you follow to arrest the bleeding from a bony socket?**

- a. Application of gelfoam
- b. Send the patient to oral surgeon
- c. Packing the socket with a gauze under pressure
- d. Crushing the bony channels

**(9) How will you manage a dry socket?**

- a. Medicated dressing of zinc oxide eugenol
- b. Irrigation and debridement of the socket by using warm saline
- c. Send the patient to oral surgeon

**(10) You have performed an extraction of a third molar and you notice that you have accidentally fractured the apex of the root and it seems only 2 mm of the root had been retained in the socket you would proceed with ?**

- a. Letting it stay inside
- b. Removing it yourself by open method
- c. Send the patient to oral surgeon

**(11) Would you perform an extraction with a patient having a sinus tract in the buccal region relating to the grossly decayed mandibular second molar along with extra oral swelling?**

- a. Yes
- b. No

**(12) When would you prefer giving an antibiotic prophylaxis (prior to extraction)?**

- a. In every patient of extraction
- b. Case with infective endocarditis
- c. Not in any patient

**(13) A patient comes to your clinic with a complain of inability to open his mouth and you have performed an extraction of mandibular third molar before 15 days on him, how would you proceed?**

- a. You keep him on wait and watch
- b. Prescribe muscle relaxant and isometric mouth opening exercise
- c. Send patient to oral surgeon

**(14) How will you manage a hematoma?**

- a. Ice pack and antibiotic therapy
- b. You keep him on wait and watch
- c. send patient to oral surgeon

**(15) How would you proceed with a patient having a oroantral communication, visiting your clinic?**

- a. Treat him yourself
- b. Refer to an oral surgeon
- c. Call for an ENT specialist

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