Introduction

The azygos system of veins (ASV) is a very variable structure characterized as a communication between the inferior and superior vena cava, having the azygos vein (AV), the hemiazygos vein (HV), and the accessory hemiazygos vein (HAV) as its main components, which are responsible for the mediastinal viscera and for the thoracoabdominal wall drainage. The aim of the present study is to report an anatomical variation found in a male cadaver at the Laboratory of Anatomy of the University Center of UNIFACISA, Campina Grande, PB, Brazil.

Keywords

► azygos system
► anatomic variation
► thorax drainage
► vascular variation and macroscopic human anatomy.

Case Report

In the posterior mediastinum, the union of the HV, of the HAV, and of the 8th left posterior intercostal vein formed a common trunk at the level of the left 8th intercostal space, crossing the mediastinum posterior to the aorta artery, ending up in the AV, in the right hemithorax.

Conclusion

The study of the anatomical variations of the ASV is important and will provide knowledge for physicians not to confuse them with pathological processes in imaging exams. Moreover, it can provide safety in surgical approaches of the thorax.
Anatomical Variation of the Azygos System of Veins

Costa Brito et al.

Case Report

During the study of a previously dissected human male cadaver, the anatomical variation found in the posterior mediastinum was the union of the HV, of the HAV, and of the 8th posterior intercostal veins, forming a common trunk situated in the left 8th intercostal space. This trunk went from the left side across the posterior mediastinum to the right hemithorax, passing posterior to the thoracic aorta and communicating with the AV at the level of the right 8th intercostal space. The other veins maintained their usual path, without any variations (Figure 1).

Discussion

In the intrauterine life, the ASV develops from the subcardinal veins. The right subcardinal vein forms the AV, and the left subcardinal vein forms the HV. The HAV, as well as the superior part of the AV, originates from the left posterior cardinal vein. The connection between the HV and the AV originates from the anastomosis between the right and the left posterior cardinal veins.

The HV and the HAV can form common channels that cross the posterior mediastinum. In our study, the HV and the HAV form a common trunk with the 8th left posterior intercostal vein. A similar variant was already described, with only the HV and HAV veins forming a common trunk, without any participation of other veins.

Also, it was found an “interazygos” vein originating from the HV, crossing the mediastinum anteriorly to the aorta artery and draining blood from the 7th, 8th, 9th, 10th and 11th posterior intercostal veins. Another description is for an incomplete accessory HV with the posterior intercostal veins draining directly to the AV.

A large number of studies show the absence of one or more components of the ASV, although no study has found any variation similar to the one presented in the present article. The HAV is the most variable component of the ASV in terms of absence, number of branches, communications, and level of termination. This is an important fact to take into consideration when accessing the vertebral column in surgical approaches, as the ability of recognizing the structures adjacent to the thoracic vertebral column, as well as their variations, is essential to a favorable outcome in these procedures.

Conclusion

There are many variations in the ASV, and new ones must be reported and documented, since some of them can be misinterpreted as pathological processes such as aneurysms, enlarged lymph nodes, or tumors. Moreover, it is important for surgeons to have these variations in mind when surgically accessing the mediastinal region, preventing unforeseen scenarios.

Conflicts of Interests

The authors have no conflicts of interests to declare.

References


Fig. 1 1 hemiazygos vein; 2, left 8th posterior intercostal vein; 3, accessory hemiazygos vein; 4, common trunk; 5, aorta artery; and 6, diaphragm.