

PROSPECTIVE STUDY ON prevalence and complication of erupted-ing wisdom tooth among patients
attending shenen gibe hospital ,Jimma Ethiopia.

by :- abdulmenan bedru
(dental intern)

a research paper to be submitted to the school of dentistry collage of public health and medical science
in partial fulfillment of the requirement of degree of dental medicine (dmd).

june ,2013 g.c.

Jimma Ethiopia .

JIMMA UNIVERISITY

STUDENT RESEARCH PROGRAM

PREVALENCE AND COMPLICATION OF ERUPTED-ING WISDOM TOOTH AMONG PATIENTS ATTENDING
SHENEN GIBE HOSPITAL ,JIMMA ETHIOPIA.

SUBMITTED BY :- ABDULMENAN BEDRU
(DENTAL INTERN)

ADVISOR :- DR. BRUKTAWIT(MFS R-II)

JUNE, 2013 G.C.

JIMMA ,ETHIOPIA .

ABSTRACT

BACKGROUND:-The tooth to be said erupted when all cusps were visible and rich functional occlusion. There is average eruption period for each tooth in both quadrants. Wisdom teeth technically referred to as third molar are usually the last teeth to erupt and are located in the back part of your mouth. It presents between ages of 17 and 25 years although there is wide variation in the age of presentation. Even if the eruption of wisdom tooth is not that much important for chewing purpose we should have to know the relation between each antagonist tooth since any abnormality may lead to pain, swelling, pericoronitis, periodontal disease and caries. Impacted wisdom tooth are third molars that are not ordinarily to erupt into functional teeth. It is believed that the incidence of eruption of wisdom tooth is decreasing in recent years due to the less functional activity of the jaws .

OBJECTIVES:-To assess the prevalence and complication of erupting wisdom teeth among patients attending SHENEN GIBE hospital, JIMMA, Ethiopia.

METHODOLOGY:- A hospital based cross-sectional type of study using simple random sampling technique was conducted in SHENEN GIBE hospital from, April 5 to 20 2013. G.C with the aim of assessing the prevalence and complication of erupting wisdom tooth on 320 adult patient attending SHENEN GIB hospital. The individuals were selected by giving number (1-32) and with 28 zero so those pick zero ignored and the data was collected using structured questioner and clinical examination. Oral examination was performed using mirror and graduated probe then analyzed using online contingency table and manually, finally the result was presented by table, statement and figures.

RESULT:- In study population female accounts 56.25%, the largest group of the target population is in the age of 25-45 which accounts 47.21%. Muslim is the largest religion [80%] and Oromo is the largest ethnicity [61.25%]. 82%, of study population is urban resident. Overall prevalence of erupted-ing wisdom tooth is 45.03%, for mandibular tooth and 76%, for maxillary tooth in either side of the jaw. The prevalence of symptomatic periodontal disease is 22.05% while asymptomatic 60.63%. Pericoronities to partially impacted wisdom tooth accounts 39% . The study further revealed that 89, parents of the population experience complain around wisdom tooth 65.17%, have pain and 34.83%, have both swelling and pain.

Conclusion and recommendation:- There is an association of periodontal disease and erupted-ing wisdom tooth .The study also reviles absence of symptoms doesn't show absence of disease. I recommend dental practitioner to examine strictly periodontium of each wisdom tooth for each client. Dental professionals and councils should carry out further research on this topic to identify other factors associated with wisdom tooth status and come up with better result.

ACKNOWLEDGEMENTS

I would like to convey my gratitude to my advisor Dr. Bruktawite kebede for her significant assistance and guidance during the development of this research paper and proposal. My golden gratitude is also extended to CBE office for its support with necessary materials for the better development of this research paper. Also I would like to express my deepest thanks to my mother w/o Mecca and my father Bedru Mudesir for their encouragement and assistance. finally I obliged to extend my heart full thanks to SHENEN GIBE hospital administrator Dr. Ayantu and to all OPD staffs in clouding Mohamed(c-II) and sheriff(c-II) dental student for their help by providing as examination glove , probe, mirror and help during data collection respectively.

TABLE OF COTENT

Abstract-----	I
Acknowledgement-----	II
Table of content-----	III
List of tables-----	VI
Operational definition-----	VII
Abbreviations and Acronyms-----	VIII

CHAPTER ONE

1.1 Introduction-----	1
Back ground-----	1

1.2	Statement of problem-----	3
CHAPTER TWO		
2.1	Literature review-----	5
2.2	Significance of the study-----	8
CHAPTER THREE		
Objective		
3.1	General objective-----	9
3.2	Specific objectives-----	9
CHAPTER FOUR		
	Methodology-----	10
4.1.	Study area and period-----	10
4.2.	Study design-----	10
4.3.	Populations-----	10
4.3.1	Source population-----	10
4.3.2	Study population-----	10
4.4	Sample size and technique-----	11
4.5	Variables-----	11
4.6	Quality measurement-----	12
4.7	Data collection and analysis-----	12
4.8	Ethical consideration-----	12
4.9	Limitation of the study-----	12
CHAPTER FIVE		
	Result-----	13
CHAPTER SIX		
	DISCUSSION-----	20
CHAPTER SEVEN		
	Conclusion and recommendation-----	22
Annex		
Annex I		
	REFERENCE-----	24
Annex II		
	QUASTIONER-----	26

LIST OF DUMMY TABLES

Title	Page
Table-1: socio demographic characteristic study of patients attending SHENEN GIBE hospital, JIMMA ,SW ETHIOPIA, 2013.G.C. -----	15
Table-2: Distribution of the average cusp numbers of their wisdom tooth of patients attending SHENEN GIBE, Jimma, SW Ethiopia , 2013.G.C.-----	17
Table-3: Distribution of angulation of wisdom tooth of patients attending SHENEN GIBE hospital, Jimma ,SW Ethiopia, 2013.G.C. -----	17
Table-4: Distribution of eruption status of wisdom tooth of patients attending SHENEN GIBE hospital, Jimma ,SW Ethiopia, 2013.G.C. -----	18.
Table-5: Distribution of arch matching of patients attending SHENEN GIBE hospital, Jimma ,SW Ethiopia, 2013.G.C. -----	18
Table-6: Number and percentage distribution of prevalence of attachment loss of second molar among patient attending SHENEN GIBE Hospital, Jimma, SW Ethiopia 2013.G.C -----	19
Figure -1: Pie chart showing distribution of affordability of mefakia to clean their wisdom tooth of patients attending SHENEN GIBE hospital, Jimma ,SW Ethiopia, 2013.G.C-----	16
Figure-2: Pie chart showing distribution of pathology develop around the wisdom tooth of patients attending SHENEN GIBE hospital, Jimma ,SW Ethiopia, 2013.G.C -----	19

OPERATIONAL DEFINITION

Angulations:-Classification of impacted third molar on the basis of the long axis of the impacted third molar in relation to long axis of the 2nd molar.

Dental caries:-Is destructive disease of hard tissue teeth proceeding formation of cavity.

Dental plaque:-It is a living well organized cooperating community of microorganisms and their environment.

Pericoronitis:-Is an infection of the soft tissue around the crown of a partially impacted tooth and is caused by the normal oral flora.

An impacted tooth:-Is one which fails to either erupt partly or totally in its normal place in the mouth due to inadequate space and obstruction of an adjacent tooth or teeth or soft tissue and bone beyond its chronological age of eruption.

Trismus:- Un ability to open the mouth more than 10mm.

Mesioangular impacted tooth:-Which is tilted towards the 2nd molar in a mesial direction.

Horizontal impacted tooth:-Long axis of the third molar is perpendicular to the long axis of the 2nd molar.

Vertical impacted tooth:-Long axis of the third molar is parallel to the long axis of the 2nd molar but the third molar is below the occlusal plane of the arch.

Distoangular impacted tooth:-The long axis of the third molar is distally angled away from the 2nd molar.

ABREVIATION AND ACRONYMS

NHANES III- national health and nutrition examination survey three.

JUSRP--JIMMA university student research program.

CBE—community based education.

18—upper right third molar.

28—upper left third molar.

38—lower right third molar.

48—lower left third molar

PI—principal investigator.

DI—dental intern.

MOH-- ministry of health.

AD—advisor.

SW--southwest.

PD--pocket depth.

OPD--outpatient diagnosis

CHAPTER ONE

INTRODUCTION

Background

Third molar is called wisdom tooth because they are the last tooth to appear in all races despite of racial variation. Wisdom tooth is in humans any of usually 4 teeth ;third molars appears between the age of 17 and 25. But racial variation in facial growth ,jaw size and tooth size are crucial to the eruption pattern ,impaction status and incidence of agenesis of third molars. one or more third molars are absent in approximately 25% of adults.[1-5]

Un erupted tooth is tooth lying with in jaws entirely covered by soft tissue and /or partially or completely covered by bone. Impacted tooth is in adequate hard tissue space ;third molar space was measured as the distance between the distal surface of the second molar crown and anterior border of the ramous on the occulusal plane in proportion to the width of third molar crown.[2]

The tooth to be said erupted all cusp should be visible though factors for early or late eruption of tooth are not clearly known .Level of eruption was grouped as level A "where the occulusal plane of the third molar was on the same level or above the occulusal plane of adjacent second molar. Level "B" if occulusal plane was below the occulusal plane but above cervical line of second molar .Level "C" if below cervical line of second molar.[3,4]

Even if eruption of wisdom tooth is not that much important for chewing purpose we should have to know the relation between each antagonist tooth since any abnormality may lead to pain, swelling, pericoronitis, periodontal disease and caries.[5]

Erupted teeth adjacent to impacted teeth are predisposed to periodontal disease. Patient with impacted mandibular third molar often have deep periodontal pocket on the distal aspect of second molar as well as to the third molar. When a tooth is partially impacted with large amount of soft tissue over the axial and occulusal surfaces, the patient frequently has one or more episodes of pericoronitis.

The mandibular third molars and maxillary canines are the most frequently involved tooth due to their frequent impaction. Patients with erupting wisdom tooth may present with pain, caries, gingivitis, redness, tenderness around the site, as wisdom tooth begins to erupt through the surface of the gums, this allows bacteria to enter through open tissue which can result in infection. Oral infections have been shown to affect systemic health as well.[6 -9]

Many impacted mandibular and maxillary wisdom tooth remain asymptomatic for years; but are often surgically extracted to prevent development of future complication. Many dental surgeons in Europe and America consider prophylactic extraction of fully impacted wisdom teeth as the ideal approach.[9]

Impacted wisdom tooth have so many defects including distal caries to second molars due to mesio angular wisdom tooth correct detection and restoration can be difficult if caries progress to pulp. Impacted wisdom tooth may encase in the jaw bone or fails to erupt through the gum bed forming soft tissue plane or operculum. Teeth covered by operculum are difficult to clean with tooth brush. Debris and bacteria can easily accumulate under an operculum while may lead pericoronitis, swelling tenderness, reduced mouth opening or truisms, bad odour or taste in mouth and pair operculum does not disappear recommended treatment is extraction of wisdom tooth or operlectomy.[10,11]

STATEMENT OF THE PROBLEM

Third molar emergency normally occurs between 18-24 years but eruption is not uncommon outside these limits. However one or more third molars fail to develop in approximately adults. With specific references to the natural course it was concluded that progressive up righting of third molars commonly occurs up to age 25, those in a vertical position commonly proceeding to full eruption while those remaining un erupted may change position favorably or un favorably until the middle of the third decade or longer. in addition to this un erupted wisdom tooth in relation with antagonist leads to so many type of complications so we have to assess the relation of each wisdom tooth in the arches. [1, 4]

Impaction is an abnormality of development which predispose to pathological change such as pericoronities, caries, pathological root resorption and periodontal problem. cysts and tumors may also arise and can proceed to an advanced problem before the presentation of symptoms. Although not pathological itself a consensus development conference of the national institute of health in the USA

(November 1979) considered that impaction or mal position of third molars is an abnormal state which may justify its removal.[11]

Wisdom teeth has the lowest percentage of healthy status compared with the variable first and second molar. in a study of patients in Norway, Berge and boe reported that 43% of 3rd molar complaints in 1year could be attributed to pericoronities. Blake et al reported that even patients with minor clinical signs of pericoronities had considerable pain.[17]

wisdom teeth has the highest percentage of absence (extraction) through the cavity . Wisdom teeth are extracted for two general reasons :-either the wisdom teeth have already impacted ;or potentially become problematic if not extracted. potential problems caused by the presence of properly grown-in wisdom teeth include infections so we have to assess the prevalence of infection associated with erupted and erupting third molars. Inflammation of enveloping mucosa and gingival are frequently associated with eruption of third molars. Pericoronitis, an acute infection with clinical symptoms including pain, swelling, erythema and purulence are common problems.[1,18]

Although clinical conditions associated with retained third molar are well understood ,little is known about the impact of those conditions on quality of life among affected patients. such information is important to help address several related questions that confront clinicians who advice and care for such patients. [19]

CHAPTER TWO

2.1 LITERATURE REVIEW

Epidemiological studies of teeth eruption fail to distinguish between the prevalence of one erupted third molar and two or more despite this third molar eruption is clearly a common condition. The prevalence of eruption of at least one erupted lower third molar has been reported as 72.7% in an age 20-30 years. The final result of longitudinal study of third molars have not yet been published but study by Hughson and kugelberq shows a sharp decline in the numbers of third molars between ages 20-30 principally due to operative removal. Other studies confirm these finding ;for example mortise and germen found that 65.6% of 5600 males between 17-24 had one or more erupted third molars .[2-6]

National health and nutrition examination survey (NHANES III) done in 2005 in USA says that root resorption distal of second molar adjacent to non erupted wisdom tooth indicates root resorption is 24% where as 42% of periodontal ligament resorption occurs from 1151 patients in 18-25 years of age

with wisdom tooth showed that of those who had symptoms pain 35.3% discomfort 3% swelling 21.7% pain and swelling 37% and purulent discharge 3.1%. asymptomatic Periodontal defects associated with wisdom molars are more common in patients older than 25 years (34%) than those under 25(17%)from persons of 583 .[8]

Ten million third molars (wisdom tooth) are extracted from approximately 5 million people in the united states each year at an annual cost of over 3\$ billion . in addition more than 11 million patient days of standard discomfort or dis ability "pain, swelling, bruising and malaise result post operatively and more than 11,000 people suffer permanent paresthesia, numbness of the lip tong and cheek as a consequence of nerve damage during surgery .at least 2/3rd's of these extractions, associated costs and injuries are unnecessary constituting a silent epidemic of iatrogenic injury that afflicts. Tens of thousands of people with lifelong discomfort and disability. According to the American association of oral and maxillofacial surgeons "if there is insufficient anatomical space to accommodate normal eruption removal of such teeth on early age is a valid and scientifically sound treatment. as result, 10 million teeth calcified as impactions.[10]

From rural UK 599 individuals are taken 264 person [44.1%] have at least one lower third molar. in northern carolin18-24 years of 49 subjects 27% have occulusal caries, 61%pocket depth less than or equal to4mm,29% pocket depth >4mm and occulusal carries,36% no occulusal caries and pocket depth less than 4mm.different human population differ greatly in the percentages of population which form wisdom tooth . agenesi s of wisdom teeth ranges from 0.2% in bantu speakers to nearly 100%in indigenou s Americans Mexicans. the difference is related to genes.[10]

Research done in France finds that mesio-angular impaction of [44%] vertical eruption of [38%] disto angular impaction of [6%] and horizontal impaction of [3%] from this result mesio-angular impaction is the most common. Many dentist and most oral surgeons recommend root in extraction of wisdom teeth supposedly to prevent feature problem. However there is risk of injury, specially of nerve injury. Evidence based practice does not support prophylactic removal of wisdom teeth, even if they are impacted.[12]

Bruce and cowers showed pericoronitis to be the most frequent reason [40%]for the teeth removal of impacted wisdom tooth in different age groups . the age incidence of pericoronitis occurs mainly between 20-29 years and very rarely over the age of 40. Inderix and Tall[1971]claim that over 75% of all young adults with partially erupted or impacted wisdom molars develop pericoronitis.[17,18]

Retrospective study about prevalence of eruption status of third molar on a total of 200 LIBIYAN students [100 male and 100 female students of bachelor of dental surgery; faculty of dentistry, Gary oni

university, Benghazi, Libya] showed that 5% of third molars were congenitally missing. Approximately 43.5% of the subject had all four third molars, 41% had two third molars and 10.5% had one third molar with 2.5% having agenesis of all third molars. Third molar agenesis showed pre-dilection for maxilla with higher proportion. In females [3%] than males [2.1%]. Angular position was maximum with vertical position [58.83%], with least being horizontal impactions. Level of occlusal plane of third molar similar to that of adjacent tooth was seen in 44.74%, below the occlusal plane in 24.76%, totally impacted noted in 30%. Conclusion of these study showed that 33% of the teeth were fully erupted and 66% were in various stages of eruption and 5% were congenitally missing in the students.[19]

In Ethiopia dental health service is limited some hospitals and private clinics which are mainly in A.A. these existing dental clinics are also concentrated on curative and restorative strategy that does not reduce overall prevalence of disease.[20]

The study done on 331 BECO of JIMMA university student [male 291 and female 40] in 2010 showed that the overall prevalence of erupted wisdom tooth is 42.03% for mandibular tooth and 60% for maxillary tooth in either side of the cheek. In addition it showed the prevalence of periodontal disease is 32.05% while pericoronitis is 13.9%. The study further revealed that 31% of the population have pain 23% have swelling and 46% have both from the total of 152 subjects having fair and high plaque accumulation.[20]

2.2 Significance of the study

This research will determine the prevalence and complication of erupted third molars among patients attending SHENEN GIBE hospital. It also gives information on the consequence of absence of antagonist wisdom tooth, risk factors and measures that can be adapted to prevent them.

In developing countries population with absence of tooth receive little or guidance regard to prevention or treatment. Since this is true in ETIOPIA that may not differ in JIMMA. So this research may fill this gap.

The results will be of significant to health planners and local policy makers to considered implication for improving access to primary dental care for patients affected due to wisdom tooth disease. This study also help to address several related questions that confront clinicians who provide

advice and care for such patients. It will also provide base line information for further research in this area.

CHAPTER THREE

OBJECTIVES

3.1 General objective

To determine the prevalence and complication of erupted wisdom tooth among patients attending SHENEN GIBE hospital from JUNE 5-20 2013

3.2 Specific objectives

- ❑ To determine association of wisdom tooth with greater chance of periodontal disease and pericoronitis .
- ❑ To identify an association between presence of third molars and progressive attachment loss of non third molars with the emphasis on 2nd molars.
 - ❑ To determine association of absence of antagonist tooth with pericoronitis.
- ❑ To come up with various recommendation and to lay a ground frame work for future study on the problem.

CHAPTER FOUR

METHODOLOGY

4.1 Study area and period

The study conducted in patients attending Shenan Gibe hospital, Jimma town, Jimma zone, Oromia region, south west Ethiopia, which is a major urban center is located 345Km south west of Addis Ababa.

Shenan Gibe general hospital was established in January 2003 E.C at Jimma town which is located in Jimma Zone Oromia Regional State. It is located at 345km south west of Addis Ababa along on constructing main road to south region. It is also 7.43km South of Jimma University. The Hospital serves for 174600 people and lands on 78, 3294.95 square meters. It has a total of 60 beds of which is 10 surgical, 20 medical, 10 pediatric, 10 gynecology & obstetric, 12 waiting room and no bed for physiotherapy. The hospital has 46 qualified supportive staff, and 52 technical staff. From the technical staff: - 6 general practitioner, 25clinical nurses, 4 midwifery nurse, 4 anesthetic nurse, 3 health officers, 3 pharmacist and 1 druggists, and 4 laboratory technician, 2 x-ray technician are currently serving in the hospital from June 5 to 20.[21]

4.2 Study design:-

Across sectional type of study was done.

4.3 populations

4.3.1 Source population:-

All patients attending SHENEN GIBE hospital during study period

4.4.2 Study population:-

All patients attending SHENEN GIBE hospital > 17 years old during study period it is estimated as 1820 based on previous 15 days report.

4.4.3 inclusion and exclusion criteria

Inclusion criteria:-

- ☐ elective patient
- ☐ age >17 years old

Exclusion criteria:-

- ☐ emergency and
- ☐ age <17 years [b/c this is not a time 3rd molar to erupt physiologically]
- ☐ patient with truisms

4.4 sample size and sampling techniques:-

Sample size $[n]=z^2p(1-p)$

d^2

$n =384$ where n is sample size

For population <10000

Z= tabulated value of z at 95% confidence interval (1.96)

p= maximum prevalence 50% d=margin of error 5% = 0.05

N=1200 study population nf= final sample size=320

Non response rate could be as high as 10% so the final sample size will be $nf= n$

$1+n/N$

4.6 study variables

Independent variables.

- ☐ Age
- ☐ Sex
- ☐ Ethnicity
- ☐ Religion
- ☐ presence of wisdom tooth

Dependent variables.

- ☐ Caries on wisdom tooth
- ☐ Pericoronitis
- ☐ Periodontal disease
- ☐ Wisdom tooth eruption

☐

4.7 Quality measurement

The data was collected by the principal investigator itself and the questions was clarified for the respondents if a difficulty arises in understanding.

4.7.1 Data collection

The questioner was translated during interview if a need arises. The data was collected using structured questionnaire and at the end the oral examination was done by using wooden spatula.

4.7.2 Data analysis

After accomplishment of data collection the data was analyzed by principal investigator manual finally it will be presented using tables, figures and statement.

4.8 Ethical consideration

Approval letter was sent from CBE office to SHENEN GIBE hospital administrators and other concerning body. Before data collection the objective of the study was clarified to hospital administrator and participant. After Verbal and written consent was taken the participant was included to the study.

4.9 Limitation of the study

❑ Inadequate reference regarding prevalence and complication of erupted wisdom tooth in our country.

❑ Inadequate material and tools to assess the tooth successful

CHAPTER FIVE

RESULT

All of the participants were included in this study with 100% response rate and most of them were female with sex ratio of 9 :7.

Almost forty eight percent of the study participant were within the age group of 25-44 which was the highest number followed by 15-24 and 45-64 years old which account 109 [33.83%] and 41 [12.13%] respectively. The list number was registered for >65 age group.

Regarding religion Muslim had the highest percentage which was 256 [80%] followed by Orthodox 32[10%] Protestant 25 [7.81%] and Catholic 7 [2.18%] of the population.

61.25 percent of the study population were Oromo followed by Dawro, Gurage and others each accounts 82[25.62%], 28[8.75%], 14[4.38%] respectively. On the other hand most of the participants were from urban.

46.91 percent of the participant were clean their tooth by using mefakia of this 7.58 % of them believes that mefakia is comfortable to clean the wisdom tooth while the rest they didn't believe on this.

Almost all of the participants were no experience irritation and traumatizing of the buccal mucosa by their wisdom tooth but only two percent of the participant had this experience.

Among the parent of the study population ninety one percent of them had not any experience of complication around their wisdom tooth. Only eight percent of them had history of complication around their wisdom tooth but the rest did not remember if they have any complication.

Among overall wisdom tooth 49.68% had four cusps, 17.39% had irregular cusps and 19.87% were not erupted. Furthermore the study reveals 5.4% of all wisdom tooth were extracted due to pain and decay.

In addition 14.06% of wisdom tooth were decayed but had no any symptom.

182 wisdom teeth had antagonist tooth but the rest 31 wisdom tooth had no antagonist. On the other hand periodontal disease was one of the common pathology around the wisdom tooth which accounts 82.68 % followed by pericoronities which accounts 39% and check irritation account only 6.28%.

Concerning eruption status of wisdom tooth 70% of them were erupted and as we compare maxillary wisdom with mandible mandibular wisdom tooth were less erupted.

5.0% of the respondents had visit to dentist because of pain on their third molars. At the end of the study each participant had oral examination as a result 17.34% of the participant third molar teeth were partially impacted and had periodontal diseases were recorded among them. A significant relationship exists between third molars and periodontal infections ($P < 0.05$).

There is supporting evidence that once periodontal disease was established in the third molar areas, the problem is persistent and progressive, but may improve following extraction of the teeth.

Table-1 Socio demographic characteristic of patients attending SHENEN GIBE hospital, JIMMA SW
ETHIOPIA 2013G.C.

Socio demographic variables	Frequency	Percentage (%)
Age group	17-24	109 34.06
	25-44	153 47.21
	45-64	41 12.81
	65+	17 5.31
	Total	320 100
Sex	Female	180 56.25
	Male	140 43.75
	Total	320 100
Religion	Muslim	256 80
	Christian	32 10
	Protestant	25 7.81
	Catholic	7 2.18
Ethnicity	Oromo	196 61.25
	Dawro	82 25.62
	Gurage	28 8.75
	Others	14 4.38
Place of residence	Urban	263 82

Rural	57	18
Total	320	100

Figure-1 Pie chart showing distribution of the affordability of mefakia to clean their tooth of patients attending SHENEN GIBE hospital, Jimma SW Ethiopia, 2013G.C.

Table-2 Distribution of the average number of cusp of patients attending SHENEN GIBE , Jimma SW Ethiopia ,2013G.C.

	Average cusp number				Total	%
	18	28	38	48		
One	-	-	-	-	-	-
Two	-	-	-	-	-	-
Three	-	-	-	-	-	-
Four	78	62	126	134	400	49.68
Five	48	28	14	15	105	13.04
Irregular	55	42	23	20	140	17.39
Not erupted	23	17	61	59	170	19.87

Table-3 Distribution of angulation of the wisdom tooth of patients attending SHENEN GIBE hospital, Jimma SW Ethiopia 2013.C.

	Angulations of teeth				Total	%
	Number					
	18	28	38	48		
Buccal	21	23	19	15	78	10.86
Lingual	18	19	14	14	65	9.05
Mesial	25	26	36	32	121	17.85
Distal	6	5	1	2	14	1.94
Strait	122	120	96	102	440	61.28
Total					718	100

Table-4 Distribution of eruption status of wisdom tooth of patients attending SHENEN GIBE hospital, Jimma SW Ethiopia 2013 G.C.

Eruption status	Number	%
Impact with visible part	222	17.34
Erupted and not decay	648	50.62
Un erupted	170	12.5
Extracted	70	5.46
Decayed	180	14.06
Total	1280	100

Table-5 Distribution of arch matching with of patients attending SHENEN GIBE hospital Jimma SW Ethiopia 2013G.C.

Arch matching	Number		pericoronities number	%	P-value
	Left	Right			
Total					
Df =6					
P =0.000					
Erupted/Erupted	157	148	305	12	19.35
Erupted/un erupted	48	56	104	28	45.17
Un erupted/Erupted	58	51	109	22	35.48
Un erupted/un erupted	49	51	100	0	-

Figure-2 Pie chart showing distribution of pathology around wisdom tooth of patients attending Shenen Gibe hospital, Jimma, south western Ethiopia, 2013G.C.

Table 6: Number and percentage distribution loss of second molar among patient attending Shenan Gibe Hospital , Jimma SW Ethiopia 2013.

Level of attachment loss on second molars Second molar and Wisdom tooth p-value

	2nd molar with 3rd		2nd molar without 3rd	
	No.	%	No.	%
<1mm	198	23.29	38	17.52
1 to 2mm	305	35.88	118	51.30
3 to 4mm	299	35.17	50	21.74
>to 5mm	49	5.76	24	10.43
T0tal	850	100	230	100

$\chi^2 = 27.6$

Df = 3

P = 0.000

CHAPTER SIX

Discussion

The overall prevalence of erupted-ing wisdom tooth is 45.03% for mandibular tooth and 76% for maxillary tooth in either side of the cheek. This study finding has similarity to the study conducted in UK in which 44.4% have at least one lower third molar. Other studies confirm these finding ;for example in India found that 65.6% of 5600 males between 17-24 had one or more erupted third molars .[2-6]. in addition the study conducted at rural UK a total 599 individuals are taken part in of this 264 person [44.1%] have at least one lower third molar. The study done on 331 BECO of JIMMA university student [male 291 and female 40] in 2010 showed that the overall prevalence of erupted-ing wisdom tooth is 42.03% for mandibular tooth and 60% for maxillary tooth in either side of the cheek. the difference may be since this study was done on wide age range as some teenagers' may be present in BECCO student[20].

A significant relationship exists between third molars and periodontal infections ($P < 0.05$). 82.6% of examined wisdom tooth in this study develop pocket depth $> 4\text{mm}$. 4.5% of second molars with third molars develop pocket depth $> 5\text{mm}$, but only 2.2% of second molar without third molar develop pocket depth $> 5\text{mm}$ which is less by more than half. on the other hand the study done in northern carolina between the age group of 18-24 years old of 49 subjects, (61%)have pocket depth less than or equal to 4mm , 2 9% pocket depth $> 4\text{mm}$.on the other hand the study done in France suggest that in older adults ,visible third molars have been associated with more sever periodontal conditions, including an increased risk of PD of $> 5\text{mm}$ on adjacent second molars [7]. the same study found out that the clinical condition of the periodontium was significantly worse in people with third molars [8,18]. so the gap may be because of age. in addition the study done in Jimma university on BECCO student showed the prevalence of periodontal disease is 32.05% while pericoronitis is 13.9%. still age and educational level is may be responsible for this low prevalence of periodontitis around wisdom tooth.

This study shows 17.34% wisdom tooth are partially impacted and pericoronities has significant association with partially impacted wisdom tooth ($p < 0.05$). 39%[88] of the people with partially impacted third molars in this study have periodontal infections which is pericoronities but for fully erupted wisdom tooth 82.68% have periodontal disease. one study done Scandinavian male population shows that the prevalence of wisdom tooth partial impaction was in the range of, 20% to 25% [18]; the same study showed pericoronitis to be the most frequent reason [40%]for the teeth removal of impacted wisdom tooth in different age groups . The age incidence of pericoronitis occurs mainly

between 20-29 years and very rarely over the age of 40. study done in Libya claim that over 75% of all young adults with partially erupted or impacted wisdom molars develop pericoronities [17,18].

regarding to angulations status of wisdom tooth vertical angulations is the highest which is 61.28% followed by mesial angulations and the least one is distal angulations as this present study shows. on the other hand study of Libya that done on 100 male and 100 female showed Angular position was maximum with vertical position [58.83%], with least being horizontal impactions. Level of occlusal plane of third molar similar to that of adjacent tooth was seen in 44.74%, below the occlusal plane in 24.76%. so this is almost the same.

5% of the respondents those who have signs of decay at wisdom tooth pain 72% ,pain and swelling 23% and discomfort 5%.

National health and nutrition examination survey (NHANES III) done in USA says from 1151 patients in 18-25 years of age with wisdom tooth showed that of those who had symptoms pain 35.3% discomfort 3% swelling 21.7% pain and swelling 37% and purulent discharge 3.1%. asymptomatic Periodontal defects associated with wisdom molars are more common in patients older than 25 years (34%) than those under 25(17%)from persons of 583.onather study in Jimma university on BECCO students showed that 31% of the population have pain 23% have swelling and 46% have both from the total of 152 subjects having fair and high plaque accumulation.[8,20]

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATION

7.1 conclusion

The study come up with the following conclusion.

- ☐ prevalence of wisdom tooth in this study is almost similar to other literature.
- ☐ periodontal disease highly associated with wisdom tooth in other word wisdom tooth have positive significant association with periodontal disease.
- ☐ pericoronities significantly associated with partially impacted wisdom tooth.
- ☐ The presence of partially impacted third molars adversely affects the periodontium of adjacent tooth.

☒ In this study population in the absence of symptom high number of periodontal disease exist.

7.2 recommendation

☒ All dental professionals and dental interns should strictly examine the wisdom tooth status of each patient.

☒ Health professional should aware the community the importance of regular checkup of teeth/oral cavity.

☒ Health professionals should give prevention oriented oral and general health information to their clients.

☒ Misty of health should assign enough dental professional in each health center level.

☒ Dental professionals and councils should carry out further research on this topic to identify other factors associated with wisdom tooth status and come up with better result.

REFERENCE

- 1 Bnickkey MR. Tanner M. et al . Prevalence of third molars in dental practice attenders aged over 35 .community dental health,1996 :13
- 2 Hughson F.Kullberg CF.the prevalence of impacted third molars in Swedish population –an epidemiological study. community dental health,1988 :121-138.
- 3 Blakey, G.H., Gelesko, S., Marciani, R.D., Haug, R. H., Offenbacher, S., Phillips, C., and White, R. P. Third molars and periodontal pathology in American adolescents and young adults: a prevalence study. Journal of Oral and Maxillofacial Surgery,2010: 68(2), 325-329.
- 4 Blakey GH. changes in third molar and non third molars periodontal pathology over time. J Oral maxillofacial surge, 2007
- 5 Kandasamy, S., Rinchuse, D.J., & Rinchuse, D. The wisdom behind third molar extractions. Australian Dental Journal,2009: 54, 284-292
- 6 White, RP., Madianos, PN.et al. Microbial Complexes Detected in the Second/Third Molar Region in Patients with Asymptomatic Third Molars. Journal of Oral and Maxillofacial Surgery,2002: 60(11), 1234-1240
- 7 Elter, J. R., Cuomo, C.J., Offenbacher, S., and White, R.P. Third molars associated with periodontal pathology in the Third National Health and Nutrition Examination Survey. Journal of Oral and Maxillofacial Surgery,2004: 62(4), 440-445.

- 8 Blakey, G.H., Marciani, R.D. et al Periodontal pathology associated with asymptomatic third molars. *Journal of Oral and Maxillofacial Surgery*, 2002; 60(11), 1227-1233
- 9 Bouloux, GF., Steed, MB., and Perciaccante, VJ Complications of third molar surgery. *Oral and maxillofacial surgery clinics of North America*, 2007; 19(1), 117-128.
- 10 Berge TI, Boe OE(1993). Symptoms and lesions associated with retained or partially erupted third molars. *Acta Odontol Scand* ,1993;51:115,
- 11 Locker D, Matear D, Stephens M, et al(2002). Oral health-related quality of life of a population of medically compromised elderly people. *Commun Dent Health*, 2002; 19:90
- 12 Health and Nutrition Examination Survey. *Journal of Oral and Maxillofacial Surgery*, 2004, 62(4), 440-445.
- 13 Blakey, G.H., Marciani, R.D. et al Periodontal pathology associated with asymptomatic third molars. *Journal of Oral and Maxillofacial Surgery*, 2002, 60(11), 1227-1233
- 14 Bouloux, GF., Steed, MB., and Perciaccante, VJ Complications of third molar surgery. *Oral and maxillofacial surgery clinics of North America*, 2007; 19(1), 117-128.
- Berge TI, Boe OE(1993). Symptoms and lesions associated with retained or partially erupted third molars. *Acta Odontol Scand* 1993;51:115,
- 15 Locker D, Matear D, Stephens M, et al. Oral health-related quality of life of a population of medically compromised elderly people. *Commun Dent Health*, 2002; 19:90
- 16 Blakey GH, Marciano RD, Hag RH et al. periodontal pathology associated with asymptomatic third molars. *J Oral maxillofacial surge In*, 2002; 60:1227
- 17 American dental association. surgery of dental service rendered[un published report]. ADA catalog number-sdsr-1999
- 18 Brown J. Evaluating periodontal status on US employed adults. *J Am Dent Assoc*, 1990; 121:226
- 19 Moss, K.L., Oh, E.S., Fisher, E., Beck, J.D., and White, R.P.(2009) Third molars and periodontal pathologic findings in middle-age and older Americans. *Journal of Oral and Maxillofacial Surgery*, 2009; 67(12), 2592-2598.
- 20 Kendye E:[unpublished report of 2010]: prevalence and complication of erupting wisdom teeth, 2010;

21 Federal Democratic Republic of Ethiopia, author(2008). population and census commission summary and statistical report of the 2007 population and housing census,2008;440-1

QUESTIONERS

JIMMA UNIVERSITY

JIMMA university community based education student research program

Questionnaire on prevalence and complication of erupted wisdom tooth among patients

attending SHENEN GIBE hospital. JIMMA

Parte-I— socio demographic status

1 Age

2 Sex

3 Religion

A. Muslim

C. Protestant

E. Others

B. Orthodox

D. Catholic

4. place of residence

A. Urban

B. Rural

5. Ethnicity

A. Oromo

C. Tigre

E. Others

B. Amhara

D. Gurage

part-II-Question related to wisdom tooth of patient.

6. when brushing a tooth do you include wisdom tooth

A. Yes

B. No

C. Don't use brush.

7. Is mefakia is comfortable to clean wisdom tooth?

A. Yes

B. No

C. Don't use mefakia.

8. Do you have any discomfort during the eruption of wisdom tooth? A. Yes

B. No

9. If yes Q8 what was the complain?

A. pain

B. swelling

C. Truisms

D. Never

10. If yes Q8 have you ever consult dentist for the above problems? A. Yes

B. No

11. Does your family had experienced any complain that related with wisdom tooth? A. Yes

B. No

part-III- clinical examination.

1. oral hygiene status

A. Good B. Fair C. Poor

2. clinical attachment loss level on wisdom tooth.

A. <1mm B. 1to 2mm C. 3 to 4mm D. > 5mm

3. second molar. A. 17 B. 27 C. 37 D. 47

4. clinical attachment loss level on second molar tooth.

A. <1mm B. 1to 2mm C. 3 to 4mm D. >5mm

3. Bleeding on probing.

18 28

48

38

4. plaque index.

18

28

48

38

6. Average cusp number of fully erupted with occlusal plane.

18

28

48 38

7. Angulations of teeth

18

28

48

38.

8. Eruption status of wisdom tooth.

A. Erupted

C. Impacted with visible part

B. Un erupted

D. Extracted

E. Not known

9. Arch matching.

- A. Erupted/Erupted
- B. Erupted/Un erupted
- C. Un erupted/Erupted
- D. Un erupted/Un erupted

10. chronic cheek irritation adjacent to

- A. Right cheek
- B. Left cheek
- C. No irritation