Original Research Paper

Volume-9 | Issue-3 | March-2019 | PRINT ISSN - 2249-555X

Pathology

A RETROSPECTIVE CLINICOPATHOLOGICAL STUDY OF SINONASAL ADENOID CYSTIC CARCINOMA IN A TERTIARY CARE HOSPITAL OF CENTRAL UTTAR PRADESH

Rashmi Chaturvedi — Associate Professor, Department of Pathology, Hind Institute of Medical Sciences, Barabanki, Uttar Pradesh

Chitransha Srivastav* — Postgraduate Resident, Department of Pathology, Hind Institute of Medical Sciences, Barabanki, Uttar Pradesh*Corresponding Author

ABSTRACT

INTRODUCTION: Adenoid cystic carcinoma (ACC) of the sinonasal tract is a rare cancer that accounts for 10% of all malignancies at this site. The objective of the current study was to evaluate prognostic factors, treatment outcomes, recurrence patterns, and survival rates for sinonasal adenoid cystic carcinoma.

METHODS: A retrospective chart review was performed at a tertiary referral center between 2010 and 2015, 15 patients were evaluated for ACC of the sinonasal tract at a single institution. demographics, presentation, anatomic site, tumor, lymph node, metastasis (TNM) classification, pathology, treatment, recurrences, and survival were evaluated.

RESULTS: The median age of patients was 52 years, and the mean follow-up was 36 months. The maxillary sinus (46.6%) and the nasal cavity (33.3%) were the most common primary tumor sites. The majority of patients presented with T3/T4 (73.3.7%) without any nodal and distant metastasis. All the patients underwent surgery and received postoperative radiation as treatment for their primary disease. The local recurrence rate was 40%.

CONCLUSION: ACC of the sinonasal tract is a rare tumor. Poor prognostic factors that affect survival include tumor site, extent of invasion, stage, histopathologic type and grade. The current data suggested that surgical resection with postoperative radiation therapy offers durable local control and compares favorably with historic data. Since local recurrences develop in a significant percentage of patients, therefore, the ideal treatment paradigm has yet to be defined. However survival from this disease exceeds that of other sinonasal malignancies.

KEYWORDS : Adenoid cystic carcinoma, sinonasal tract

INTRODUCTION

Adenoid cystic carcinoma (ACC) is of salivary gland origin and is the 2nd most common tumor of the nasal cavity and paranasal sinuses. Most common site is the salivary gland followed by sinonasal cavity. **[1]** Adenoid cystic carcinoma (ACC) accounts for 3 to 5% of all head and neck malignancies and 10% to 25% of all head and neck ACC. **[2]** Other sites of ACC origin are lacrimal gland, trachea, breast, lung, skin, vulva, and prostate. **[1]**

Sinonasal neoplasms generally present in the fourth and fifth decades with symptoms of obstruction, rhinorrhoea and epistaxis with duration of symptoms may ranging from a few months to years reflecting the slow growth of tumor. **[3]** ACC is a malignant tumor which is often asymptomatic mimicking inflammatory conditions, characterized by different histologic patterns. Indolent locally invasive growth with unpredictable clinical behavior, prolonged clinical course, increased propensity for local recurrence, perineural spread and bony invasion. Regional lymph node involvement and distant metastasis occurs infrequently in ACC. **[4]** The 5-year overall survival and disease free survival are found to be 62% and 67%, respectively while the local recurrence rate was 36.6%, and the regional recurrence rate was 7%. Therefore aim of this study is to evaluate the prognostic factors, treatment outcomes, recurrence patterns, and survival rates for sinonasal adenoid cystic carcinoma

MATERIAL AND METHODS

A retrospective chart review was performed at a tertiary referral center between 2010 and 2015, 15 patients were evaluated for ACC of the sinonasal tract. Data was collected from patient's medical records and analyzed for demographics, presentation, anatomic site, Tumor, Lymph Node, Metastasis (TNM) classification, pathology, treatment, recurrences, and survival All H & E stained slides were revaluated by two pathologists. Histomorphological evaluation and clinical follow up of all the patients was conducted.

RESULTS

In this study out of all patients 53.3% were female and 46.6% were male. The mean age of presentation was 52 years with a range of 26-70years. Nasal obstruction was the most common presenting complain 60% (9), followed by epistaxis 7 cases (46.6%) and facial pain 5(33.3%) About nine cases presented as initial disease (60%) and six cases were recurrent cases (40%) with all of them showing recurrence local. However, none of the cases showed regional and distant metastasis. Maxillary sinus was most common tumor epicenter 46.4% followed by nasal cavity 33.3%, ethmoid sinus13.3% and sphenoid sinus 6.6%. Most of the cases were high grade showing T4 and clinical stage IV (40%), T3 and stage III (33.3%), T2 (20%) and T1 (6.6%). None of the cases showed nodal and distant metastasis. About 40.0% of the cases were in clinical stage IV, followed by 33.3% of the cases in stage III and 26.6% of cases in stage I-II. **[Table No.1]**

With regard to histological type cribriform pattern was most common present in 8 cases (53.3%) followed by solid (26.6%) and tubular (20%). Fourteen out of 15 cases showed negative margins and only one case showed microscopically positive margins and none of them showed grossly positive margins. Twelve (80%) out of 15 cases had bone invasion and 8 (53.3%) cases showed perineural invasion. Sixty percent cases were treated by surgery alone and 40% cases were treated by surgery and radiotherapy both. Sixty six percent cases had 5year survival and 40% cases showed diseases free survival. **[Table No.2]**

DISCUSSION

Mean age of presentation was 52 years. Allison et al and Michel et al showed mean age of presentation as 50.8 years and 54.4 years respectively. **[5, 6]** Females were mostly affected accounting to 53.3%. Similar findings were also reported by Thompson et al showed 52% and Allison et al 55.2%. **[5,7]** Nasal obstruction and epistaxis were most common presenting symptoms. Michel et al and Allison et al also showed the similar findings. **[5, 6]** Maxillary sinus followed by nasal cavity were the commonest site accounting to 46.6 and 33.3% . Allison et al showed 46.7% and 29.5% respectively for same. **[5]** Most of the cases were of high grade showing T3/T4 (73.3%) which was similar to study by Michel et al 72%. **[6]**

In the present study most cases were in stage IV (40%) followed by 33.3% in stage III . Allison et at reported same be 64% and 35.8% respectively. **[5]** Cribriform was the most common histologic type in our study 53.3%; while Shubhalaxmi et al showed 50%. **[8]** About 80% cases showed bone invasion in our study similar to Amit et al showed 81% for same. **[9]** Also 53.3% cases had perineural invasion similar to reported by Amit et al about 54.5%. **[9]**

Also 60% cases were treated with surgery alone and 40% were given radiotherapy after surgery in our study . Allison et al showed 71% had surgery and 84% had surgery and radiotherapy 5 year survival and disease free survival in our study is 66% and 40% respectively. **[5]** Michel et al showed 63% and 43% respectively and Thompson et al showed 67.4% and 45.3% respectively. **[6,7]**

Solid histologic pattern, primary site being sphenoid /ethmoid sinus, T3/T4 lesions, clinical stage III/IV, perineural invasion, bone invasion, surgical margin positive, recurrent local lesions and distant metastases are all associated with worse prognosis .There was no significant difference in overall or disease-specific survival for sex, age and presenting symptoms.

CONCLUSION

ACC of the sinonasal tract is a rare tumor. Poor prognostic factors that affect survival include tumor site, extent of invasion, stage, histopathologic type and grade. The current data suggested that surgical resection with postoperative radiation therapy offers durable local control and compares favorably with historic data. Since local recurrences develop in a significant percentage of patients, therefore, the ideal treatment paradigm has yet to be defined. However survival from this disease exceeds that of other sinonasal malignancies.

Table No.1 Distribution of sinonasal adenoid cystic carcinoma cases on the basis of biosocial and disease characteristics.

Parameter	Number of Patients	Percentage (%)
Gender		
Women	8	53.3
Men	7	46.6
Symptom*		
Nasal obstruction	9	60
Epistaxis	7	46.6
Facial pain	5	33.3
Facial swelling	4	26.6
Nasal drainage	4	26.6
Oral ulcer	3	20
Loss of smell	2	13.3
Disease presentation		
Initial	9	60
Recurrent	6	40
local	6	40
regional	0	0
distant	0	0
Tumor epicenter		
Maxillary Sinus	7	46.6
Nasal Cavity	5	33.3
Ethmoid Sinus	2	13.3
Sphenoid Sinus	1	6.6
TNM classification		
T1	1	6.6
T2	3	20
T3	5	33.3
T4	6	40
N	0	0
M	0	0
Clinical stage		
I - II	4	26.6
III	5	33.3
IV	6	40
Multiple response		

Table No.2 Distribution of sinonasal adenoid cystic carcinoma cases on the basis of histopathology, treatment and survival.

Parameter	Number of Patients	Percentage (%)
Histologic type		
Tubular	3	20
Cribiform	8	53.3
Solid	4	26.6
Margin		
Negative	14	93.3
Microscopically positive	1	6.67
Grossly positive	0	0.0
Bone Invasion		
Present	12	80.0
Absent	3	20.0
Perineural Invasion		
Present	8	53.3
Absent	7	46.7
Treatment		
Surgery alone	9	60.0
Surgery and radiotherapy	6	40.0
Survival		
5-year Survival	10	66.0
Disease free survival	6	34.0

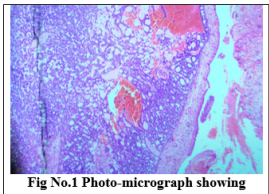

Fig No.1 Photo-micrograph showing nasal epithelium and cribriform pattern of ACC (H&E,20x)

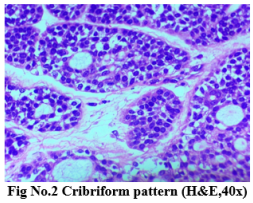

Fig No.2 Cribriform pattern (H&E,40x)

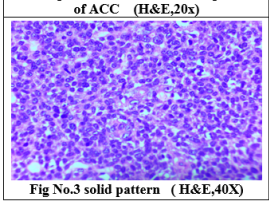

Fig No.3 solid pattern (H&E,40X)

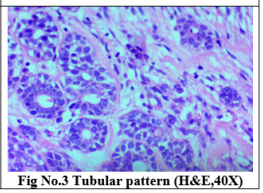

Fig No.3 Tubular pattern (H&E,40X)

REFERENCES:

1. Shah D, Shah D. Sinonasal adenoid cystic carcinoma with rare renal metastasis on fluorodeoxyglucose positron emission tomography scan: A case report and literature review. Indian J Nucl Med 2018;33:52-4
2. Ellington C L, Goodman M, Kono S A. et al. Adenoid cystic carcinoma of the head and neck: Incidence and survival trends based on 1973-2007 surveillance, epidemiology, and end results data. Cancer. 2012;118(18):4444–4451.
3. Wiseman SM, Popat SR, Rigual NR, etal. Adenoid cystic carcinoma of the paranasal sinuses or nasal cavity: A 40-year review of 35 cases. Ear, Nose and Throat Journal 2002; 81: 510-517.
4. Spiro RH. Distant metastasis in adenoid cystic carcinoma of salivary origin. Am J Surg. 1997 Nov;174(5):495-8.
5. Lupinetti AD, Roberts DB, Williams MD, Kupferman ME, Rosenthal DI, Demonte F, El-Naggar A, Weber RS, Hanna EY. Sinonasal adenoid cystic carcinoma: the M. D. Anderson Cancer Center experience. Cancer. 2007 Dec 15;110(12):2726-31.
6. Michel G, Joubert M, Delemazure AS, Espitalier F, Durand N, Malard O. Adenoid cystic carcinoma of the paranasal sinuses: retrospective series and review of theliterature. Eur Ann Otorhinolaryngol Head Neck Dis. 2013 Nov;130(5):257-62.
7. Thompson LD, Penner C, Ho NJ, et al. Sinonasal tract and nasopharyngeal adenoid cystic carcinoma: a clinicopathologic and immunophenotypic study of 86 cases. Head Neck Pathol. 2013;8(1):88-109.
8. Rautray S, Sahoo TK, Das SK, Majumdar SKD, Parida DK. Primary Adenoid Cystic Carcinoma of Head and Neck: Its Prognosis and Management - A Retrospective Analysis from a Tertiary Care Center. Int J Sci Stud 2016;4(4):133-137.
9. Erratum: adenoid cystic carcinoma of the nasal cavity and paranasal sinuses: a meta-analysis. J Neurol Surg B Skull Base. 2014;75(3):e1.