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ORIGINAL ARTICLE

Superior vena cava syndrome: Clinical considerations

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KEYWORDS
Superior vena cava syndrome;
Superior vena cava obstruction;
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Abstract
Background: The superior vena cava syndrome (SVCS) is a rare pathological process caused by the superior vena cava obstruction (SVCO).
Aim: To know the main causes of SVCS in a third level hospital.
Material and methods: Observational, prospective and descriptive study in 31 patients with SVCS treated between June 2013 and December 2014. Yale, Stanford scores and tumour biopsy were obtained at diagnosis.
Results: The main causes of SVCS were malignant tumours: lung cancer (22.5%) and lymphoma (16.1%). For lung cancer, the most common was non small cells (57.1%) and lymphoma was non-Hodgkin (80%).
Conclusions: The main causes of SVCS are advanced malignant tumours like lung cancer and lymphomas, benign obstruction causes are relatively rare.

PALABRAS CLAVE
Síndrome de vena cava superior;
Obstrucción de la vena cava superior;
Síndrome de Claude Bernard–Horner

Síndrome de vena cava superior: consideraciones clínicas

Resumen
Antecedentes: El síndrome de vena cava superior (SVCS) es un proceso patológico poco frecuente causado por la obstrucción de la vena cava superior (VCS).
Objetivo: Conocer las principales causas de SVCS en un hospital de tercer nivel.
Material y método: Estudio observacional, prospectivo y descriptivo en 31 pacientes con SVCS atendidos durante junio de 2013 a diciembre de 2014. Se utilizó la escala de Yale, Stanford y biopsia de tumour al momento del diagnóstico.

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Resultados: La principal causa de SVCS fue por tumores malignos: cáncer broncogénico (22.5%) y linfoma (16.1%). Del cáncer pulmonar, el más común fue el de células no pequeñas (57.1%) y para el linfoma fue el no Hodgkin (80%).
Conclusiones: El SVCS es principalmente ocasionado por tumores malignos avanzados como el cáncer de pulmón y los linfomas, los casos debidos a una obstrucción benigna son relativamente raros.

Introduction

Superior vena cava syndrome (SVCS) is mechanical obstruction of the superior vena cava (SVC) due to venous thrombi or extrinsic compression by intrathoracic tumours in most cases.[1] The main associated symptoms are: dyspnoea, collar of Stokes, neck vein distension and superficial venous network on the chest. The severity of the signs and symptoms presented depends on the anatomical level and the time to obstruction of the SVC.[2,3] Before the use of antibiotics, tuberculosis and aortic aneurysms due to syphilis were the two main causes of SVCS. Currently, the causes of SVCS may be *malignant or benign*.[4] The diagnosis of SVCS is clearly made by consistent clinical findings such as a superficial venous network and sometimes Horner's syndrome (Fig. 1). Imaging studies such as cavography (Fig. 2) and a chest computed tomography (CT) scan help to confirm the level and severity of the SVCS in order to decide upon a surgical plan, direct radiotherapy or place a stent. However, tumour biopsy is the gold standard as it confirms the histological type.[5] The following study was conducted to determine the clinical signs and main causes of SVCS.

Material and methods

A descriptive cross-sectional study was conducted in which consecutive cases of patients clinically diagnosed with SVCS admitted to the ''Dr. Alejandro Celis'' pulmonology department at Hospital General de México ''Dr. Eduardo Liceaga'' were enrolled from June 2013 to December 2014. The Yale grading system[6] was used to classify patients based on the severity of their signs and symptoms on admission. A chest CT scan was performed with administration of iodinated contrast medium (Xenetix® 300) in order to confirm the degree and level of obstruction according to the Stanford classification.[7] The definitive treatment—surgery, radiotherapy or chemotherapy—was determined according to the final diagnosis and based on the severity of each patient. Patients were followed up during their hospital stay until they were discharged. The data obtained were analysed using the SPSS® programme, version 22. Demographic data were analysed using frequency tables and proportions; quantitative variables were analysed using means with standard deviations.

Results

Of a total of 950 patients admitted to the ''Dr. Alejandro Celis'' pulmonology department during the study period, 31 (3.2%) had a clinical diagnosis of SVCS: 22 (71%) males and 9 (29%) females, with an age range of 20–81 years and a mean age of 45.9 ± (SD: 16.3). Of all patients with SVCS, 18 (58.1%) were admitted from the emergency department, 8 (25.8%) were admitted from the pulmonology outpatient department and 5 (16.1%) were admitted from other departments. The main clinical signs on admission were: collar of Stokes (100%), cough (90.3%), dyspnoea (87.1%), superficial venous network on the chest (80.6%), weight loss (77.4%) and chest pain (74.2%). The *Eastern Cooperative Oncology Group* (ECOG) scale[8] to assess the clinical status of the cancer patient was used, and 20 (64.5%) patients had a score

Table 1 Main signs and symptoms in patients clinically diagnosed with SVCS.

Variable	Frequency ($n = 31$)
Age, mean (SD)	45.9 ± 16.3
Males (%)	22 (71)
Females (%)	9 (29)
Signs and symptoms (%)	
Collar of stokes	31 (100)
Cough	21 (67.7)
Dry	7 (22.6)
Productive	27 (87.1)
Dyspnoea	25 (80.6)
Venous network on chest	24 (77.4)
Weight loss	23 (74.2)
Chest pain	19 (61.3)
Dysphonia	18 (58.1)
Diaphoresis	17 (54.8)
Headache	16 (51.6)
Dysphagia	15 (48.4)
Dizziness	
Yale grading system (%)	
0	1 (3)
1	2 (6.5)
2	26 (83.9)
3	2 (6)
4	0
5	0
Stanford classification (%)	
Type I	8 (25.8)
Type II	8 (25.8)
Type III	4 (12.9)
Type IV	10 (32.2)

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