

## ORIGINAL RESEARCH

### Risk factors of dry socket after tooth extraction

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#### ABSTRACT

**Background:** Dry socket lesions occur in about 1%-5% of all extractions and in up to 38% of mandibular third molar extractions. The present study assessed risk factors of dry socket after tooth extraction.

**Materials & Methods:** 190 patients who underwent extraction of both genders were included. Smoking status, systemic diseases, use of oral contraceptives, antibiotic consumption before extraction, number of carpules used for anesthesia etc. recorded. The incidence of dry socket was recorded.

**Results:** Out of 190 patients, males were 85 and females were 105. Common risk factors were <2 carpules seen in 8 and >2 carpules in 4, use of pre-anaesthetic antibiotic consumption in 2, use of field block in 7 and regional block in 5 patients with dry sockets. The smoking was seen in 10, diabetes seen in 11 and systemic diseases in 6 patients of dry sockets. The difference was significant ( $P < 0.05$ ). Out of 190 teeth, 12 (6.3%) had dry sockets.

**Conclusion:** Common risk factors for dry sockets was use of less than 2 carpules, non-use of pre-anaesthetic antibiotic consumption, field block anaesthetic technique, smoking, systemic disease and diabetes.

**Key words:** Dry sockets, diabetes, smoking

#### INTRODUCTION

Dry socket lesions occur in about 1%-5% of all extractions and in up to 38% of mandibular third molar extractions. Its incidence can reach over 30% for impacted mandibular third molars.<sup>1</sup> Difficult or traumatic extractions, female gender, tobacco use, site of extraction, oral contraceptives and preexisting infection are among few contributory factors favoring dry socket.<sup>2</sup>

A dry socket lesion may show exposed bone located superior to the projected location of the occlusal surface of the socket after the socket heals.<sup>3</sup> This bone may be a protruding septum of bone or may be located on the socket occlusal perimeter.<sup>4</sup> This superiorly-located exposed

bone would be the last aspect of the socket to be covered by epithelium, since the bone, protruding superiorly to the projected occlusal surface of the healed socket, would be exposed to food particles or mechanical trauma that may erode epithelium growing over that bone.<sup>5</sup> This bone, if mechanically stimulated, would be a source of acute pain until the end of the healing period. A dentist may anesthetize the patient and use a football diamond bur with copious irrigation to trim this bone to approximately 1 mm inferior to the projected occlusal surface of the healed extraction socket.<sup>6</sup>

Several factors such as traumatic, difficult and prolonged extraction, pre- and postoperative infection at the site, smoking, oral contraceptives, bone disorders and underlying pathologies, irradiation, systemic illness such as diabetes mellitus, clotting problems, and failure to comply with post-extraction instructions are causative factors for dry socket. Other possible risk factors include periodontal diseases and previous dry socket with past extractions.<sup>7</sup> The present study assessed risk factors of dry socket after tooth extraction.

## MATERIALS & METHODS

The present study comprised of 190 patients who underwent extraction of mandibular third molar of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender, etc. was recorded. Parameter such as smoking status, systemic diseases, oral contraceptives, antibiotic consumption before extraction, number of carpules used for anesthesia, anesthesia technique were recorded. The incidence of dry socket was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

Total- 190		
Gender	Males	Females
Number	85	105

Table I shows that out of 190 patients, males were 85 and females were 105.

**Table II Incidence of dry socket**

Total	Dry socket	Percentage
190	12	6.3%

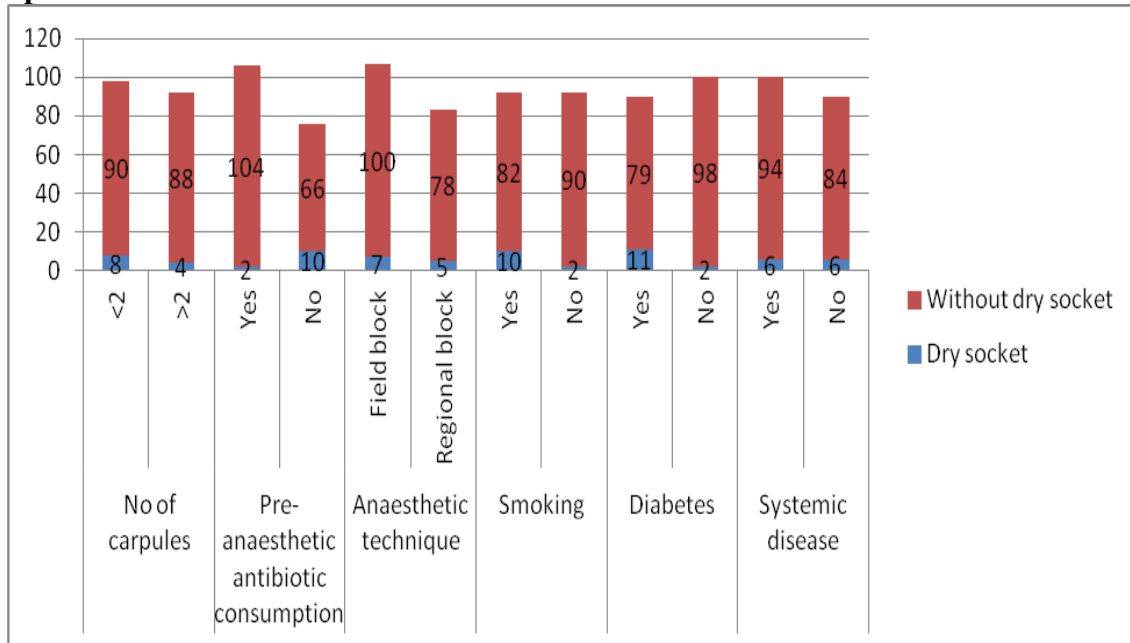
Table II shows that out of 190 teeth, 12 (6.3%) had dry sockets.

**Table III Assessment of risk factors**

Parameters	Risk factors	Dry socket	Without dry socket	P value
No of carpules	<2	8	90	0.81
	>2	4	88	
Pre-anaesthetic antibiotic consumption	Yes	2	104	0.02
	No	10	66	
Anaesthetic technique	Field block	7	100	0.01
	Regional block	5	78	
Smoking	Yes	10	82	0.04
	No	2	90	
Diabetes	Yes	11	79	0.05
	No	2	98	
Systemic disease	Yes	6	94	0.03
	No	6	84	

Table III, graph I shows that common risk factors were <2 carpules seen in 8 and >2 carpules in 4, use of pre-anaesthetic antibiotic consumption in 2, use of field block in 7 and regional block in 5 patients with dry sockets. The smoking was seen in 10, diabetes seen in 11 and systemic diseases in 6 patients of dry sockets. The difference was significant ( $P < 0.05$ ).

**Graph I Assessment of risk factors**



## DISCUSSION

Dry socket refers to a post-extraction socket where some or all of the bone within the socket, or around the occlusal perimeter of the socket, is exposed in the days following the extraction, due to the bone not having been covered by an initial and persistent blood clot or not having been covered by a layer of vital, persistent, healing epithelium.<sup>8</sup> The patient may not be able to prevent food particles or the tongue from mechanically stimulating the exposed bone, which is acutely painful to touch, resulting in frequent acute pain.<sup>9</sup> All parts of a dry socket lesion, except the exposed bone, can be gently touched with a periodontal probe or an irrigation needle tip without causing acute pain.<sup>10</sup> The present study assessed risk factors of dry socket after tooth extraction.

We found that out of 190 patients, males were 85 and females were 105. Khander et al<sup>11</sup> in their study five hundred and thirty six (536) impacted third molars were surgically removed among 435 patients. Each patient was examined clinically and radiographically before surgery. 108 impacted teeth were removed for prophylactic and 428 for therapeutic reasons. A standard operating procedure was performed for each case and pre-operative and post-operative regimens were employed. After surgery each case was followed to determine the absence or presence of signs and symptoms of dry socket. It was found that total incidence of alveolar osteitis (dry socket) was 10.26%.

We observed that out of 190 teeth, 12 (6.3%) had dry sockets. Murthy et al<sup>12</sup> assessed the demographic details, mode of extraction, and prevalence of dry socket in patients with mandibular third molar extraction. Total 691 patients who had undergone mandibular third molar extraction were included in this study. Out of 691 patients, 53.91% were males and 46.09% were females. The higher prevalence of age groups of 26–35 (36.06%) was noted. Total 94.5% of the patients were diabetic and 5.5% were nondiabetic. The most number of treatments done is through surgical extraction of impacted teeth (surgical exposure of flap and tooth) (48.48%), followed by extraction (forceps extraction) (42.55%) and transalveolar

extraction (removing section of tooth, open sectioning) (8.97%). The prevalence of dry socket was 4.05% and 95.95% of the patients did not experience dry socket. There was higher prevalence of dry socket in nondiabetic patients (3.62%) than diabetic patients (0.43%). Cattelani<sup>13</sup> found the proportion of female: male 5:1. However, some other studies revealed that gender is not an effective factor in incidence of DS. Oral contraceptives increase the circulatory concentration of estrogen and estrogen enhances fibrinolytic activity of human body. Singh et al<sup>14</sup> found that total patients with DS were 42/1040 and the prevalence was 4%. Higher incidence was reported in age group 18-30 years and 31- 50 years. DS was seen in males (26) and females (16). The prevalence in males 4.5% was and in females was 3.4%. 166 patients were medically fit. DS was seen in 6 patients and 160 were without DS. 874 patients were having systemic diseases. 838 were without DS while DS was seen in 36 patients. The difference was non significant ( $P>0.05$ ). Smokers were 274 out of which 20 had DS. Nonsmokers were 766 out of which 22 had DS. The prevalence of DS in smokers was 7.2%.

The shortcoming of the study is small sample size.

## CONCLUSION

Authors found that common risk factors for dry sockets was use of less than 2 carpules, non-use of pre-anaesthetic antibiotic consumption, field block anaesthetic technique, smoking, systemic disease and diabetes.

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