

to differentiate between CD and malignancy, with cases described with SUVmax between 1.4 and 7.4 in lung involvement. Given its malignant potential, biopsy should be considered in the presence of elevated SUVs (rare in multicentric disease), or hypermetabolism in large lymph node conglomerates.⁸

Videothoracoscopy is considered a feasible technique for the diagnosis and treatment of selected unicentric cases; bleeding or firm adhesions of the mass to neighbouring structures are the main reasons for conversion to thoracotomy.⁹ There is the possibility of enucleation of well-demarcated lesions, avoiding major lung resection.^{2,4} Talat et al. in their systematic review (n = 404) described a surgical or debulky resection rate of 77%, more frequent in unicentric (94.3%) than multicentric (38.9%) CD, with longer overall survival in unicentric (95.3%) vs multicentric disease (61.1%) and longer disease-free interval at 3 and 5 years in unicentric disease. In unresectable lesions, residual tumour, or inoperable patients, neo or adjuvant therapies³⁻⁵ such as adjuvant radiotherapy have been described with satisfactory long-term results and excellent local control (25–50 Gy dose) in the chest.^{3,6,10} In multicentric CD, surgery is not considered a first option and is reserved for diagnostic purposes. Treatment will usually be systemic based on glucocorticoids, chemotherapy or anti-IL-6 antibodies (rituximab, tocilizumab, or siltuximab) given the elevated expression of IL-6, with a worse prognosis than unicentric disease.³

With our case we wish to highlight the similarity of unicentric CD with lung cancer, emphasising the importance of establishing a differential diagnosis of this disease with other entities. Preoperative diagnosis is usually complex due to the nonspecific clinical and radiological manifestations. Surgical resection of the lesion and postoperative histopathological study is required to reach a diagnosis of certainty.

REFERENCES

1. Chen M-T, Lee S-C, Lu C-C, Tsai C-L. Unusual presentation of Castleman's disease mimicking lung cancer. *Respirol Case Rep.* 2019;7(4):e00416.

2. Aoki M, Kamimura G, Umehara T, Takeda AH, Watanabe Y, Maeda K, et al. Tumor enucleation for Castleman's disease in the pulmonary hilum: a case report. *Surg Case Rep.* 2019;5:95.
3. Liu Y, Chen G, Qiu X, Xu S, Wu Y, Liu R, et al. Intrapulmonary unicentric Castleman disease mimicking peripheral pulmonary malignancy. *Thorac Cancer.* 2014;5:576–80.
4. Kotoulas C, Panagiotou I, Kostikas K. Superior vena cava syndrome due to isolated intrapulmonary Castleman's disease. *Asian Cardiovasc Thorac Ann.* 2017;25(3):244–5.
5. Takhar RP. Intrathoracic Castleman's disease: "An important clinical mimicker". *Lung India.* 2017;34:197–9.
6. Sarana B, Jaal J, Tamm H, Laisaar T. Resection of unicentric interlobar Castleman disease with following adjuvant radiotherapy. *SAGE Open Med Case Rep.* 2017;5:1–4.
7. Talat N, Belgaumkar AP, Schulte KM. Surgery in Castleman's disease: a systematic review of 404 published cases. *Ann Surg.* 2012;255:677–84.
8. Jiang Y, Hou G, Zhu Z, Huo L, Li F, Cheng W. 18F-FDG PET/CT imaging features of patients with multicentric Castleman disease. *Nucl Med Commun.* 2021;42:833–8.
9. Yan-qing W, Li S, Feng G. Video-assisted thoracoscopic surgery is a safe and effective method to treat intrathoracic unicentric Castleman's disease. *BMC Surg.* 2020;20:127.
10. Neuhof D, Debus J. Outcome and late complications of radiotherapy in patients with unicentric Castleman disease. *Acta Oncol.* 2006;45:1126–31.

Guadalupe Carrasco Fuentes^a, Sebastian Sevilla López^a, Adela Sabio González^b, Antonio J. Bravo Cerro^a

^aServicio de Cirugía Torácica, Hospital Universitario de Jaén, Jaén, Spain

^bServicio de Anatomía Patológica, Hospital Universitario de Jaén, Jaén, Spain

*Corresponding author.

E-mail address: guadalupe.carrasco.f@gmail.com (G.C. Fuentes).

<http://dx.doi.org/10.1016/j.cireng.2022.06.004>

2173-5077/© 2022 AEC. Published by Elsevier España, S.L.U. All rights reserved.

Leiomyosarcoma of the azygos vein. An unusual case[☆]

Leiomiomasarcoma de vena ácigos. Un caso inusual



Soft tissue sarcomas (STS) are a heterogeneous and rare group of malignant tumours of mesenchymal origin. They account for 1% of all malignant neoplasms¹ and the most common of these is leiomyosarcoma². This lesion is made up of smooth

muscle differentiation cells¹ and accounts for 20% of all sarcomas².

We present the case of a 63-year-old woman who was followed up for dorsalgia and underwent MRI of the dorsal

[☆] Please cite this article as: Díaz-García JM, Jiménez-Fernández M, Gato-Díaz P, Luján-Rodríguez DR, Olaiiz-Navarro B. Leiomiomasarcoma de vena ácigos. Un caso inusual. *Cir Esp.* 2022. <https://doi.org/10.1016/j.ciresp.2022.05.002>

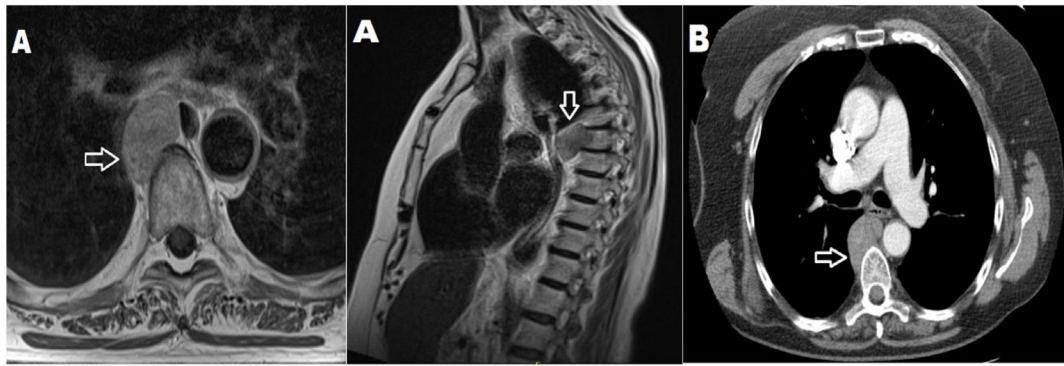


Fig. 1 – Radiologic tumour findings:

- A) Contrast-enhanced MRI of the dorsal spine, axial and sagittal view: well-defined solid tumour (white arrow) in the right posterior paravertebral mediastinum at T7-T8 level, unrelated to foramen conjunctiva, causing slight remodelling of the anterior vertebral margin, without bone invasion.
- B) Axial computed tomography image, mediastinal window: oval solid tumour in posterior mediastinum (white arrow).

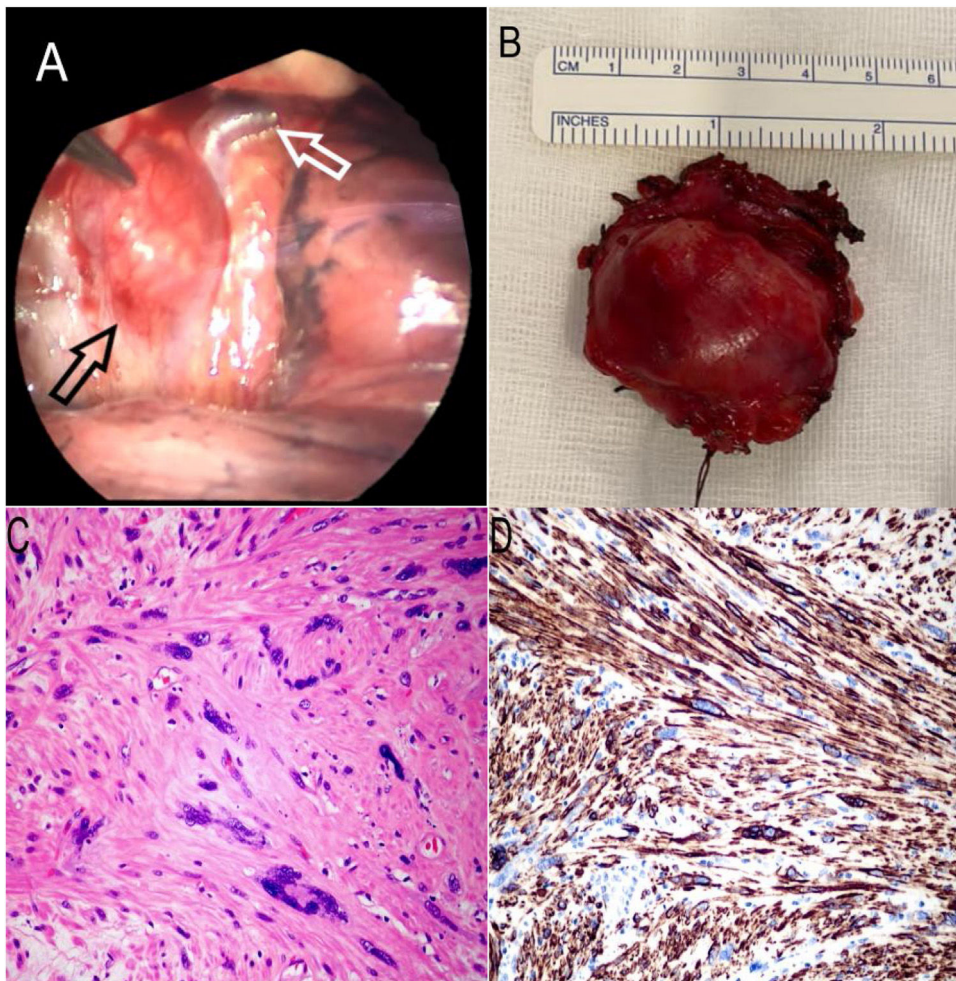


Fig. 2 – Macroscopic view and anatomopathological study.

- A) Intraoperative view: hard tumour (black arrow), encapsulated, highly vascularised with nutrition from the azygos vein (white arrow).
- B) Solid tumour measuring 4 × 3 cm, with an elastic consistency.
- C) Microscopic study shows a malignant mesenchymal proliferation of spindle cells with fibrillary cytoplasm, blunt edges, long-linear nuclei, and others with a bizarre appearance (haematoxylin-eosin, 20×).
- D) A tumour immunophenotype of muscular origin is observed, with diffuse expression of the immunohistochemical marker Desmin (20×).

spine showing a solid tumour measuring $4.4 \times 4.0 \times 2.4$ cm. Circumscribed in the right paravertebral posterior mediastinum at the level of T7-T8 with no relation to the foramen conjunctiva (Fig. 1A). To complete the study, digestive endoscopy was performed, which excluded mucosal alteration of the oesophagus at this level, and a CT-guided biopsy with a coarse needle biopsy, which diagnosed the tumour as a low-grade leiomyosarcoma. Its origin was the azygos vein and its location was assessed on CT (Fig. 1B), which was subsequently confirmed by tumour resection.

Surgery was performed by right thoracotomy through the 5th intercostal space with preservation of the serratus anterior muscle.

The intraoperative view showed a hard, encapsulated, highly vascularised tumour with nutrition from the azygos vein and intercostal arteries, extending from the lower edge of the azygos vein arch, continuing longitudinally adjacent to the oesophagus and vertebral bodies as well as the junction of the transverse processes of the costal arches 5,6 and 7 (Fig. 2A).

To excise the tumour, dissection of the parietal and mediastinal pleura limiting the tumour was carried out, identifying the longitudinal edge with respect to the oesophagus, which respected it, as well as the vertebral bodies and transverse processes, intimately adherent but without macroscopic tumour infiltration. Dissection of the azygos vein in contact with the tumour was completed, requiring sectioning and mechanical vascular suturing, finally achieving en bloc tumour excision with the affected vein (Fig. 2B). Finally, the edges of the surgical site were marked with clips. No pathological lymphadenopathies were visualised.

The anatomopathological study confirmed the origin of the azygos vein as a grade 2 leiomyosarcoma (according to FNCLCC) with focal involvement of the soft tissue resection margin.

To complete the treatment, the clinical case was discussed at the Multidisciplinary Committee for Thoracic Tumours and the patient was referred to Radiation Oncology, receiving a total of 33 sessions on the surgical bed, with good tolerance. After this, the patient continued clinical radiological follow-up, with no evidence of tumour recurrence to date.

Leiomyosarcomas can originate in any vessel, being an extremely rare origin, accounting for <2% of all leiomyosarcomas, affecting up to 5 times more arteries than veins³.

The most common venous origin is the inferior vena cava, which accounts for 50% of all venous leiomyosarcomas, with a total of 450 described in the literature⁴.

Our case is frankly unusual due to the very low frequency of origin in the azygos vein, as to date only 2 cases have been described in the literature^{5,6}. The first case was described in 1995 by Levett⁵, it was a leiomyosarcoma with origin in the superior vena cava and azygos vein, and after resection it was necessary to replace it with a superior vena cava graft. The

second case was described by Dasika in 1998⁶, reporting a leiomyosarcoma of the azygos vein that was excised by previously ligating the azygos vein both proximally and distally, without the need for reconstruction.

Given the rarity of this tumour, the best results are obtained with a multidisciplinary approach with teams experienced in the management of these tumours.

REFERENCES

- Choi JH, Ro JY. Retroperitoneal sarcomas: an update on the diagnostic pathology approach. *Diagnostics* (Basel). 2020;10:642. <http://dx.doi.org/10.3390/diagnostics100906>.
- Stiller CA, Trama A, Serraino D, Rossi S, Navarro C, Chirlaque MD, et al. Descriptive epidemiology of sarcomas in Europe: report from the RARECARE project. *Eur J Cancer*. 2013;49:684–95. <http://dx.doi.org/10.1016/j.ejca.2012.09.011>.
- Naouli H, Lathelize H, Bouarhroum A. Leiomyosarcoma of the great saphenous vein: case report and literature review. *Ann Vasc Surg*. 2019;56:353.e1–6. <http://dx.doi.org/10.1016/j.avsg.2018.08.111>.
- Wang MX, Menias CO, Elsherif SB, Segaran N, Ganeshan D. Current update on IVC leiomyosarcoma. *Abdom Radiol* (NY). 2021;46:5284–96. <http://dx.doi.org/10.1007/s00261-021-03256-9>.
- Levett JM, Meffert WG, Strong WW, Hass AC, Macke RA, Berg GG, et al. Leiomyosarcoma of the superior vena cava and azygos vein. *Ann Thorac Surg*. 1995;60:1415–7. [http://dx.doi.org/10.1016/0003-4975\(95\)00528-S](http://dx.doi.org/10.1016/0003-4975(95)00528-S).
- Dasika U, Shariati N, Brown JM. Resection of a leiomyosarcoma of the azygos vein. *Ann Thorac Surg*. 1998;66:1405. [http://dx.doi.org/10.1016/s0003-4975\(98\)00718-8](http://dx.doi.org/10.1016/s0003-4975(98)00718-8).

José María Díaz-García^a, Marta Jiménez-Fernández^b, Pedro Gato-Díaz^b, David Ricardo Luján-Rodríguez^c, Beatriz Olaiz-Navarro^b

^aServicio de Neumología, hospital Universitario de Getafe, Madrid, Spain

^bServicio de cirugía de torácica, hospital Universitario de Getafe, Madrid, Spain

^cServicio de Anatomía Patológica, hospital Universitario de Getafe, Madrid, Spain

*Corresponding author.

E-mail address: josemaria.diaz@salud.madrid.org (J.M. Díaz-García).

<http://dx.doi.org/10.1016/j.cireng.2022.06.008>

2173-5077/© 2022 AEC. Published by Elsevier España, S.L.U. All rights reserved.