ORIGINAL ARTICLE

Histopathological Characteristics of Head and Neck Neoplasms in a Tertiary Care Centre in South West Punjab

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Abstract:

Background: Head and neck neoplasms are one of the commonest neoplasm worldwide with increase in the incidence every year. The aim of this study was to investigate the histopathological aspects of head and neck neoplasms in a tertiary care centre and towards correlating the age, gender, and site distribution. *Materials and Methods:* All cases were received from the Department of Otorhinolaryngology from April 2015 to March 2016 in 10% formalin solution and after routine processing, regular H & E staining as well as special staining was done wherever required. *Results:* A total of 1648 cases were recruited during the study period out of which 56 cases were of head and neck neoplasms with the mean age of the patients being 46.7 years. 62.5% of the patients were older than 40 years. The overall male to female ratio was 1.6:1. Oral cavity was the most commonly affected site (37.5%) followed by thyroid (17.8%) and larynx (16%). Malignant to benign ratio was 2.74:1.Squamous cell carcinoma was the most common histological type (60.7%) with poor differentiation (50%). 85% of the patients had chronic history of smoking and alcohol consumption and 10% with the history of betel nut chewing. *Conclusion:* Head and neck neoplasms show a trend towards a relatively middle age to older age group at diagnosis with majority of patients presenting late with advanced stage. Also occurrence of head and neck neoplasms under the age of 41 years was greater than what was reported in some of the studies.

Keywords: Head and Neck, Squamous Cell Carcinoma, Undifferentiated

Introduction:

Head and neck tumours are relatively easy to visualize and palpate at the clinical examination, nevertheless, most of the patients are diagnosed at advanced stages of the disease, because of the lack of early alarming symptoms. Head and neck neoplasms occur in nasal and paranasal sinuses, nasopharynx, oropharynx, hypopharynx, oral cavity, ear as well as in salivary glands [1]. They are associated with high morbidity and mortality and interfere with the vital functions of life such as breathing swallowing, speech and hearing [2]. Head and neck neoplasms has been the seventh most common malignancy worldwide [3,4]. There has been a significant increase in the global incidence of head and neck neoplasms over the past decades. At present, more than 650,000 new cases are being diagnosed every year worldwide [5]. Globally the head and neck malignancies constitutes 5-50% of all the malignancies [6], while the percentage of head and neck malignancies in India forms a major chunk thereby constituting 30% of all the cancers [7,8]. Most of the head and neck neoplasms presents with loco-regionally advanced disease but despite improved treatment protocols, the overall survival has been poor. The head and neck region shows a diverse group of histological types. More than 90% of the lesions are epithelial in origin with

squamous cell carcinoma constituting the greatest number of cases [9].

The present study was conducted to study the histopathological spectrum of various head and neck neoplasms based on the site, age and sex.

Material and Methods:

The study was conducted in the Department of Histopathology in Adesh Institute of Medical Sciences and Research, Bathinda for a period of one year from April 2015 to March 2016 after getting the Institutional Ethical Committee approval. Both prospective as well as retrospective cases were taken. A total of 1648 cases were received from the Department of Otorhino-laryngology. During this period 56 neoplasms were diagnosed.We analyzed patient's data such as gender, age along with characteristics of the tumour in terms of location, site and degree of differentiation. The specimens were received in 10% formalin in the Department of Histo-pathology along with the duly signed consent form of the patient. Routine H & E staining was done after proper processing.

Inclusion Criteria:

1. All age groups.

Exclusion Criteria:

1.Specimens received without formalin.

2.Blocks with very tiny biopsies.

Results:

Of the 1648 specimens received from the Department of Otorhinolaryngology, 56 were diagnosed to be neoplastic lesions (3.4%). Table 1 shows the number of cases and the percentages based on the anatomical site of the tumor. The most common site of involvement was the oral cavity (37.5%), followed by thyroid (17.8%), larynx (16%). In the oral cavity the most affected site was the tongue (26.7%). Age distribution percentage has been shown in Table no. 2. Age of the patients ranged from 15 to 82 years with the median age of 46.7 years. The majority of patients (62.5%) were older than 40 years with only 5 cases (8.9%) younger than 20 years. The highest frequency of cases were seen in the sixth decade (23.2%) followed by fifth decade (19.6%). There was a steady rise in the number of cases in each age group from 2nd decade upto 6th decade of life followed by gradual decline thereafter. The least number of cases were seen in 1st decade and seventh decade with no case and one case (1.7%) respectively. Majority of the patients were male with the overall male to female ratio of 1.6:1. Benign (26.78%) to malignant (73.2%) tumour ratio was 1:2.7. Squamous cell carcinoma was the most common histological type comprising of 60.7%% of all the tumors and 82.9% of all the malignant tumors. Of the 34 cases of squamous cell carcinoma 4 (12%) were keratinizing well differentiated, 13 (39%) cases were moderately differentiated while 17 (50%) cases were poorly differentiated.

Of the 10 cases of thyroid neoplasms follicular adenoma was the most common lesion comprising 70% of all the thyroid neoplasms and 12.5% of all the head and neck neoplasms, followed by Papillary carcinoma constituting 20% of all thyroid neoplasms and 3.5% of all head and neck neoplasms followed by 1 case of Medullary carcinoma.

Of the 9 cases of laryngeal neoplasm 1 case was well differentiated SCC, followed by 2 cases of poorly differentiated SCC while the majority of cases were moderately differentiated SCC (66.7%). Pleomorphic adenoma (50%) comprised

the majority of salivary gland neoplasms in our study followed by 1 case each of Oncocytoma, Warthin's tumour and Adenoid cystic carcinoma. One cases each of Basal cell carcinoma, Basal cell adenoma, Infected capillary hemangioma, Angiofibroma and Squamous cell carcinoma were seen affecting the facial region. Two cases of osteomas were seen in the mastoid region.

Table 1: Distribution of Patients according to Anatomical Tumor Site

Sr. No.	Anatomical Tumour site	Frequency	Percentages
1	Oral cavity	21	37.50%
2	Thyroid	10	17.80%
3	Larynx	9	16.00%
4	Salivary glands	6	10.70%
5	Face	5	8.90%
6	Mastoid	2	3.50%
7	Vocal cord	2	3.50%

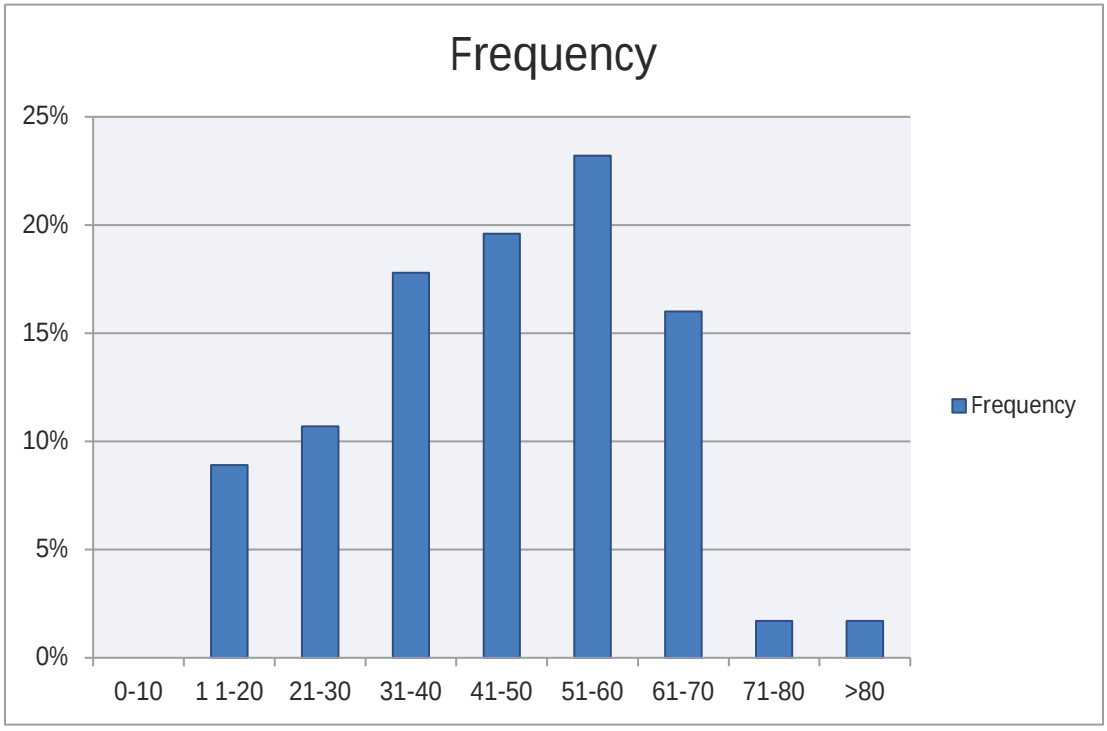

Fig. 1: Age Wise Distribution of Head and Neck Neoplasms

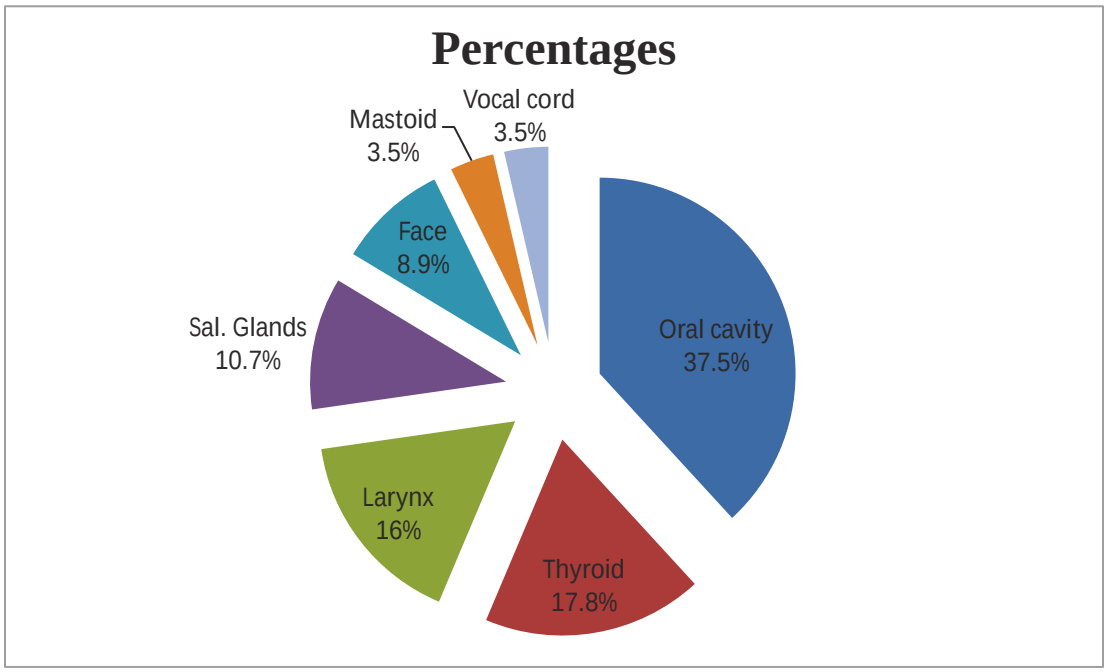

Fig. 2: Pie diagram showing the Percentage of Lesions Based on the Site

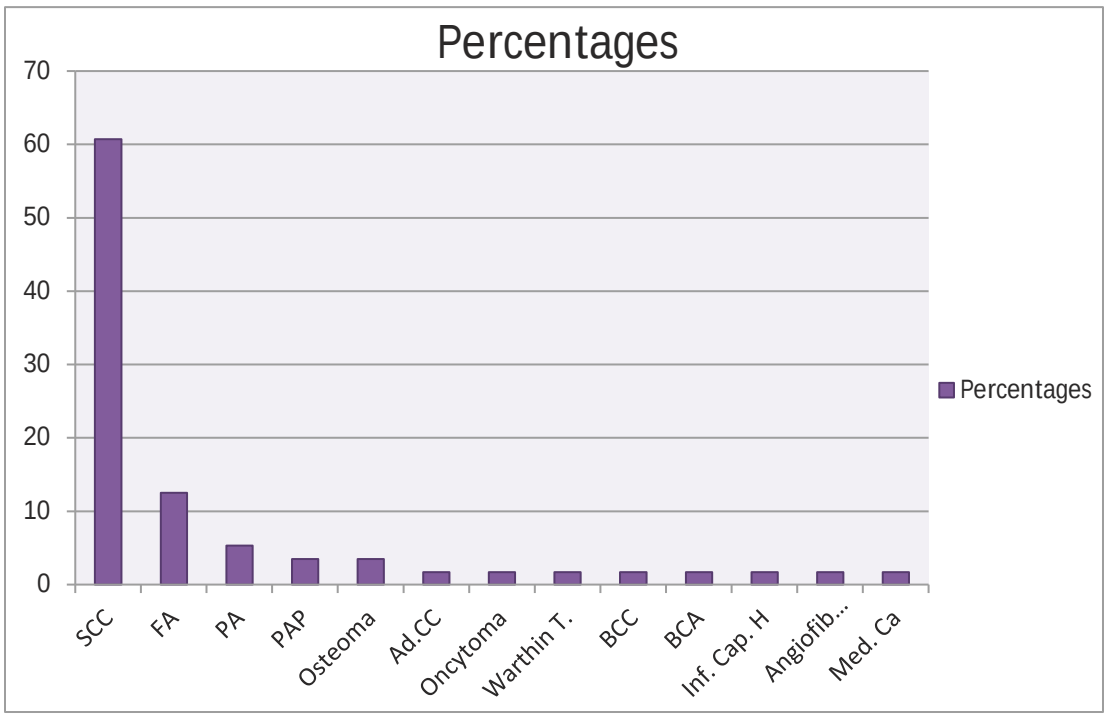

Figure 3: Histological Distribution of Head and Neck Neoplasms

(SCC: Squamous cell carcinoma, FA: Follicular adenoma, PA: Pleomorphic adenoma, PAP: Papillary carcinoma, Ad.CC: Adenoid cystic carcinoma, BCC: Basal cell carcinoma, BCA: Basal cell adenoma, Inf. Cap. H: Infected capillary haemangioma, Angiofibr: Angiofibroma, Med.Ca: Medullary carcinoma)

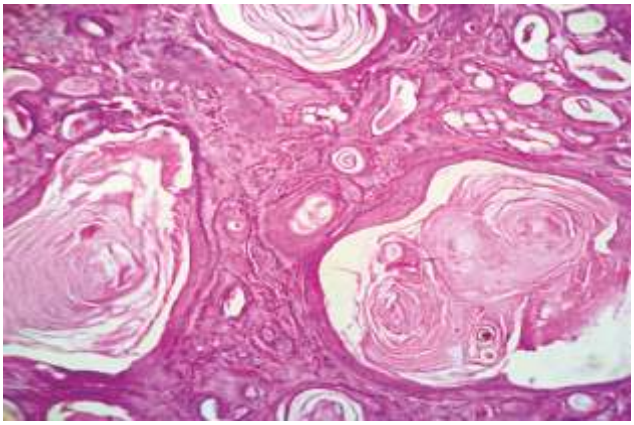

Fig. 4: H & E (40X) showing Keratin Pearls in a Case of Well Differentiated Squamous Cell Carcinoma.

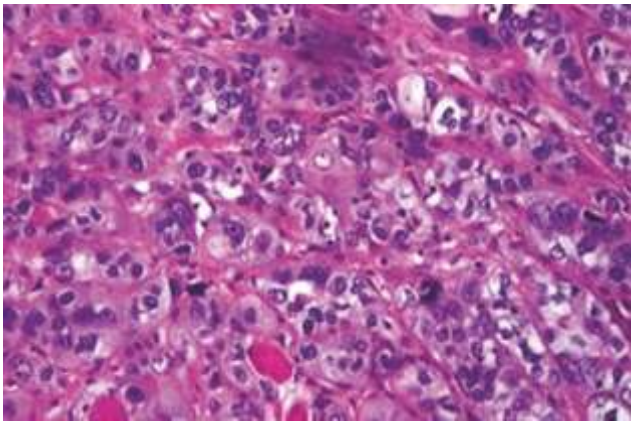

Fig. 5: H & E (100X) Poorly Differentiated Squamous Cell Carcinoma

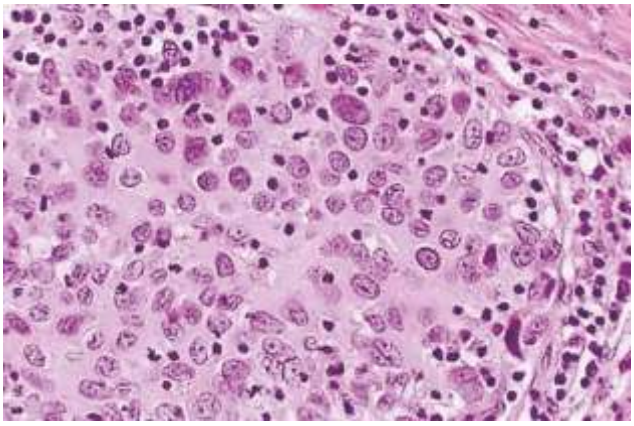

Fig. 6: H & E (40X) Nasopharyngeal Carcinoma, Squamous Cell Keratinizing Type

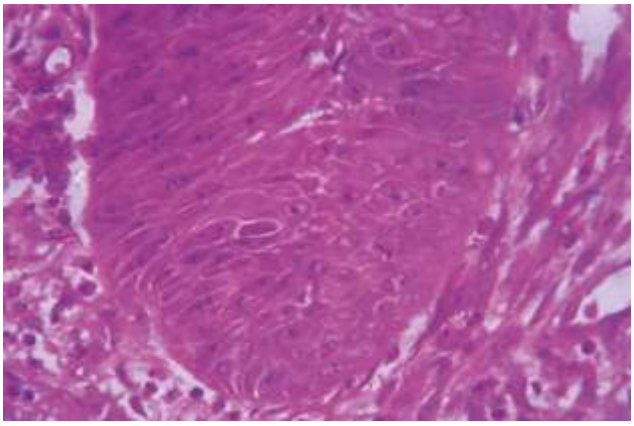

Fig. 7: H & E (40X) Verrucous Carcinoma

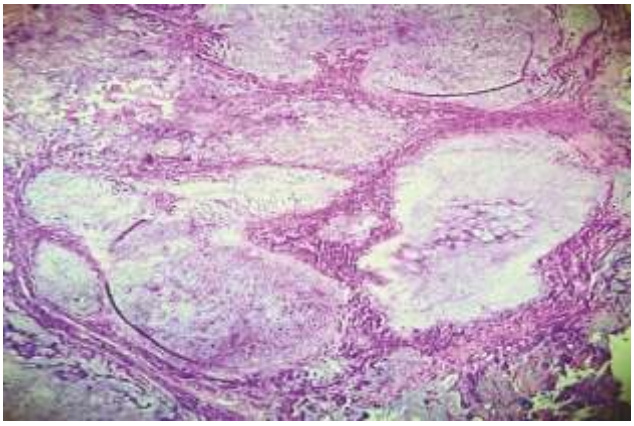

Fig. 8: H&E (40x) Pleomorphic Adenoma Showing Epithelial and Myoepithelial against A Chondromyxoid Stroma

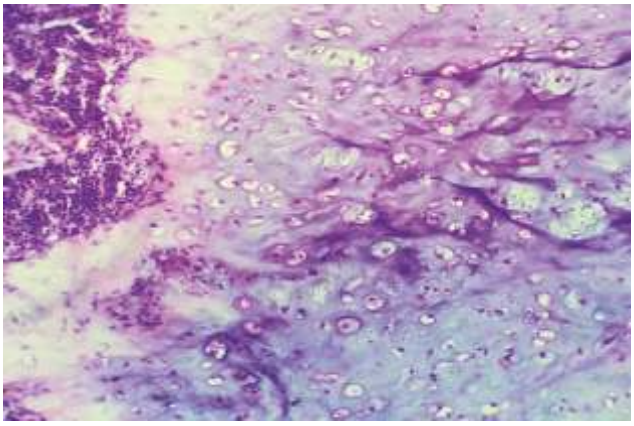

Fig. 9: H&E (100x) Pleomorphic Adenoma Showing Chondroid Stroma Comprising of Mature Chondrocytes

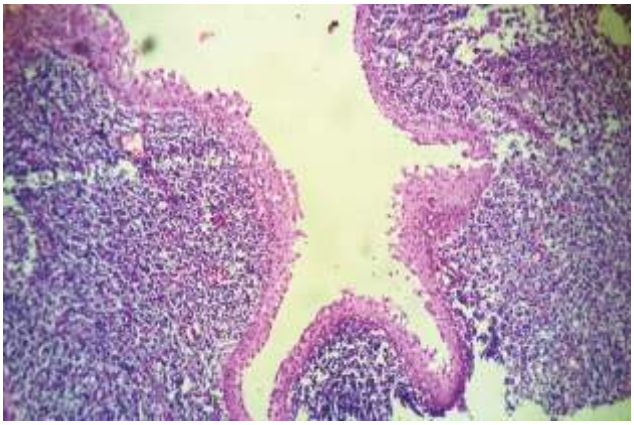

Fig. 10: H & E (40x) Warthin's tumor Showing Oncocytic Cells in Two Cell Layer (Cuboidal Basal Cells and Columnar Luminal Cells) with Accompanying Lymphoid Stroma

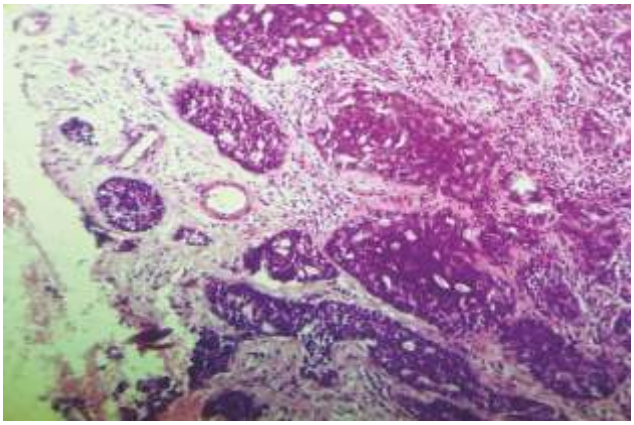

Fig. 11: H & E (40x) Adenoid Cystic Carcinoma Showing Cribriform Pattern as well Solid Pattern with Cystic Spaces (Swiss Cheese Pattern)

Discussion:

Head and neck neoplasms differ in their incidence from region to region but generally occur more in the elderly patients. The incidence of all these tumors is low among persons younger than 40 years of age. In our study most of the patients (62.5%) were aged between 41 and 70 years which were similar to the findings of Bhattacharjee *et al* [10] where they reported the incidence of these tumors around 71.9%. Our study showed 37.5% of the patients to be below the age of 41 years. This rate was found to be more as compared to that of the studies conducted by Alvarenga *et al* [4], Bhattacharjee *et al* [10], Brandizzi *et al* [12], Johnson *et al* [11]. Most patients (62.5%) in our study were male which was in concordance with the studies conducted by Bhatia *et al* [13] and Arotiba *et al* [14]. Epidemiological studies and National cancer registries have shown the wide variation in the male to female ratio from 2:1 to 15:1, depending upon the site [15].

As globally seen our study also showed oral cavity to be the most common site of head and neck neoplasms [4]. Oral cancer is more common in South Asian countries such as India, Srilanka because of the high incidence of tobacco and betel nut chewing.

In the oral cavity, the tongue was found to be the most frequently involved site constituting 26.7% of all the head and neck neoplasms and 71.4% of all the neoplasms affecting the oral cavity. This was in concordance with the study conducted by Brandizzi *et al* [12].

In the present study Squamous cell carcinoma was found to be the most frequent histologic type which was in concordance with the studies conducted by Bhattacharjee *et al* [10] and Ajayi *et al* [16]. Unlike all other studies conducted worldwide our study did not record any cases of sarcomas or lymphomas [17]. Head and Neck neoplasms have been reported to be more prevalent in people with low socioeconomic status

as was also seen in our studies. The majority of patients presented late with advanced stages which was in concordance with the other studies [18].

Salivary gland tumors are rare and account for less than 2% of all cancers and 3-4% of the head and neck neoplasms [19]. Our study showed the incidence to be a bit more as compared to the studies conducted worldwide. In our study all the cases were of major salivary gland constituting 10.7% of all the cases with pleomorphic adenoma (50%) being the most common histological type.

Conclusion:

The higher incidence of neoplasms of the head and neck region in the South West Punjab is in agreement with the other parts of India and South East Asian region. The occurrence of Otorhinolaryngological neoplasms under 41 years was found to be greater as compared to other studies, thereby necessitating enhanced etiological studies. Pre-treatment workup of the head and neck neoplasms is very essential to decide the treatment modality to be followed depending upon the extent of the involvement. Histopathological investigation is the most essential part of the work up because it provides the accurate histological diagnosis along with the histological grading thereby enabling the commencement of early and proper treatment protocol. Therefore public enlighten early diagnosis and cost effective treatment along with regular follow ups are urgently needed to improve the outcomes of these patients.

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