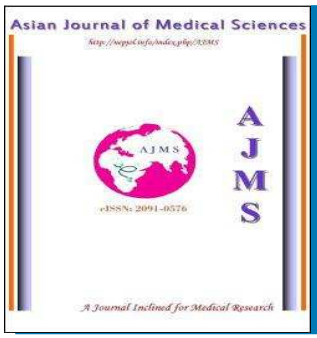

GLOTTIC SQUAMOUS CELL CARCINOMA METASTATIC TO THE BRAIN

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"The symptom of headache in a treated patient of glottis SCC is alarming and indicates a remote possibility of the brain metastasis"

ABSTRACT

Spread of squamous cell carcinoma (SCC) commonly occurs vialocal lymphatic channels. Owing to scanty lymphatic drainage and vascular supply, SCC arising from the glottis rarely metastasizes. A 39-year-old male, operated for SCC of the glottis, presented 13 months later with complaints of headache. Computed tomography revealed a single ring-enhancing lesion in the right temporo-parietal region of the brain, suggestive of brain abscess. However, histopathological examination of the excised brain lesion showed metastasis of moderately differentiated SCC. Here, we report a rarecase of distant hematogenous brain metastasis of SCC of the glottis.

Key words: Carcinoma glottis; brain metastasis; Squamous cell carcinoma.

INTRODUCTION

Approximately 95% of laryngeal carcinomas are typical squamous cell carcinomas (SCC); adenocarcinoma is rarely seen.[1,2,3]Although SCC commonly spreads through regional lymphatics, there is also a remote possibility of hematogenous dissemination. Due to scanty lymphatic drainage and vascularity, distant metastasis of the glotticsquamous cell carcinoma is rare (3.1%).[4,5]Herein, we report an un common hematogenous metastasis of SCC of the glottis to brain.

CASE REPORT

A 39-year-old man presented with persistent and increasing hoarseness of voice for duration of 5 months and progressive breathlessness for 15days. Examination revealed increased respiratory rate with signs of labored breathing. Direct laryngoscopic examination showed a soft tissue growth causing fixation of bilateral vocal cords and occlusion of the airway. An emergency tracheostomy was performed. Biopsy taken from the right vocal cord was reported as SCC. Computed tomography (CT) scan of the neck demonstrated a heterogeneously enhancing soft tissue mass of size 2.99X2.88X2.63cm^3 involving bilateral vocal cords,paraglottic space posteriorly and false vocal cords (**Fig.1**). Preoperative hematological and biochemical investigations were within normal limits. Patient underwent total laryngectomy with bilateral modified neck dissection. Histopathological examination of the operated specimen was reported as moderately differentiated SCC of the larynx involving the bilateral glottis. The tumour was infiltrating through underlying muscles, soft tissues and cartilage in the paralaryngeal space. In addition, right lobe of the thyroid gland showed direct invasion by the tumour. All the submitted Level I to V cervical lymph nodes were negative for tumour infiltration. In view of the above findings, patient was diagnosed as a case of glottic SCC, stage $T_4N_0M_0$ (American Joint Committee on Cancer Staging, 1992).Postoperatively, the patient received radiotherapy. A dose of 60 Gy was delivered in 30 fractions over a period of 6 weeks by parallel opposed lateral portals. Thereafter, the patient was lost to follow up. The patient turned up again after 13 months of surgery, with complaints of severe headache and vomiting, of recent onset. CT scan of the brain revealed a solitary, moderately enhancing ring lesion in the right temporoparietal region measuring 5.35 X 4.75cm^2 with perilesional edema and compression of the lateral ventricle of the ipsilateral side (**Fig. 2**). Local recurrence of disease or other evidence of distant metastases was not present at this point of time. Chest X-ray and CT scan of the chest were unremarkable. A provisional diagnosis of brain abscess was made. The lesion was surgically excised under general anaesthesia. However, histopathology of the operated specimen revealed metastasis of moderately differentiated SCC (**Fig.3**). Patient underwent whole brain radiotherapy 3 weeks after the surgery. A dose of 30Gy in 15 fractions was delivered over a period of 3 weeks. However, his condition was deteriorating in a 3-month postoperative follow up period.

Fig 1: Sagittal section of CT scan of the neck showing heterogeneously enhancing soft tissue growth in the larynx occluding the airway.

DISCUSSION

Metastases to the brain alone, without distant metastases at other sites, were found in only 3% of all patients with intracranial metastases.[6] In a study of 5000 patients of SCC in the head and neck region, only 21 patients had brain metastasis.[6] Clinically, distant metastasis of the head and neck SCC was seen in 9-11%, out of which only 2-8% were intracranial.[2,7]It is extremely rare for SCC of the glottis to present with cranial metastasis without concomitant loco-regional

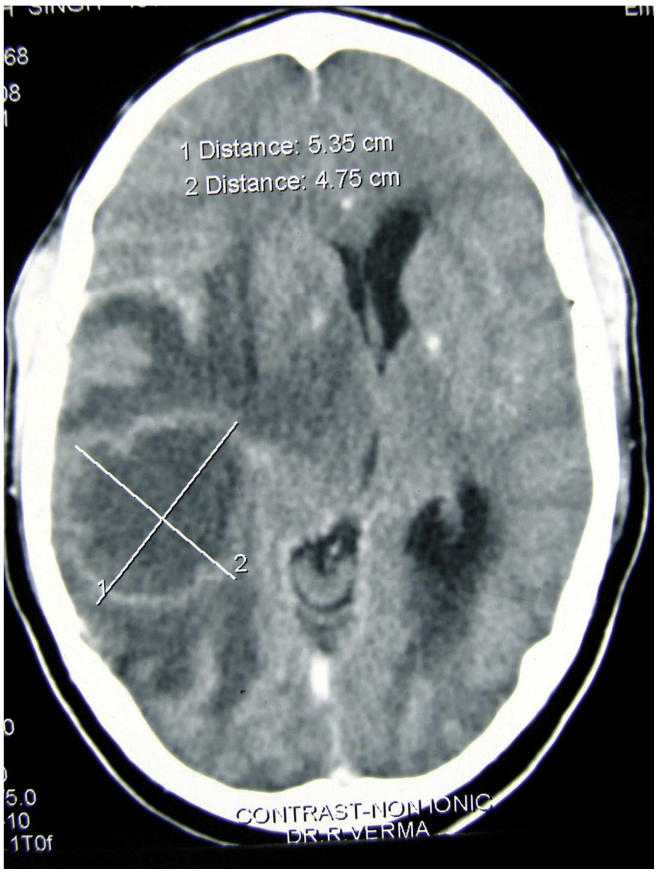

Fig. 2: Axial CT scan of the brain showing solitary moderately enhancing ring lesion in the right temporo-parietal region with perilesional edema.

lymphatic spread. Headache is a common and alarming complication of brain metastasis.[5]About 1 in 5 cancer patients reveals an intracranial metastasis at autopsy.[8]In SCC, single brain metastasis are more frequent than multiple-brain metastases.[6]Lungs are the most common site of metastases from laryngeal carcinoma, which tend to be small and multiple, and usually undetectable on a plain chest X-ray.[9] A CT scan of the chest is required for detection, which did not show metastatic focus in our patient. Other common locations of the spread are mediastinal lymph nodes, bone and liver.[9]In one autopsy study,81 % patients with disseminated laryngeal carcinoma showed local cervical lymph node involvement.[10] Although during primary

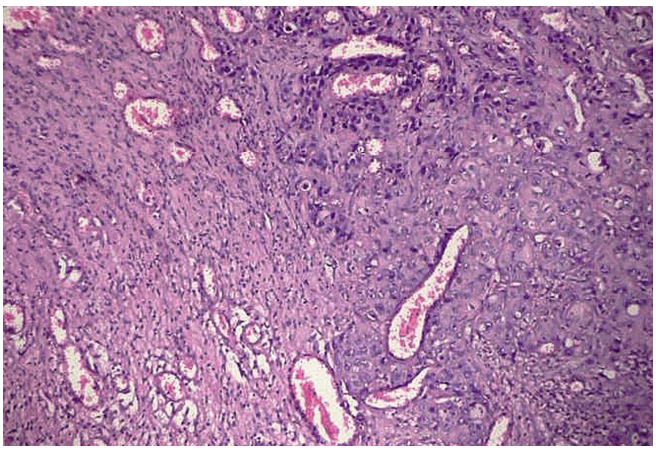

Fig 3: Photomicrograph showing island of moderately differentiating squamous cell carcinoma (right half of the fig.) juxtaposed to glial tissue of the brain (left half of the fig.) (H&E, 200X)

radical laryngectomy, the tumor showed local invasion into the adjacent structures without lymph node metastasis, foci of local recurrences or distant metastases other than the single brain lesion were not evident subsequently. The patient underwent cranial surgery with a provisional diagnosis of brain abscess but histopathological examination revealed metastasis of SCC. Further, CT scan of the chest did not reveal any evidence of pulmonary or mediastinal metastatic lesions. Thus, despite the fact that glottis possesses scanty lymphatic drainage and vascularity, the present case demonstrates the rare potential of glottis SCC to develop intracranial metastasis without spread to other organs. Radiotherapy is the most commonly used treatment for brain metastasis. For solitary brain metastasis, stereotactic radiotherapy is the treatment of choice with an overall high tumor control rate and complete response.[6]The other therapeutic options are whole brain radiotherapy alone and in combination with surgical excision.[11] Evidence of distant spread from laryngeal carcinoma is an ominous sign and 90 % of patients succumb to death within two years of detection of any distant metastases.[9]The condition of our patient too was deteriorating in a 3-month follow-up period.

To conclude, this unusual case highlights the need for close surveillance in treated patients of glottis SCC; complaint of headache should alert the clinician to the rare possibility of metastatic brain disease.

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SCP: Concept and Design of the study, analysis and interpretation, manuscript preparation, critical revision of the manuscript, data collection, statistical analysis, and literature search.

SP: Concept and Design of the study, analysis and interpretation, manuscript preparation, critical revision of the manuscript, data collection, statistical analysis, and literature search.

RM: Manuscript preparation, critical revision of the manuscript, statistical analysis, and literature search.

MK: critical revision of the manuscript and data collection.

PT: Concept and Design of the study, analysis and interpretation, manuscript preparation, critical revision of the manuscript, data collection, statistical analysis, and literature search.

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