Vocal Cord Palsy an Induced Complication of Carboplatin and Paclitaxel: A Case Report

Case Report

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Introduction

Unilateral vocal cord paralysis is most common than bilateral vocal cord paralysis. In 30~50% of the subjects the unilateral vocal cord paralysis is idiopathic and asymptomatic [1]. Other causes of unilateral vocal cord paralysis may include certain neurologic illness [2], trauma, thyroidectomy [3], and intubation during surgery, malignancy [4]. Sometimes it is the only sign of an otherwise asymptomatic malignancy of larynx [5]. It is believed that the paresis or paralysis may be caused due to the neurotoxic effect of carboplatin and paclitaxel or such neurotoxic drugs.

Case Report

A 54 years old female patient reported with complaints of weak and low voice and change in pitch. Patient was receiving platinum-based chemotherapy for adenocarcinoma papillary serous of cervix cancer, stage IIIb without metastases which confined to the uterus only. The patient underwent chemotherapy containing Carboplatin 450mg and Paclitaxel 250mg. Patient reported change of voice prior to completion of 5th cycle of chemotherapy. After 5th cycle of the chemotherapy patient was referred to otolaryngologist for evaluation. In stroboscopic examination one cord was visualized in the paramedian position and other cord was partially approximating the paralyzed one. The perceptual voice analysis on GRBAS scale revealed breathy voice with alteration in pitch as well as loudness in objective assessment on Dr Speech software during sustain phonation of vowel /ae/ (as shown in table). Objective voice assessment revealed more jitter (>1%), shimmer (>3%) and F0 tremor. The mean F0 was low and varying from habitual F0 with high variation of Min F0 and Max F0 with high normalized noise energy (NNE). The signal to noise ratio (SNR) and harmonic noise ratio were less. The intensity was also varying during sustain phonation. For management, patient was worked up on the vocal cord approximation techniques to rehabilitate the voice and made the communication better.

Abstract

**Background:** Unilateral vocal cord paralysis is common. Most of time unilateral vocal cord palsy is idiopathic. Other causes include malignancy, secondary to neck or recurrent laryngeal nerve trauma, intubation or secondary to surgery however, taxens induces causes paresis may include larynx.

**Case Report:** We report a patient who had cancer of cervix (Endometrium) and developed vocal cord paralysis after completion of five cycles of treatment with injections paclitaxel 250mg and carboplatin 450mg. Patient’s stroboscopic examination and voice analysis confirmed vocal cord paralysis with cord lateralized in paramedian position and with breathy quality of voice. The vocal cord paralysis was believed to have occurred due to neurotoxic effect of carboplatin and paclitaxel, as an added complication of these drugs.

**Conclusion:** Carboplatin and paclitaxel can induce bilateral or unilateral vocal cord paralysis. The concurrent amount of dose used of carboplatin and paclitaxel might have contributed to this illness in patient.

**Keywords:** Carboplatin; Paclitaxel; Voice Analysis; Breathy Voice.
Table 1. Objective assessment.

| Parameter       | Values       |
|-----------------|--------------|
| Habitual F0     | 201.18 Hz    |
| Jitter          | 4.78%        |
| Shimmer         | 5.67%        |
| F0 tremor       | 6.14 Hz      |
| Mean F0         | 203.6 Hz     |
| Max F0          | 212.4 Hz     |
| Min F0          | 192.4 Hz     |
| NNE             | -3.14 dB     |
| SNR             | 10.28 dB     |
| HNR             | 10.42 dB     |
| Min Intensity   | 62.74 dB     |
| Max Intensity   | 58.12 dB     |

Table 2. Perceptual Assessment.

| Parameter | Level |
|-----------|-------|
| Grade     | 3     |
| Roughness | 2     |
| Breathiness | 3    |
| Asthenia  | 2     |
| Strain    | 2     |
| MPD (sec) | 4     |

Discussion

Most common etiologies of vocal cord paralysis have been found to be idiopathic and others etiologies are due to malignancy or carcinoma, iatrogenic, and neck trauma of vocal cord paralysis usually seen with symptoms such as hoarseness, dysphonia, and sometimes aspiration too [6]. Carboplatin and paclitaxel (taxane) are neurotoxic drugs which cause peripheral neuropathy neurological disorder. However, the carboplatin and paclitaxel is less neurotoxic than other like vinka alkaloids. Treatment with carboplatin-taxane regimens exhibit ongoing symptoms such as feeling sick, hair loss, numbness or tingling hands or feet, diarrhoea etc following the completion of treatment in the 25% of the patients [7]. Jeffrey Hsu and Melin Tan-Geller found that paclitaxel induces reversible bilateral vocal cord paralysis [8]. On comparisons with the previously cited case studies, it appears that, this could state indirectly that like other neurotoxic drugs, many other patients might have undiagnosed carboplatin and paclitaxel brought vocal fold paralysis and this complication during chemotherapy is less reported.

Conclusion

Apart from other causes of vocal cord paralysis, the history of use of the neurotoxic chemotherapeutic drugs also should be the part of evaluation. Prior to start chemotherapy usually in old age, patient should be explained that dysphonia, stridor or aspiration may be some additional side effects of these neurotoxic drugs which can be temporary or permanent.

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