Superior vena cava (SVC) syndrome is not an uncommonly observed occurrence in patients with malignancy, and it is often described as a medical emergency. In most majority of the cases, SVC syndrome occurs due to mechanical obstruction of the SVC by extraluminal compression caused by a primary intrathoracic malignancy. However, intraluminal obstruction due to thrombosis can also produce result in symptoms and signs of SVC syndrome. Clot-related SVC obstruction syndrome due to thrombosis is mostly associated with indwelling central venous catheters and pacemaker leads, although such this type of thrombosis can occur spontaneously in a background of hypercoagulable state conditions, such as those associated with malignancy. Here, an unusual case of sudden-onset SVC syndrome has been reported, in which the initial radiological evaluation was found to have showed a lung nodule without any significant mediastinal mass or adenopathy compressing the SVC. Subsequent investigation with Doppler ultrasonography of the neck showed thrombosis in the right internal jugular, right subclavian, and right brachiocephalic veins, which was responsible for SVC syndrome. Histopathological evaluation of the lung nodule confirmed the presence of an adenocarcinoma. Therefore, venous thromboembolism as a paraneoplastic syndrome should be kept in mind while evaluating cases of SVC obstruction in cancer patients. Management of the underlying disease is of prime importance in such cases, and anticoagulation is the mainstay of therapy. Ability to identify diagnose paraneoplastic syndromes may have a significant effect on clinical outcomes, ranging from contributing to early diagnosis, leading to earlier treatment and to potentially improved quality of life of the patient.