

VERRUCOUS CARCINOMA OF THE LARYNX

The Clinical and Pathological Reports of 11 Cases

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SUMMARY

Verrucous carcinoma is a unique clinical and pathological entity which has been recognised in the recent years. It is a variant of well-differentiated squamous cell carcinoma which may occur in the larynx; other anatomic locations such as: the oral cavity, anogenital region, and skin may be involved. It accounts for 1-2% of all laryngeal cancers. The clinical, histopathological and biologic features of this neoplasm differ from that of conventional squamous cell carcinoma. Therefore, close communication between pathologist and laryngologist is necessary for a correct diagnosis.

Eleven cases of verrucous carcinoma which were collected in our institution within the past ten years are going to be reported. The clinical and pathological features will be discussed. It seems surgical excision is the treatment of choice and irradiation must be discouraged since anaplastic transformation and recurrences after irradiation has been reported.

KEY WORDS: *Ackerman's tumor; Giant condyloma; Verrucous carcinoma.*

INTRODUCTION

Verrucous carcinoma of the larynx is an unusual distinct variant of well-differentiated squamous cell carcinoma which comprises 1-2% of all laryngeal cancers (1,2,3). This uncommon neoplasm is clinically and histopathologically recognised through its increased frequency in the larynx.

In 1948, Ackerman was the first who described

this neoplasm in the oral cavity. Goethals introduced verrucous carcinoma of the larynx. More than 150 cases have been reported so far.

This peculiar neoplasm continues to be controversial with respect to diagnosis and effective treatment. It is believed that verrucous carcinoma of the larynx appears as a deceptively benign microscopic feature. It requires several biopsies for making a proper diagnosis and shows a biological

behavior similar to verrucous carcinoma of the oral cavity and other sites (1-6).

A correct diagnosis requires a close cooperation between laryngologists and histopathologists particularly when repeated biopsies show a morphological pattern of diffuse epithelial hyperplasia along with hyperkeratosis, whereas the clinical appearance is suggestive of a malignant neoplasm. The laryngologist tends to overestimate the aggressive behavior of this neoplasm, conversely the pathologist tends to underestimate the significance of the lesion, especially in the small biopsy specimens.

In this paper, eleven of cases are reported. Clinical and pathological features as well as biological behavior of this neoplasm will be discussed.

CASE 1

A 70-year old white male with a four-year history of hoarseness and dyspnea was admitted to the hospital. His past history, except for his heavy cigarette smoking, extended for a period of fifty years. Laryngoscopic examination revealed a large exophytic tumor in the left vocal cord and left ventricle. Two previous biopsies had reported papillomatous hyperplasia.

CASE 2

A 63-year old white male was admitted to the hospital, complaining of dyspnea and hoarseness. His clinical symptoms had become increasingly worse the last ten months before hospitalization. Later, he experienced weight loss, dysphagia and anorexia. He has been smoking cigarettes for the last forty years. Laryngoscopic examinations revealed a large elevated lesion with necrotic surface in the right supraglottic region. He had one biopsy which was followed by total laryngectomy had to be performed for him.

CASE 3

A 66-year old white male with a history of hoarseness of one year prior to admission to the hospital. He has been smoking cigarettes for the last forty years. Laryngoscopic examinations revealed an elevated lesion in the left vocal cord and anterior commissure.

CASE 4

A 44-year old male with a history of long-term dyspnea showed to have an elevated tumor with necrotic surface which was spotted in the right supraglottic region in the laryngoscopic examination. His first biopsy revealed verrucous carcinoma for which total laryngectomy had to be done. The pathological report confirmed the diagnosis.

CASE 5

A 50-year old white man with a five-year history of increasing hoarseness was admitted to an out patient clinic. In the laryngoscopic examination, an elevated cauliflower-like lesion was spotted in the left vocal cord region. He had had two previous biopsies, but the diagnosis of verrucous carcinoma was made only after the second biopsy; thus, he underwent total laryngectomy.

CASE 6

A. R. a 56-year old white man with a history of hoarseness, for eight years, was hospitalized for laryngectomy. Four biopsies were done, three of which were negative, whereas the fourth one revealed verrucous carcinoma.

CASE 7

A 50-year old white male with a history of hoarseness, for one year, was admitted to the hospital. Laryngoscopic examination revealed fungating mass in the right pyriform sinus. He had never smoked. Biopsy report showed a verrucous carcinoma for which subsequent laryngectomy was performed.

CASE 8

A 58-year old white male with a six-year background of hoarseness. His laryngoscopic examination showed left vocal cord lesion. He had two laryngeal biopsies, of which the second one was indicative of verrucous carcinoma.

CASE 9

A 70-year old white male with a history of hoarseness for two years. His laryngoscopic examination showed to have a large tumor which was located in the anterior commissure and both vocal cords. He had three biopsies that only the last

two were suggestive of verrucous carcinoma; therefore, total laryngectomy was performed.

CASE 10

An 88-year-old white male had a history of hoarseness with a duration of one year. A warty elevated lesion was detected in the right vocal cord in an examination of his larynx. Biopsy was performed and the diagnosis of verrucous carcinoma was confirmed.

CASE 11

A 62-year old white female with a six-month history of respiratory distress and dysphonia. Laryngoscopic examination revealed presence of a left vocal cord tumor. The first biopsy was negative whereas the second one was indicative of verrucous carcinoma.

RESULTS

Out of 11 cases, only one was an elderly female and the rest were males. The average age of the patients was 61.4, the oldest was 88 and the youngest was 44 years old. All of our patients had hoarseness with various degree of severity. Three cases complained of respiratory distress and dyspnea.

We had only one case who had experienced weight loss and anorexia. Most of our cases had a long history of smoking ranging from 8-50 years. The duration of illness among our cases ranged from six months to eight years with an average of 22 months. The distribution of neoplasm in the larynx among our patients was as follows:

- Six cases were in vocal cords, equally divided on either sides;
- Two cases were in pyriform sinuses;
- Two cases were in anterior and posterior commissures; and,
- One case was in supraglottic region.

Regarding the number of biopsies, seven cases had 2-4 biopsies prior to laryngectomy, either in our institution or elsewhere, and four cases had only one previous biopsy which was indicative of verrucous carcinoma.

DISCUSSION

Verrucous carcinoma is a distinct variant of well-differentiated squamous cell carcinoma which was first described by Ackerman in 1918, who used the term *verrucous carcinoma* in his report of 31 cases with oral cavity (3,5,6).

This peculiar neoplasm is clinically and histopathologically being recognised through its increasing frequency. Up to now, over 150 cases have been reported in English medical literature.

Nomenclature: The variety of names given to this uncommon malignant neoplasm are: Ackerman's tumor, giant condyloma acuminatum, carcinoma cuniculation, and verrucous carcinoma (3).

Incidence: Neoplasms which bear the clinical, morphological, and biological requirements for verrucous carcinoma are rare in the larynx and account for 1-2% of all laryngeal cancers.

Age and sex: Verrucous carcinoma in males are more common; ten (over 90%) of our cases were males. It is believed that this neoplasm occurs predominantly in the aged individuals. Our oldest patient was 88, the youngest was 44 years old with the mean age of 61.

Anatomic sites: Verrucous carcinoma occurs in various anatomic sites similar to the conventional squamous cell carcinoma of the larynx.

Clinical presentation: The most common obvious symptom is hoarseness with long-term duration which becomes progressively worse over months or years; however, the apparent symptom may be insignificant in the early stages of this slow developing tumor. Occasionally the first symptom is dysphagia or hemoptysis which may require prompt tracheostomy. Most of our cases had a prolonged history of cigarette smoking.

Macroscopic appearance: Verrucous carcinoma is usually a 1-2 cm pale grey bulky exophytic lesion affecting vocal cords on either sides or it may arise in other parts of the larynx. The gross morphological features depend on several features; duration of lesion, degree of keratinization and accompanying changes in the adjacent mucosa. The fully developed tumor is an elevated cauliflower-like lesion with a shaggy surface. This neoplasm unlike its conventional carcinoma has a demarcated pushing rather than invasive border (6,9).

Microscopic features: This neoplasm exhibits a deceptive rather benign histologic pattern particularly in small biopsies. There is a highly differentiated hyperplastic squamous epithelium covered by layers of keratin. Outward finger-like projections capped by a thick keratotic or parakeratotic layers as well as downward solid broad tongues of differentiated squamous epithelium underlie the basic microscopic pattern in which nuclear pleomorphism is rare or absent, mitosis is rare, and the overall cytologic criteria of malignancy are lacking. There is usually a dense inflammatory cell infiltration composing of lymphocytes and plasma cells within the stroma which seems to delimit neoplasm. Sections taken through the tumor from laryngectomy specimen reveal symmetric pushing rather than infiltrative irregular margins (1,3,4,7).

Diagnosis: A correct diagnosis requires close cooperation between the laryngologist and surgical pathologist particularly when repeated biopsies show a morphological pattern of diffuse hyperplasia, hyperkeratosis, and parakeratosis. While the clinical appearance is indicative of a malignant neoplasm, by contrast, the surgical pathologist tends to underestimate the true nature of the lesion especially in small biopsies. Therefore, large representative biopsies that include the deep margin of the lesion should be taken along with full clinical description and macroscopic findings. Criteria for diagnosing verrucous carcinoma are summarized as follows:

- 1) Patients are usually among elderly males;
- 2) long-term history of hoarseness with increasing severity over the years is observed;
- 3) slow-growing nature of the neoplasm;
- 4) fungating, exophytic, warty tumor with coarse shaggy surface and demarcated pushing rather than infiltrative margin on laryngoscopic examination;
- 5) ulceration is usually absent;
- 6) thick hyperplastic epithelium with outward finger-like projections as well as downward broad epithelial tongues, on the low light microscopy;
- 7) highly-differentiated squamous epithelium with scanty or no atypicality and rare mitosis on medium power light microscopic examination;
- 8) dense inflammatory cell infiltration composing of lymphocytes and plasma cells and in some cases foreign body granulomatous reaction;
- 9) no regional lymph node or distant metastasis (1,3,4,6,7).

Treatment: There are a considerable controversial issues about the correct method of treatment of verrucous carcinoma. In view of the large number of reported cases treated by irradiation, it does not appear to be the treatment of choice for verrucous carcinoma of the larynx, regardless of the risk of anaplastic or sarcomatoid transformation after irradiation that has been observed in the larynx and other sites. Surgical excision, by itself, seems to be the most effective form of therapy. Surgical procedure should not include neck dissection, even though enlarged and tender lymph nodes may be palpated; in fact, excision of these nodes reveals only a reactive process. Distant metastasis has not been reported (3,5,7,8).

REFERENCES

- 1) Abramson, AL L, Brandasma, J, Steinberg, B, & Winkler, B. (1955). Verrucous carcinoma of the larynx. *Arch. Otolaryngol.*, 111, 709-715.
- 2) Lekas, M D, Kamath C, R, & Vitavasiri, A. (1977). Hemoptysis and supraglottic verrucous carcinoma. *Ear Nose and Throat Journal*, 56, 11-17.
- 3) Myers, E, Sobol, S, & Ogura, Joseph H. (1980). Hemilaryngectomy for verrucous carcinoma of the glottis. *The Laryngoscope*, 90, 693-698.
- 4) Ferlito, A. (1985). Diagnosis and treatment of verrucous squamous cell carcinoma of the larynx: A clinical review. *Ann. Otol. Rhinol. Laryngol.*, 94, 557-575.
- 5) Medina, JE, Michael, MW, & Luna, MA. (1984). Verrucous squamous carcinoma of the oral cavity: A clinicopathologic study of 104 cases. *Arch. Otolaryngol.*, 110, 437-440.
- 6) Prioleau, P G, Santa Cruz, D J, Meyer, J S, & Bauer, Walter C. (1980). Verrucous carcinoma: A light and electron microscopic autoradiographic and immunofluorescence study. *Cancer*, 45, 2849-2857.
- 7) Elliott, GB, Macdougall, & Elliott, JDA. (1974). Problems of verrucous squamous carcinoma. *Ann. Surg.*, 177, 21-29.
- 8) Batsakis, JG. (1982). Tumors of the head and neck. *Williams & Wilkins* (2nd ed.). (p. 204).
- 9) Brownstein, M H, & Shapiro, L. (1976). Verrucous carcinoma of skin. *Cancer*, 38, 1710-1716.