Editorial

Challenging conventional Superior Vena Cava (SVC) syndrome treatment

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William Hunter first described Superior Vena Cava (SVC) syndrome in 1757. Malignant and benign diseases, primary, metastatic, and iatrogenic (in-dwelling catheters and wires) to the chest causes it. In SVC syndrome, obstruction of blood flow via the SVC develops, and collateral pathways are formed, resulting in upper chest anasarca. Swelling of the face and neck and distended neck veins are noticeable. Symptoms vary depending on the severity of the disease. Pharyngeal and laryngeal edema cause hoarseness and difficulty breathing, worsening airway obstruction in the supine position. The patient may experience neurological symptoms from increased central venous pressure (dizziness, watery eyes). Cardiovascular symptoms are rare. In cancer patients, symptoms develop over time and the gravity of symptoms and the stage of malignancy influence the treatment modality. New treatment options, such as immunotherapy targeting specific tumor markers, are used with conventional chemotherapy and can last for years (1). Patients are living longer with the burden of their disease. Despite the multitude of medical and technological advancements, disease progression occurs. The challenge remains in the case of resistance to current therapies and the palliative treatment alternatives that improve cancer patients' quality of life.

In a paper published on *Annals of Palliative Medicine*, Nakashima *et al.* presented a case of palliative surgery as a treatment option for SVC syndrome (2). The patient is a 43-year-old with non-small cell lung cancer (NSCLC) treated with multiple rounds of chemoimmunotherapy. Follow-up imaging showed disease regression except in one area of upper chest lymph nodes invading the SVC. The patient developed symptomatic SVC syndrome and underwent surgical resection of lymph nodes with graft reconstruction of the SVC under general anesthesia with cardiopulmonary bypass. At the time of publication, 22 months have passed, and the patient is well on maintenance chemoimmunotherapy without any evidence of disease progression.

When first reading this case report, one questions the role of aggressive surgery with cardiopulmonary bypass in treating SVC syndrome in the context of metastatic disease. Surgery involving cardiopulmonary bypass carries considerable risks. Historically, once SVC syndrome develops, life expectancy is six months; one asks, aren't there less invasive treatments that improve quality of life with less risk involved?

The initial management of SVC syndrome centers around symptomatic treatment. Traditionally, radiation

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therapy has long been considered the first line for acute symptomatic SVC syndrome as the fastest way to alleviate symptoms. However, the effect may not be felt for 3–4 weeks, symptomatic recurrence is frequent, and concomitant immunotherapy increases the risk of pulmonary toxicity. Endovascular stenting with a low complication and restenosis rate and non-interference with other treatment modalities is now considered first-line therapy (3). Open surgical resection with cardiopulmonary bypass is reserved for failed interventions, such as benign or extensive disease (4).

When choosing the best approach for therapeutic management of SVC syndrome, the severity of the disease and underlying pathology guide management. In the past, metastatic disease was considered incurable, and palliative treatment with alleviation of symptoms was the only option. Over the past decades, improvement in cancer therapies with improved cancer survival has redefined the concept of metastatic disease. A new behavior pattern of metastatic disease in specific cancer types is emerging. In some instances, what was once considered incurable is now classified as oligoprogression. This concept denotes tumor regression except in one area where the tumor progresses in an otherwise contained state of disease and has been observed in melanoma, prostate, renal cell, and NSCLC. Even though this phenomenon was first described in 1995 by Hellman and Weichselbaum, controversy exists regarding the precise definition of the number of sites and lesions (5). A study by Pisano *et al.* showed that 10–20% of NSCLC displayed oligoprogression while receiving immunotherapy. These lesions were responsive to local therapies, including ablation, radiation, or surgery, with favorable patient outcomes and improved cancer survival. Combining chemoimmunotherapy and local ablative treatment is a relatively new modality in the armamentarium of cancer treatment, and long-term follow-up is needed to show a survival benefit. To date, most data are retrospective (6,7). The premise is to apply local treatment to progressive lesions and, in this way, continue systemic treatment, which will contain the metastatic disease and prolong life expectancy (8). So, which factors correlate with a better prognosis in a patient with NSCLC and oligoprogression? A study by Ashworth *et al.* concluded that control of primary tumor, lower N-stage, and disease-free interval of more than 12 months significantly contribute to increasing overall cancer survival (9).

This case report highlights what was once considered life-limiting metastatic disease into potential cancer longevity. Although no long-term data is available for surgical resection of SVC syndrome in NSCLC in oligoprogression, this case report reflects the viewpoint of aggressive treatment to improve patient quality of life and prolonged existence. Isn't that what we owe our patients? Oligoprogression is a state between locally advanced and widespread disease. This languid course is an opportunity to constrain and offer good outcomes aggressively. There is growing optimism that with new and evolving immunotherapies, a larger group of patients will have a chance for locally aggressive treatment and show benefits in cancer survival (10). The treatment approach for SVC syndrome must be individualized, with a multidisciplinary team decision at tumor board with oncologists, radiologists, surgeons, pulmonologists, and anesthesiologists to define the best way forward.

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