Journal of Applied Dental and Medical Sciences
NLM ID: 101671413 ISSN:2454-2288
Volume 4 Issue2 April-June 2018

Original Article

Awareness And Knowledge Of Tooth Extraction Complications Management Among Riyadh Elm University Dental Interns

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ARTICLE INFO

Keywords:
Knowledge, Extraction, Complications, Dry socket, Interns

ABSTRACT

Aim : To assess dental interns awareness and knowledge of post-extraction complications which will enable the evaluation of their general knowledge and skills in managing the complication. **Methods**: A cross-sectional survey was conducted using a closed-ended questionnaire among a sample size of 160 dental interns (80 males and 80 females). The data was collected and were analyzed using SPSS. **Results:** Approximately half of the participants (48.8% n=78) did not face any post-extraction complication in their practice and one third (32.5%, n=52) reported dry socket as the most common complication they faced. The correct answer was selected by the majority of dental interns in 13 out of 15 questions. 58.3% is the average percentage of correct answer selected by dental interns. 63.6% is the average percentage of correct answer selected by female dental interns. 51.6% is the average percentage of correct answer selected by male dental interns. **Conclusion:** The level of knowledge about the subject was acceptable. However, there is a need for improvement to accomplish a good knowledge of post-extraction complication management.

INTRODUCTION

Tooth extraction is a common procedure performed in the dental office. Awareness of the proper management of post-extraction complications can prevent the occurrence of unwanted sequelae following the extraction. Hence, this issue is considered very important as it can significantly impact the quality of the treatment. Most risk factors for the development of complications following extractions are patient-related and include age, sex, medical status, medications, habits (such as smoking), history of past complications, and the nature of the extraction itself - whether traumatic or atraumatic.1 Moreover, operator-related risk characteristics such as level of experience and the duration of the procedure are considered relevant.2 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.3

Since most general practitioners perform extractions under local anesthesia with the patient, the influence of these factors are greatly magnified. Therefore, it is important for practitioners to be aware of them when consulting patients for surgical extractions in order to know when to refer and when to attempt the extractions themselves. If the clinician is to perform difficult surgical extractions, it is prudent for them to be ready to deal with the potential complications

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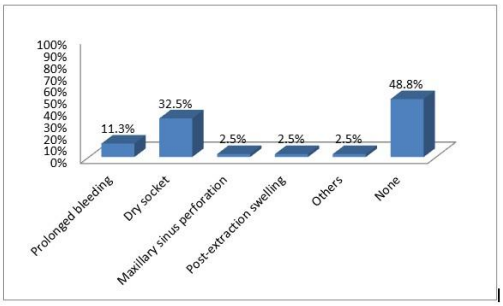

Figure 1. Post-extraction complication faced in the practice

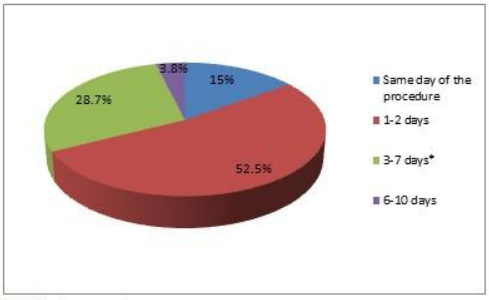

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Figure 2. Knowledge of post-operative pain

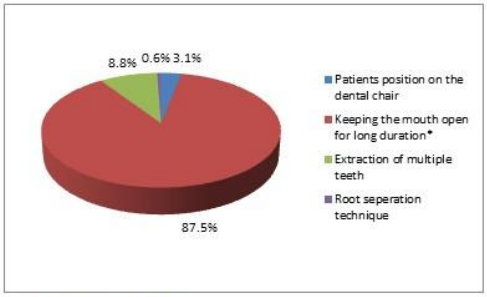

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Figure 3. Knowledge of post-operative TMJ pain

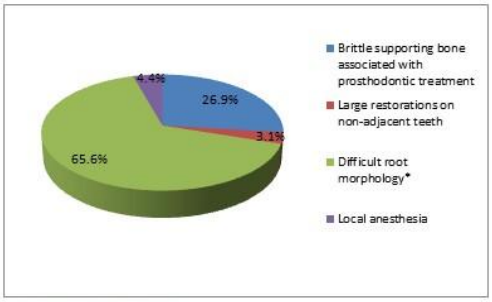

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Figure 4. Reasons that increase the difficulty of extraction

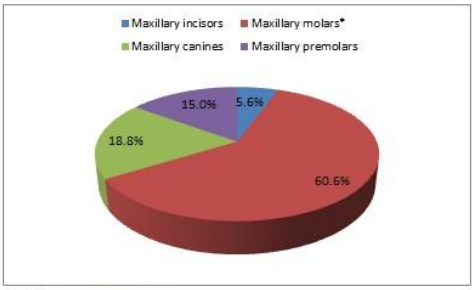
associated with this procedure. The most common complications are: dry socket (alveolar osteitis), prolonged bleeding, post-extraction swelling, and maxillary sinus perforation. Alveolar osteitis is a known complication but the exact pathogenesis is not well understood and most concepts are still subject to significant controversy.4 Another most common complication of all surgeries is postoperative bleeding.5 The aim of this study was to assess Riyadh Elm University (REU) dental interns' awareness and knowledge of post-extraction complications.

METHODS

This cross-sectional study was conducted during the academic year in November 2017 in REU, Riyadh, Kingdom of Saudi Arabia. The study protocol was approved by the Institutional Review Board of REU (Approval number RC/2016/432). A sample of 160 dental interns (80 males and 80 females) were randomly selected from the dental interns of REU. A close-ended questionnaire was constructed and distributed to the selected sample. The data were collected and analyzed using SPSS. A p value of $\leqslant$ 0.05 was considered as statistically significant.

RESULTS

Approximately half of the participants (48.8%, n=78) did not face any post-extraction complication in their practice and one third (32.5%, n=52) reported dry socket as the most common complication they faced (Figure 1). Just over half (51.9%, n=83) the participants reported chemical and physical objects as the cause of dry socket. The majority (92.5%, n=148) reported that to prevent dry socket patients should be instructed to follow the instruction given by their dentist. Just over three quarters (76.9%, n=123) reported that to treat dry socket it is needed to prescribe analgesics, irrigate, and place a dressing. The



** indicates correct answer*

Figure 5. Potential source of maxillary sinus complication during extraction

Table 1. Knowledge of dry socket

		Frequency	Percent
In your opinion, what can cause dry socket?	*Gingivitis*	13	8.1
	*Chemical and physical objects**	83	51.9
	High caries rate	4	2.5
	Hot drinks and food	60	37.5
To prevent dry socket, we should instruct the patient to,	*Visit the clinic daily*	5	3.1
	*Follow the instruction given by your dentist**	148	92.5
	Brush the area 3 times a day	3	1.9
	Use mouthwash	4	2.5
How can we treat dry socket?	*Prescribe analgesics, irrigate, and place a dressing in the socket**	123	76.9
	Surgical intervention and curettage of the socket	27	16.9
	Use anesthesia and remind the patient to follow instructions	4	2.5
	Do nothing, it will heal with time	6	3.8
Which of the following is true about dry socket?	*Fibrinolysis is the proven cause of dry socket*	24	15.0
	It occurs in 8% of all extractions	21	13.1
	*It is delayed wound healing after dental extraction**	95	59.4
	It is easily treated	20	12.5

** indicates correct answer*

majority (59.4%, n=95) reported dry socket is delayed wound healing after dental extraction (Table 1). Only 28.7% (n=46) reported that post-extraction pain normally last for 3-7 days (Figure 2). The majority (87.5%, n=140) reported the TMJ pain post-extraction is due to keeping the mouth open for a long duration (Figure 3).

Table 2 shows the knowledge about post-extraction bleeding. Only 41.3% (n=66) reported that they can decide whether the hemorrhage after dental extraction is abnormal or not after 24-48 hours, 20.6% (n=33) reported post-operative bleeding from extraction normally lasts for 10-12 minutes, and 45.6% (n=73) reported that it is advisable to instruct the patient to sit

Table 2. Knowledge of post-extraction bleeding

		Frequency	Percent
We can decide whether the hemorrhage after dental extraction is abnormal or not after	*1-6 hours*	29	19.8
	7-12 hours	15	9.4
	13-24 hours	50	31.3
	*24-48 hours**	66	41.3
Post-operative bleeding from extraction normally lasts for,	*4-6 minutes*	20	12.5
	7-9 minutes	17	10.6
	*10-12 minutes**	33	20.6
	> 12 minutes	90	56.3
In managing the prolonged bleeding, it is advisable to instruct the patient to sit in which position?	*Supine*	29	18.1
	Almost supine	16	10.0
	Reclined 45 degrees	42	26.3
	*Upright**	73	45.6
If arterial bleeding source is identified, which of the following is recommended as an initial treatment?	*Applying firm pressure to the bleeding area**	86	53.8
	Instructing the patient to bite down on a gauze dressing	35	21.9
	Electro-cautery	27	16.9
	Injecting epinephrine containing anesthesia into the site	12	7.5

** indicates correct answer*

Table 3. Knowledge of post-extraction swelling

		Frequency	Percent
Post-operative surgical swelling can be expected to increase throughout post-operative days.	*3-4 days**	121	75.6
	5-6 days	28	17.5
	7-8 days	10	6.3
	9-10 days	1	0.6
Which of the following is true of post-operative soft tissue swelling?	*It can be a normal part of the healing process**	84	52.5
	It is usually indicative of infection requiring antibiotics	56	35.0
	It is generally considered a cause for serious concern	10	6.3
	It is almost always caused by patient health factors	10	6.3
When treating non-surgical post-operative swelling, immediate referral to be emergency room is required under which of these conditions?	*The patient experiences shortness of breath**	82	51.2
	The presence of multiple gram +ve cocci is confirmed	17	10.6
	Drainage of the infective material is requires	51	31.9
	Gram –ve bacilli are causing chronic infection	10	6.3

** indicates correct answer*

in upright position in managing the prolonged bleeding. Just over half the participants (53.8%, n=86) reported that it is recommended to apply firm pressure to the bleeding area as an initial treatment if an arterial bleeding source is identified.

Approximately three quarter (75.6%, n=126) of the participants reported that post-operative surgical swelling can be expected to increase 3-4 days throughout post-operative days. Just over half the participants reported that post-operative soft tissue

Table 4. Association of knowledge of post-extraction complications by gender

	Correct answer Frequency (Percent)		p value
	Male	Female	
Q1	35 (43.8)	48 (60.0)	0.057
Q2	68 (85.0)	80 (100.0)	0.000*
Q3	61 (76.3)	62 (77.5)	1.000
Q4	44 (55.0)	51 (63.7)	0.334
Q5	22 (27.5)	24 (30.0)	0.861
Q6	64 (80.0)	76 (95.0)	0.007*
Q7	31 (38.8)	35 (43.8)	0.630
Q8	16 (20.0)	17 (21.3)	1.000
Q9	30 (37.5)	43 (53.8)	0.056
Q10	38 (47.5)	48 (60.0)	0.153
Q11	52 (65.0)	69 (86.3)	0.003*
Q12	33 (41.3)	51 (63.7)	0.007*
Q13	33 (41.3)	49 (61.3)	0.017*
Q14	47 (58.8)	58 (72.5)	0.096
Q15	45 (56.3)	52 (65.0)	0.332

** indicates statistical significance*

swelling can be a normal part of the healing process (52.5%, n=84) and when treating non-surgical post-operative swelling, immediate referral to be emergency room is required the patient experiences shortness of breath (51.2%, n=82) (Table 3). Only 26.9% (n=43) reported brittle supporting bone associated with prosthodontics treatment is likely to increase the difficulty of extraction (Figure 4). The majority (0.6%, n=97) reported that maxillary sinus is a potential source of complication during the extraction of maxillary molars (Figure 5).

Males are more likely to have faced dry socket as a post-extraction complication in their practice and females are more likely to have faced no post-extraction complication in their practice ($p<0.05$). Females are more likely to have a better knowledge than males of post-extraction complications and management. There was a statistically significant association between gender and the following knowledge question 'To prevent dry socket, we should instruct the patient', 'Which of the following can cause TMJ pain after tooth extraction', 'Post-operative surgical swelling can be expected to increase throughout post-operative days', 'Which of the following is true of post-operative soft tissue swelling', and 'When treating non-surgical post-operative swelling, immediate referral to be emergency room is required under which of these conditions?' ($p<0.05$) (Table 4).

DISCUSSION

There is always a chance of complications occurring during or after extractions. Dentists should be prepared to encounter these complications and should have a thorough knowledge in managing them. Having a thorough medical history prior to the extraction will help them to better deal with any complications that may arise.6-7 The present study evaluated the knowledge of dental interns regarding post-extraction complications and their management. One of the most common complications occurring after extraction is dry socket. It was the most common complication the REU dental interns faced (32.5%) and their level of knowledge about dry socket and its management was satisfactory (70.1%). This finding was similar to a previous study which reported 77.5% had adequate knowledge of management of dry socket.8

Prolonged bleeding is also a common complication following tooth extraction. It was the second most common complication faced by REU interns (11.3%). However, their level of knowledge was low (40.3%). The socket should be inspected for the presence of any specific bleeding once the tooth is extracted. If there is a blood vessel tear adequate pressure over the extraction socket can help in achieving hemostasis.9 There was a significant difference between both genders' on the knowledge of post-extraction complication and management with female dental interns having better knowledge on the subject.

CONCLUSION

The level of knowledge about the subject is acceptable, there is a need for improvement to

accomplish a good knowledge of post-extraction complication management. They should update their knowledge regarding some rare complications that may occur following extractions. Continuing dental education must include some rare complications that can occur during dental surgical procedures.

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