

Salivary Gland Tumours in Children and Adolescents: A Clinico-Pathological Study of Fifty Cases in Gauhati Medical College and Hospital over a One Year Period

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Abstracts: *Salivary Gland Tumours Are Rare With Along Natural History. The Aim Was To Study The Pathological Features From A Series Comprising All The Cases Of Salivary Gland Tumours From A Single Institution Over The Course Of One Year. The Fifty Cases Were Distributed Equally Between Males And Females. Histopathological Studies Showed 30 Cases To Be Benign And 19 Malignant. The Commonest Benign Tumour, And The Commonest Overall Was Pleomorphic Adenoma With 29 Cases. Of The Malignancies, Adenoid Cystic Carcinoma With 6 Cases Were The Most Common Followed By Squamous Cell Carcinoma And Muco-Epidermoid Carcinoma With 4 Cases Each. The Commonest Site Of Origin Overall Was The Parotid Gland With 34 Cases While The Submandibular Salivary Gland And The Minor Salivary Glands Made Up 9 And 5 Cases Respectively. The Most Common Surgery Done Was Superficial Parotidectomy Followed By Excision Of Submandibular Salivary Gland. Benign Tumours Are More Common With Pleomorphic Adenoma Is The Most Common Amongst Both Benign And Malignant. Malignant Tumours Form A Greater Percentage Of The Total Tumours In Submandibular And Minor Salivary Glands With It Forming The Majority Of Tumours In The Minor Salivary Glands.*

Keywords – Salivary Gland, Pleomorphic Adenoma, Benign, Malignant, Parotid Gland, Tumours

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I. Introduction

As A Rule, Salivary Gland Tumours Are A Rarity Comprising Less Than 3% Of All Tumours Of The Head And Neck Region And Less Than 1% Of All Tumours Overall. Their Long Natural History And Varied Appearance Makes The Diagnosis, Treatment And Follow-Up Of This Disease Extremely Difficult.

Majority Of The Tumours Are Benign With Only About 20-25% Malignant³. Majority Of The Patients Present In The Age Range 30-70 Years, Average Being 45 Years⁴. Similar Age Incidences Were Found In The Indian Subcontinent By Gill Et Al (2001) Carried Out In Karachi, Pakistan⁵. A Series On Malignant Tumours In South India Found The Mean Age To Be 46.9 Years. According To Icitira Et Al (2010) Most Studies Have Shown The Disease To Be Most Common In The Sixth Decade, Especially The Malignant Diseases⁶.

Regarding Sex Distribution, Varying Results Were Obtained In Different Studies. Most Studies Showed That There Was An Almost Equal Distribution Between Male And Females Or Slightly More Prevalent In Females. If The Parotid Is Considered Alone, Then There Is A Preponderance Of Tumours In Women⁷. Gill, M.S. Et Al In 2001 Found Overall M: F Ratio Of 1.17:1 In Their Series Of 379 Salivary Neoplasms; But Benign Tumours Were Equally Distributed In Males And Female Whereas Malignant Tumours Were More Frequent In Males⁸. This Tendency Becomes More Pronounced In The Eighth And The Ninth Decades When The Female Predominance Rises To 1.6:1 And 1.9:1, According To Icitira Et Al (2010)⁹.

Snow Et Al (1979) Found That parotids Make Up 80% Of The Tumours, With About 10% Located In The Submandibular Gland And The Rest Distributed Between The Sublingual Gland And The Minor Salivary Glands¹⁰. Within The Parotid Gland, Majority Of Tumours Develop In The Superficial Lobe. They Have A Preference For The Posterior Aspect Where They Fill The Retromandibular Fossa And Can Be Relatively Inconspicuous. Less Commonly, They Are Found In The Preauricular Region Or Further Forwards Where They Are Noticeable From A Much Earlier Stage. The Submandibular, Sublingual And The Minor Salivary Glands Being Much Smaller In Size, By The Time The Tumour Becomes Noticeable, It Would Have Replaced Much Of The Normal Tissue Of The Gland Making The Identification Of The Site Of Origin Impossible¹¹.

Benign Tumours Are More Common Than Malignant, Though The Ratio Varies From Site To Site. For Example, In The Parotid Gland, The Incidence Of Benign Tumours Is 80%, While The Proportion Is Significantly Lower In The Submandibular, Sublingual And The Minor Salivary Glands. In Some Series, It Has Even Been Found That The Malignant Tumours Outnumber The Benign Tumours. In The British Salivary

Gland Tumour Panel Data By Everson And Cawson (1997), Frequency Of Malignancy Was Found As: Parotid-14.7%; Submandibular – 37%; Sublingual – 85.7%; Minor Glands – 46.4%²⁷. Approximately 85% Of Tumours Of Sublingual Gland Are Malignant¹².

In A Study, By Pacheco – Ojeda L Et Al (2000), On 308 Salivary Gland Tumours, 58 Cases (19%) Were Found To Be Malignant; In The Parotid Incidence Was 19%, In Submandibular 8% And In The Minor Salivary Glands 50%.

Janisysyanont P Et Al (2002) In A Study On Minor Salivary Gland Tumours Found 76.3% Incidence Of Malignancy, Of Which 54.1% Were Mucoepidermoid Carcinoma. Among The Benign Ones, Pleomorphic Adenoma Was The Most Common (89.5%)¹³.

The Present Studyhas Been Undertaken With The Following Aims And Objectives:

1. To Identify And Study The Clinical Features At Presentation I.E. Incidence, Age, Histology And Sex Distribution.
2. To Study The Site Of Distribution Of Various Salivary Gland Tumours.

II. Patients And Methods

Our Present Work Is Based On Number Of Cases Of Salivary Gland Tumours In The Department Of ENT Of Gauhati Medical College And Hospital, Guwahati During The Period From 1st July, 2015 To 30th June, 2016. Our Pre-Operative Clinical Diagnoses Were Based On Size, Shape, Mobility, Fixity Of The Tumour To The Underlying Structures, Ulceration Of Overlying Skin, Involvement Of Facial Nerve By Its Malignant Transformation And Fine Needle Aspiration Cytology.

III. Results And Observation

Fifty Cases Of Salivary Gland Tumours Were Available For Our Study.

TABLE-1Showing Gender Wise And Age Group Wise Distribution Of Patients

Age Group In Years	No Of Males	No Of Females	Total No. Of Patients-Percentage Of Total (50)
0-10	1	-	1-2
11-20	2	1	3-6
21-30	5	6	11-22
31-40	5	6	11-22
41-50	6	7	13-26
51-60	3	3	6-12
61-70	1	1	2-4
71 And Above	1	2	3-6

Incidence Of Tumours Is Highest In The Age Group Of 41-50 With 13 Cases (26% Of The Total). The 21-30 And 31-40 Age Groups Are The Second Most Afflicted Group With 11 Cases (22%) Each. The Least Affected Age Group Was The 0-10 Group With Only One Patient (2%).

The Youngest Patient Was A Male Child Of Age 5 Years And The Oldest Was A Female Patient Of Age 78 Years.

The Breakup Between Age Groups Among Males Also Follows That Of The Total Distribution With Majority Of Cases Numbering 6 Each In The Age Group 21-30, 31-40 And 41-50. Females Have The Greatest Number Of Tumours In 41-40 Age Group With Seven. There Are Six Cases Each In The 21-30 And 31-40 Age Groups.

TABLE – 2 Showing The Age Distribution Of HPE Proven Benign And Malignant Tumours

Age Group	BENIGN		MALIGNANT	
	Male	Female	Male	Female
0-10	-	-	-	-
11-20	1	1	-	1
21-30	6	4	-	1
31-40	2	3	4	2
41-50	2	5	4	2
51-60	1	2	1	2
61-70	-	1	1	-
>70	2	-	-	1

Women Accounted For 16 Cases Of The Total 30 Benign Neoplasias (53.33% Of The Total). Men Had The Remaining14 Cases (46.67%). So The Female: Male Ratio Is 1.14:1 In Case Of Benign Tumours.

Men Accounted For 10 Out Of The Total 19 Cases Of Malignant Tumours (52.63% Of The Total). Women Made Up The Rest 9 Cases (47.37%) The Men To Women Ratio Is 1.11:1.

Overall, Most Of The Benign Cases Is Found In The 21-30 Age Group. Among Males Alone, Most Of The Cases Were In The 21-30 Age Groups With 6 Cases (42.9% Of The Total 14 Benign Tumours In Males). Amongst Females Most Cases Were Found In The 41-50 Age Group With 5 Cases (31.25% Of The Total 16 Benign Tumours In Females).

The Maximum Number Of Malignant Cases Were Found In The 31-50 Age Group With 12 Cases (63.16% Of The Total 19 Cases). Amongst Males And Females Both, The Maximum Number Of Cases Were Distributed Between The 31-40 And 41-50 Age Groups With 4 Cases In Males And 2 Cases In Females.

Table – 3Showing The Distribution Of HPE Confirmed Benign And Malignant Tumours Among The Sexes

Sex	Male	Female	Total Tumour Types
Benign	14	16	30
Malignant	10	9	19
Total Tumours Among Sexes	24	25	

Of The 30 Benign Tumour, 14 Were In Males (46.67% Of All Benign Tumours).16 Were In Females (53.33%). 10 Of The 19 Cases Of Malignant Tumours Were In Males (52.6% Of All Malignancies). 9 Cases Were Found In Females (47.37 %).

Of The 25 Cases In Females, There Were 16 Benign (64%) And 9 Malignant Tumours (36%).

Of The 24 Operated Cases In Males, There Were 14 (58.33%) And 10 Malignant Tumours (41.67%).

Table – 4showing The Incidence Of Individual Lesions As Confirmed By HPE In The Operated Cases

Type	Total No. Of Cases	No. Of Individual Cases - % Of Total 49 Operated Cases	Percentage (%) Of The 49 Operated Cases
Benign	30	Pleomorphic Adenoma – 29 - 59.18	61.22
		Adenolymphoma – 1 - 2	
Malignant	19	Adenoid Cystic Carcinoma – 6 - 12.2	38.77
		Squamous Cell Carcinoma – 4 - 8.16	
		Muco-Epidermoid Carcinoma – 4 - 8.16	
		Adenocarcinoma – 3 - 6.12	
		Acinic Cell Carcinoma – 2 - 4.1	

Of The 49 Operated Cases, HPE Confirmed 30 Cases As Benign (61.22% Of The Total 49 Operated Cases). Of These, 29 Were Pleomorphic Adenomas (59.18%) And 1 Was An Adenolymphoma (2%).

The Total Number Of Malignant Tumours Confirmed By HPE Were 19 (38.77%). Of These, Most Numerous Was Adenoid Cystic Carcinoma In 6 Cases (12.2%). Squamous Cell Carcinoma And Muco-Epidermoid Carcinoma Were Found In 4 Cases Each (44.44%). There Were 3 And 2 Cases Of Adenocarcinoma (6.12%) And Acinic Cell Carcinoma (4.1%) Respectively.

Table – 5Showing The Distribution Of The 49 HPE Confirmed Tumours Depending On Their Site

Histopathology	Parotid	Submandibular Gland	Sublingual Gland	Minor Salivary Gland	Total
Pleomorphic Adenoma	22	6	-	1	29
Adenolymphoma	1	-	-	-	1
Adenocystic Carcinoma	2	-	-	4	6
Squamous Cell Carcinoma	3	1	-	-	4
Muco-Epiderrmoid Carcinoma	4	-	-	-	4
Adenocarcinoma	1	2	-	-	3
Acinic Cell Carcinoma	2	-	-	-	2
Total	34	9	-	5	49

Of The 29 Cases Of Benign Pleomorphic Adenoma, 22 Were In The Parotid Gland, 6 In The Submandibular Gland And 1 In The Minor Salivary Gland. The Only Adenolymphoma Was In The Parotid Gland. The Minor Salivary Glands Were The Site For 4 Cases Of Adenoid Cystic Carcinoma While The Parotid Gland Made Up The Other 2 Cases. Of The 4 Cases Of Squamous Cell Carcinoma, 3 Were In The Parotid Gland And 1 Was In The Submandibular Salivary Gland. The 4 Cases Of Muco-Epidermoid Carcinoma Were Found Exclusively In The Parotid Gland. The Parotid Glands Were Also The Sole Location For The 2 Acinic Cell Carcinomas. No Tumours Were Found In The Sublingual Gland.

The Majority Of The Tumours Found In The Parotid Gland Were Benign Tumours, Mainly Pleomorphic Adenomas With 22 Cases (64.7% Of The Total Parotid Tumours). There Was A Single Case Of Adenolymphoma (2.05%). Overall Benign Tumours Made Up About 67.65% Of All Parotid Tumours In The Study.

Malignant Tumours Made Up About 35.29% Of All Parotid Tumours (11 Of The Total 34 Parotid Tumours). Of These 4 Cases Were Muco-Epidermoid Carcinomas (11.8% Of Total Parotid Tumours). Squamous Cell Carcinoma Was Found In 3 Cases (8.8%), Acinic Cell Carcinoma And Adenocystic Carcinoma In 2 Cases Each (5.9%), And Adenocarcinoma In One Case (2.94%).

Overall Parotid Tumours Made Up 71.43% Of All The Operated Cases (35 Out Of 49 Cases). After Taking Into Account The Single Unoperated Case Of A Parotid Adenoid Cystic Carcinoma, Parotid Tumours Made Up 70% (35 Cases) Of The Total 50 Cases. The Parotid Gland Is The Site For 23 Of The Pleomorphic Adenoma Was Found In 6 Cases Of Submandibular Gland Tumours (66.67% Of The Total). No Other Benign Tumour Types Were Found In The Submandibular Gland. Squamous Cell Carcinoma And Adenocarcinoma Were Found In One (11.11%) And Two Cases (22.22%).

Overall, Only 33.33% Of The 9 Submandibular Salivary Gland Tumours Were Histopathologically Proven Malignancies (15.8% Of All 19 Salivary Gland Malignancies).

The Submandibular Gland Was The Site For 9 Cases Of All Tumours (18% Of The Total). Total 30 Benign Tumours In The Study (76.67%) And For 12 Of The Total 19 Malignant Cases (63.16%).

The Minor Salivary Gland Was The Site For Only A Single Cases Of Benign Tumour, A Pleomorphic Adenoma (16.67% Of The Total 5 Cases). Four Cases Of Adenocystic Carcinoma (66.67%) Were Found In The Study.

Overall Malignancy Was Proven In 80% Of All Minor Salivary Gland Tumours In The Study (4 Out Of 5). These Made Up 21.05% Of The 19 Cases Of Malignant Salivary Gland Tumours Found In This Study.

The Minor Salivary Gland Was The Site Of Tumour In 6 Cases Making Up 12 % Of All The Tumours In This Study.

The Most Commonly Done Surgical Procedure Was Superficial Parotidectomy Followed By Excision Of The Submandibular Gland. Superficial Parotidectomy Was Done In 23 Cases Out Of The 49 Operated Cases (47%). Excision Of The Submandibular Glands Was Done In 7 Cases Of The Total 49 Operated Cases (14.28 %). A Total Of Four Maxillectomies Were Done, Two Total And Two Infrastructural Partial Maxillectomy (4.1%).

Neck Dissection Was Done In A Total Of Ten Cases. Of These, Eight Were Carried Out In Tumours Involving The Parotid Gland. Two Were Submandibular Salivary Gland Tumour Cases. Three Each Of These Cases Were In Muco-Epidermoid Carcinomas And Squamous Cell Carcinomas, While Two Each Were In Acinic Cell Carcinomas And Adenocarcinomas.



Pic – 1. Parotid Pleomorphic Adenoma



Pic – 2. Intra-Operative Picture Of Parotid Pleomorphic Adenoma



Pic – 3. Specimen Picture Of Parotid Pleomorphic Adenoma

IV. Discussion

Salivary Gland Tumours Are A Rare Condition Afflicting The Head And Neck Region. According To Studies By Loyola Et Al (1995) And Rivera-Batsidas Et Al (1996) They Represent Fewer Than 3% Of All Neoplasms^{14 15}.

In Our Study On 50 Cases, There Were 25 Male Patients And 25 Female Patients. Thus The Male To Female Ratio Was 1:1. However Most Of The Literature Such As Works By Fadi Et Al And Figueiredo Et Al (2001) Mentions That Salivary Gland Tumours Are More Commonly Found In Females^{16 17}. A Study In Brazil By Solanger (2005) On 493 Cases Of Salivary Gland Tumours Resulted In A Female: Male Ratio Of 1.25:1¹⁸. Another Study Carried Out In Brazil By Felipe Et Al (2012) On 245 Cases Obtained A Female: Male Ratio Of 1.5:1¹⁹. Another Study Done In India By Maya Et Al (2014) On 30 Cases Of Intraoral Salivary Gland Tumours Had Only Ten Cases As Males Making The Female: Male Ratio Of 2:1²⁰.

In Our Study, Benign Neoplasias Were Found To Be More Common In Women Than In Men With A Ratio Of 1.14:1 While Malignant Tumours Were Found To Be Slightly More Common In Men Than In Women Making A Ratio Of 1.11:1. The Brazilian Study By Solanger Et Al Also Found Similar Findings Though Their Findings On Malignant Neoplasms Were The Reverse. Their Women To Men Ratio With Regard To Benign Neoplasias Was 1.6:1 And In Cases Of Malignant Growths Was 1:1.6 With Mean Ages In 40.1 And 54.8 Years Respectively^{18 21 22}. In The Other Brazilian Study By Felipe Et Al, They Found A Female Preponderance Amongst Both Benign And Malignant Cases. The Female To Male Ratio In Benign Neoplasms Was 1.25:1 While In Malignancies It Was 1.11:1 Paralleling Our Study²³. In Our Study Benign Tumours Were Not Discovered In The First Decade Of Life. This Is In Keeping With The Findings Of Solanger Et Al (2005)¹⁸. Similarly, We Did Find Two Cases Of Malignant Neoplasms In The First Two Decades Of Life, One Of Them

Was However Lost For Follow-Up So It Was Not Histopathologically Proven And The Other Was A Case Of Adenocarcinoma In The Parotid Gland In A Female. This Was In Contrast To Their Study. They And Several Other Studies Including A Forty-Four Year Study By Riberio Et Al (2002)¹⁹ Found The Most Common Malignancy In Children, If We Take That Age To Be Below The Age Of 19 Years, Was Mucoepidermoid Carcinoma^{18 23}.

In Our Study We Found The Maximum Number Of Cases In The 41-50 Age Group With 13 Cases Or 26% Of The Total. If This Age Group Was Combined With The 21-30 And 31-40 Age Groups, Each Contributing 22% Each Then The 21-50 Age Group Would Contribute Over 70% Of The Cases. The Above 60 Age Group Contributed Only 10% Of All Cases.

On Analyzing The Age Distribution Among Benign Tumours Alone, We Found That The Maximum Number Of Cases Were Found In The 21-30 Age Group Making Up 33.33% Of The Total. Among Male Cases, This Group Had The Maximum Number Of Cases While Female Cases Were Maximum In The 41-50 Age Group. Among Malignant Tumours The Maximum Number Of Cases Were Found In The 31-50 Age Group With 12 Cases Making Up 63.16% Of The Total. Most Studies Have Shown Similar Results With Reference To Benign Salivary Gland Tumours. In Studies By Cantisano Et Al (1998) And Figueiredo Et Al (2001), Benign Salivary Gland Tumours Have Been Reported To Be Found Mostly In The Third Decade Of Life I.E. 21-30 Age Group. In Case Of Malignant Tumours, Peak Incidence Relative To Age, The Concentrations Was Greatest In The Sixth Decade Of Life I.E. 51-60 Age Group^{23 24 25}. However In Our Study The Greatest Incidence Of Malignant Salivary Gland Tumours Was In The 31-50 Age Groups. This Difference In Findings May Be Because Of The Smaller Sample Size Of Our Study. The Study By Felipe Et Al (2012) Found That Most Tumours Were Between The Age Groups 31-70 Years Of Age With An Average Age Of 48.2 Years. The Mean Age Of Benign Cases Was 46.3 Years And Those With Malignancies Was 54 Years¹⁹.

On Analyzing The Various Tumour Types, The Most Common Benign Tumour And The Most Common Tumour Overall Was Pleomorphic Adenoma Which Made Up 59.18% Of All Tumours And 96.67% Of All Benign Salivary Gland Tumours Found In This Study. In Our Study, We Found That Of The 29 Cases Of Pleomorphic Adenoma, 22 Were Found In The Parotid Gland Making Up 64.7% Of All Tumours Of The Parotid Gland. There Were 6 Cases Of Pleomorphic Adenoma In The Submandibular Salivary Gland Making Up 66.67% Of All Tumours Of The Submandibular Salivary Gland. A Single Case Was Found In The Minor Salivary Gland Making Up 20% Of All Minor Salivary Gland Tumours. So In Taking The Major Salivary Glands Alone, 29 Cases Were Found In The Major Glands Making Up 67.44% Of All Major Salivary Gland Tumours. There Were 14 Cases Of The Tumour In Males And 15 In Females Giving A Slight Female Predilection, The Female: Male Ratio Being 1.07:1. This Is In Keeping With The Results Reported By Most Studies As Mentioned By Barnes Et Al (2005)²⁶. The Maximum Number Of Pleomorphic Adenoma Cases Were In The Age Group 41-50 With 9 Cases Followed By The 21-30 And 31-40 Age Groups With 7 And 6 Cases Respectively. This Is In Keeping With The General Trend Of Most Cases Of Salivary Gland Tumours Being In The 31-50 Years Of Age. A High Incidence Of Pleomorphic Adenoma Was Found In Patients Of The Fourth And Sixth Decade Was Reported By Eneroth (1971)²⁷. Eneroth Et Al Also Found A Higher Incidence In Women, With A Ratio Of 3:2 In His 1971 Study On 1900 Cases. Studies By Potdar Et Al (1973)²⁸ And Verma (1988) Report A Male Preponderance In Their Studies. On The Contrary, Castro And His Associates (1972) Reported A High Incidence In Children And Young Adults^{29 30}. According To Stell And Maran, Pleomorphic Adenomas Constitute Approximately 50 Percent Of All Salivary Gland Tumours, Some Studies Stating It To Be 69.7% Of All Tumours Originating In The Major And Minor Salivary Glands, 65% Of Parotid Tumours And 40 Percent Of Intraoral Minor Salivary Gland Tumours. Studies Have Shown That Pleomorphic Adenomas Make Up 60-80% Of Parotid Neoplasms. In Our Study This Figure Was 64.7%. Furthermore Stell And Maran Mentions That Pleomorphic Adenomas Most Commonly Present In The Fourth And Fifth Decades With Both Sexes Affected Equally³¹. The Incidence Of Pleomorphic Adenomas In Order Of Frequency, Is Found In The Parotid, Submandibular And Minor Salivary Glands Respectively. This Was Also Found According To Studies By Foote (1954), Eneroth (1971) And Potdar (1973)^{27 28 32}. In A Study By Everson And Cawson In 2000, The Incidence Of Pleomorphic Adenoma, Among All Tumours In A Particular Site, Was As Follows – 63.3% In Parotid, 59.5% In Submandibular And 42.9% In Minor Salivary Glands²⁹.

There Was A Single Case Of Adenolymphoma Which Made Up 2 % Of All The Tumours And 3.33% Of The Benign Tumours. The Single Case Of Adenolymphoma Found In Our Study Was In The Parotid Gland Making Up 2.94% Of All Tumours Of The Parotid Gland. This Is In Keeping With The Data That Adenolymphomas Occur Almost Exclusively Only In Parotid Or Peri-Parotid Lymph Nodes As Reported By Renehan (1999) And Barnes Et Al (2005)^{26 33}. Varying Incidence Of The Tumour Based On Geographical Location Is From 3.5% To 30% Of All Primary Salivary Gland Tumours According To Barnes²⁶. A Study By Watkinson (2012) Found That The Second Most Common Tumour Of The Parotid Gland Among Benign Neoplasms Is The Adenolymphoma In Keeping With Our Findings²⁷¹. The Only Case Of Adenolymphoma In Our Study Was In A Male Child Of 13 Years. As A Rule, According To Klussman (2006) Adenolymphomas

Has Been Found To Be More Common In Males Than Females With A Preponderance Of 7:1 And An Average Age Of Presentation Of 70 Years, With The Patient Being A Smoker Frequently³².

There Were 19 Cases Of HPE Proven Malignant Cases Making Up 38.77% Of The Total. The Most Common Among These Was Adenoid Cystic Carcinoma Which Was Found In 6 Cases Making Up 12.2% Of All Tumours And 31.58% Of The Malignant Tumours. This Is In Keeping With Most Studies By Workers Such As Khan Et Al (2001), Bradley Et Al (2004), Terhaard Et Al (2004) And Watkinson Et Al (2012) Which Mentions That About 30 Percent Of Salivary Malignancies Is Made Up Of Adenoid Cystic Carcinomas. Most Of These Arise In The Minor Salivary Gland, About 60 Percent. Between 25 To 33 Percent Arise In The Parotid Gland Making A Very Small Proportion Of The Parotid Gland Neoplasms^{34 35 36 37}. In Our Study Four Cases Of Adenoid Cystic Carcinoma Was Found In The Minor Salivary Gland Making Up 80% Of All Cases Of Tumours Found In The Minor Salivary Gland In Our Study. Two Cases Were Detected In The Parotid Gland Making Up 5.9% Of All Cases In The Gland. The Six Cases Were Evenly Distributed In The 21-30, 31-40 And 41-50 Age Groups Containing Two Each. According To Literature, This Tumour Is The Most Common Malignant Tumour Of The Submandibular Salivary Gland, However We Found No Cases Of Submandibular Salivary Gland Adenoid Cystic Carcinomas In Our Study. Furthermore It Should Account For Approximately 10—12% Of All Malignant Salivary Gland Tumours, Which Is Much Less Than Our 43.58%. According To Most Studies Which States That This Malignancy Should Represent Approximately 5% Of All Parotid Neoplasm, We Found Similar Result In Our Study. Furthermore, Wenig (2008) Found That The Tumour Usually Makes Only Up To 30-50% Of All Minor Salivary Gland Tumours, However We Found The Incidence To Be About 80%. The Usual Age Of Presentation Is Forties To Sixties And Never Below Twenty Years Of Age³⁸. The British Salivary Gland Tumour Panel Data, 1985 Associated With Everson And Cawson Found That Adenoid Cystic Carcinoma Is Most Commonly Found In The Sublingual Gland, Submandibular Gland And Minor Salivary Gland With Incidences Of 28%, 16% And 13% Respectively. Leafsted Et Al (1971) Found That These Can Occur In Any Salivary Gland Types. In Their Study On Twenty-Nine Cases, They Found 17 In The Parotid Gland, 8 In The Submandibular Gland And Only 4 In The Minor Salivary Gland³⁹. However Eveson (1985) Found Only 2% In The Parotid Gland⁷⁹. Because Of The Marked Propensity Of This Tumour For Neural And Perineural Invasion, Terhaard Et Al (2004) And Watkinson Et Al (2012) Found That Pain And Facial Palsy Are Common Symptoms^{37 34}.

Squamous Cell Carcinoma Was The Diagnosis In 4 Cases Making Up 8.16% Of All Tumours And 21.05 % Of The Malignant Neoplasms. Of These, Three Were Detected In The Parotid Gland Making Up 8.8% Of All Tumours Of The Parotid Gland. A Single Case Of The Tumour Was Detected In The Submandibular Salivary Gland Making Up 11.11% Of All Cases Of Submandibular Salivary Gland Tumours. As Quoted In Scott-Brown, Squamous Cell Carcinoma Are Very Unusual Representing Less Than 1.1% Of All Salivary Gland Tumours⁴⁰.

Mucoepidermoid Carcinoma Was The Diagnosis In 4 Cases Making Up 8.16% Of All Tumours And 21.05% Of The Malignant Neoplasms. All Four Cases Of Mucoepidermoid Carcinoma Were Detected In The Parotid Gland Making Up 11.8% Of All Cases Of Parotid Gland Tumours. Of The Four Cases, Two Are Males And The Remaining Two Females With Two Cases In The 7th Decade And One Each In The 5th And The 8th Decade. This Is Contrary To Studies By Goode (1998) And Wenig (2008) Which Finds Greater Frequency In Females And Peak Incidence In The 4th Decade^{38 45}. Study By Eveson (2006) Have Found That Mucoepidermoid Carcinoma Is The Most Common Salivary Gland Malignancy Making Up 12-29% Of All Salivary Gland Malignancies⁴¹. Some Such As Renehan Et Al (1999), Bron Et Al (2003) And Koul Et Al (2007) Have Found An Incidence Of 21-26%^{42 43 44}. Stell And Maran Gives An Incidence Of 45% Of All Salivary Gland Malignancies. And It Typically Affects The Parotid Gland Alone³⁴. Over 50-70 Percent Arises In The Parotid Gland⁴⁴.

Adenocarcinoma Was Found In 3 Cases Thus Making Up 6.12% Of All Tumours And 15.79% Of The Malignant Neoplasms. Of These Two Cases Were Found In The Submandibular Salivary Gland Making Up 22.22% Of All Cases Of The Gland. A Single Case Was Found In The Parotid Gland Making Up 2.94% Of All Cases Of The Parotid Gland. Two Of The Cases Were In Males And One In Females. The Ages Were 19, 35 And 56 Years Of Age, Giving A Mean Age Of 55 Years. The Findings Of Our Study Is In Contrast To Most Studies As Adenocarcinoma Is The Second, As Quoted By Barnes (2005)²⁶ Or The Third, As Earlier Quoted By Irving Et Al (1994)³⁴ Most Common Salivary Gland Malignancy. It Is Most Commonly Seen In Females And Mostly In The Fifth To Eighth Decade With A Mean Age Of 58 Years, As Quoted By Speight Et Al (2002)⁴⁷ And Is Almost Never Seen In Adolescents Or Children According To Barnes²⁶. Watkinson (2012) Had Found Over 60% In The Major Salivary Glands³⁴. Some Studies However Mention That It Is Tumour Of The Minor Salivary Glands With Over 60 Percent Arising From The Palate And Is Extremely Rare In The Parotid Gland.

Two Cases Of Acinic Cell Carcinoma Was Found Thus Making Up 4.1% Of All Tumours And 10.53% Of All Malignant Neoplasms. Both Cases Of This Tumour Was Found In The Parotid Gland Thus Making Up 5.9% Of All Cases In This Gland. One Case Was In A Male Patient And The Other One In A Female, Both Of

Them In The Fifth Decade Of Life. Studies By Spiro Et Al (1978), Speight (2002), Terhaard Et Al (2004), Eveson Et Al (2006) And Watkinson Et Al (2012) Have Shown That Acinic Cell Carcinomas Occur Majorly In Parotid Gland, Over 80% And More Commonly In The Third Decade Of Life In Males. They Also Make Up About 7-17.5 Percent Of All Malignant Salivary Gland Tumours^{37 34 47 48 49}. Some Studies Have Shown Them To Be In The Range Of 2.5% Of All Salivary Gland Tumours⁴⁰.

The Parotid Gland Was The Site Of 35 Tumours In The Study Making Up 70% Of All Cases Recorded In This Study. Of These 23 Were Benign And 12 Were Malignant Comprising 67.65% And 35.29% Of The Total Parotid Tumours. Furthermore We Observed That Of All The 30 Histopathologically Proven Benign Tumours, 76.67% Were In The Parotid Gland And Of All The Malignant Tumours 63.16% Were In The Parotid. The Most Common Benign Tumour Was Pleomorphic Adenoma While The Most Common Malignant Tumour Was Mucoepidermoid Carcinoma With 4 Cases. This Was Followed By Squamous Cell Carcinoma With Three Cases And Adenoid Cystic Carcinoma And Acinic Cell Carcinoma With Two Cases Each. There Was A Single Case Of Adenocarcinoma. Eveson (1985), Spiro (1986), Renehan (1996) And Speight (2002) Have Shown That 70-90% Of Salivary Gland Tumours Are Located In The Parotid Gland^{58 51 49 50}. Eveson And Cawson Found An Incidence Of 72% In The Parotid Gland Of Overall Salivary Gland Tumours²⁹. The Vast Majority Of These Tumours Are Benign, Comprising Over 70%²⁷. Eveson And Cawson (1985) In Their Study Found That Incidence Of Malignancy In The Parotid Glands Were 14.2% Which Is Almost Half Of Our Findings. Pachuo Ojeda Et Al (2007) Also Found Somewhat Similar Results Of 19% Malignancy In The Parotid Gland⁵². The Parotid Gland Was Most Commonly Involved In Females In Our Study With It Accounting For 19 Of The Total 36 Total (Without Excluding The Single Non-Operated Case) While Males Made Up The Rest 17.

In Our Study, The Submandibular Salivary Gland Was The Site For 9 Salivary Gland Tumours Making Up 18% Of The Total 50. Studies Of Eveson (1985), Spiro (1986) And Renehan (1999) Have Showed This Percentage To Be About 4-11% Which Is Close To Our Own Findings^{58 49 50}. Of These 6 Were Benign Making Up 66.67% Of All Salivary Gland Tumours And 3 Were Malignant. The Most Common Benign Neoplasm Was Pleomorphic Adenoma Accounting For All Six Of The Benign Tumours. Most Studies Have Also Found The Same Incidence Of Over Half Of The Submandibular Salivary Gland Tumours Being Pleomorphic Adenomas.

With Regards To The Minor Salivary Gland, In Our Study We Found Five Cases Of Tumour In This Region. There Was One Case Of Pleomorphic Adenoma And Four Cases Of Malignant Tumours Making Up 80% Of The Total Tumours In These Glands. This Is In Contrast To The Most Of The Results Obtained From Most Studies In Literature Such As Those By Eveson Et Al (1985), Yih Et Al (2005), Waldron Et Al (1988), Toida Et Al (2005) And Pires Et Al (2007) That Mentions Over Half (56-58%) Of The Minor Salivary Gland Tumours Being Benign, Mostly Pleomorphic Adenomas^{58 53 54 55 56}. Pachuo Ojeda Et Al (2000) And Watkinson Et Al (2012) Found 50% Malignancy In Minor Salivary Gland Tumours^{32 35}. The Only Malignant Type That Was Found In The Study Was Four Cases Of Adenoid Cystic Carcinoma. This Is In Contrast To The Majority Of Studies In Literature Such As By Pires Et Al (2007) And Perez Et Al (2005) Which Mentions That The Most Minor Salivary Gland Malignancy Is The Mucoepidermoid Carcinoma (47-52%) Followed By Adenoid Cystic Carcinoma (12-19%)^{291 294}. The Most Common Site For The Minor Salivary Gland Tumours In Our Study Was The Palate, Which Is In Keeping With Most Of The Results In Literature Such As Those By Waldron Et Al (1988), Toida Et Al (2005) And Yih Et Al (2005), That Mentions More Than 33 Percent Of Intraoral Malignant Tumours Of Salivary Gland To Be Located In The Palate^{53 54 55 56}. Most Work Shows That Minor Salivary Gland Tumours Are Majorly Found In Females, Except In Case Of Adenoid Cystic Carcinoma Which Has No Sex Predilection. In Our Study Too, The Single Minor Salivary Gland Pleomorphic Adenoma Was Found In A Female And The Four Adenocystic Carcinoma Was Equally Divided Between The Two Sexes.

Tumours Of Sublingual Glands Are Extremely Rare As Reported By Eveson Et Al (1985) And Perez Et Al (2005)^{57 58}. We Too Did Not Find Any Sublingual Salivary Gland Tumours In Our Study.

V. Conclusions

We Have Arrived At The Following Conclusions –

1. Total Number Of Salivary Gland Tumours Taken In The Study Was Fifty.
2. The Tumours Were Equally Distributed Between Males And Females.
3. The Tumours Were Most Commonly Found In The Third To Fifth Decades Of Life.
4. Benign Tumours Were More Common Than Malignant With A Ratio Of 61.22% Of All Tumours.
5. The Benign Tumours Were Most Commonly Found In The Third Decade Of Life While The Malignancy Was Mostly Found In The Fourth And Fifth Decades Of Life.
6. The Most Common Benign Tumour And The Most Common Tumour Overall Was Pleomorphic Adenoma Making Up 59.18% Of All Tumours.
7. The Most Common Malignant Tumour Was Adenoid Cystic Carcinoma Making Up 31.57% Of All Tumours.

8. Majority Of The Tumours Were Found In The Parotid Gland Followed By The Submandibular Salivary Gland With The Parotid Gland Making Up 70% Of All Tumours.
9. Surgical Excision Was The Most Commonly Done Treatment. The Most Commonly Done Surgical Procedure Was Superficial Parotidectomy.

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