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Scientific letters

Video-Assisted Thoracoscopic Approach of Tumors Located in the Thoracoabdominal Aortic Hiatus☆

Abordaje videotoracoscópico de tumores toracoabdominales situados en el hiato aórtico

Thoracoabdominal tumors are infrequent, and their situation in the aortic hiatus is exceptional. Their diagnosis and type of surgical approach usually present difficulties, mainly when these lesions have a thoracic component and an abdominal component through a natural diaphragmatic orifice.[1]

We present the cases of 2 patients with tumors in the posterior mediastinum, specifically in the aortic hiatus.

The first patient is a 75-year-old man who had undergone left adrenalectomy and complete splenectomy due to left pheochromocytoma 11 years ago. He presented with generalized tremor, asthenia and poorly controlled arterial hypertension (with medication) over the past 3 months. Computed tomography (CT) and magnetic resonance imaging (MRI) scans demonstrated a thoracoabdominal mass measuring 6 cm in the aortic hiatus (Fig. 1). Blood analysis showed elevated levels of catecholamines, which suggested the diagnosis of secretory paraganglioma; therefore, treatment was initiated with alpha-adrenergic blockers. Prior to surgical intervention, arteriography identified the exit of the anterior spinal artery from the twelfth left intercostal artery. The same procedure included embolization of the distal vascular bed and trunk of the artery feeding the tumor.

The patient is a 76-year-old woman who was being monitored by the pulmonology department due to bronchial asthma. A follow-up CT scan identified a right para-aortic mass measuring 5 cm with thoracic and abdominal components. Blood work showed no alterations. Prior to surgery, arteriography showed the outflow of the anterior spinal artery at the expense of the ninth left intercostal artery. No embolization was performed since no arterial branch was found to irrigate the tumor.

In both cases, a right video-assisted thoracoscopic approach (VATS) was performed under general anesthesia with selective intubation, while the patient was in the left lateral decubitus position at a forward inclination of 45°.

Two 10-mm trocars were used on the midaxillary line along with a 4-cm minithoracotomy on the posterior axillary line and ninth intercostal space.

Initially, complete thoracoscopic exploration was performed with dissection of the triangular ligament. Adhesions were released, and vascular pedicles that were directly dependent on the aorta and the intercostal vessels were ligated (Fig. 2). The crura of the diaphragm were dissected to obtain better control of the lower pole of the tumor. In some

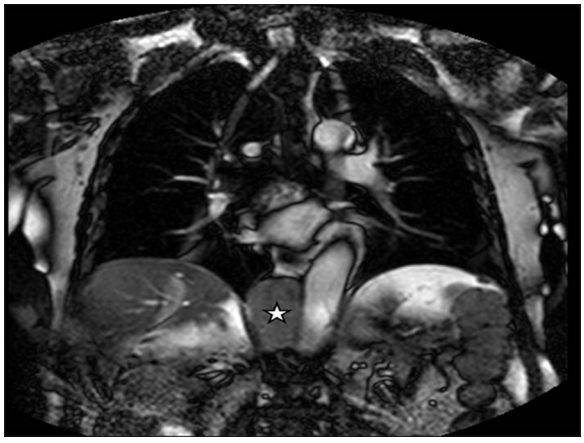

Fig. 1 – Coronal MRI plane showing a 6-cm thoracoabdominal tumor situated in the aortic hiatus (star) that extended to the retroperitoneum. On the sides of the lesion, there is a close relationship with the thoracic aorta and diaphragm.

☆ Please cite this article as: Rombolá CA, Crespo García del Castillo V, García Jiménez MD, Genovés Crespo M, García Blázquez E. Abordaje videotoracoscópico de tumores toracoabdominales situados en el hiato aórtico. Cir Esp. 2017;95:112–114.

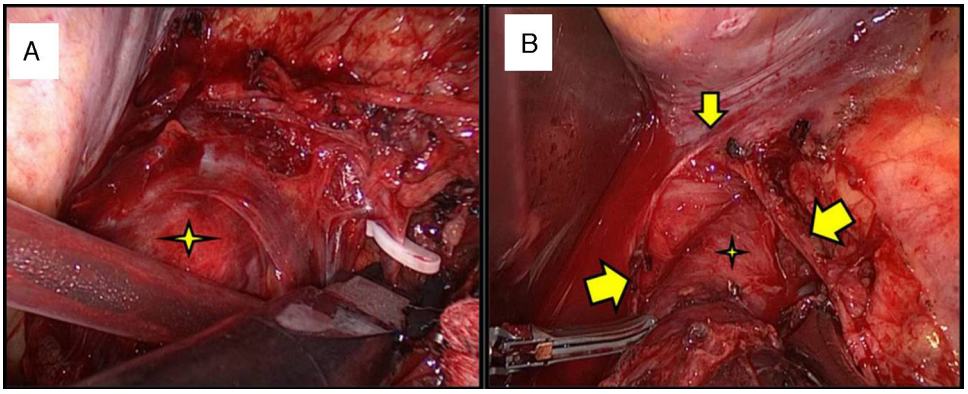

Fig. 2 – (A) Ligature of multiple vascular pedicles dependent on the intercostal and direct aortic vessels. The tumor was drawn forward (star). The diaphragm, whitish in color, is at the right side of the image. (B) Dissection of the lower pole of the tumor (star) prior to opening the crura of the diaphragm (inverted V-shape; the dissection angle or end is marked with the smaller arrow and the edges with the larger arrows).

sections, it was necessary to perform subadventitial dissection of the aorta to completely resect the tumor. In neither case the thoracic duct or signs of intraoperative lymphorrhagia were identified. A fibrin sealant was applied (to prevent possible lymphadenectasis) and a pleural drain was inserted.

Mean surgical time was 3 h and the hospital stay was 3 days in both cases. There were no intraoperative incidences or clinical/radiological signs of postoperative complications or recurrences (after follow-up $\geq$1.5 years).

The pathology study of the first case reported paraganglioma positive for chromogranin and synaptophysin antibodies, and the study of the second case revealed a benign schwannoma.

Both lesions were considered neurogenic tumors of the mediastinum, for which the treatment of choice is complete surgical resection.[2] Surgery can be associated with a high risk of intraoperative hemorrhage secondary to tumor manipulation and the proximity of large vessels. To reduce this risk, some authors propose using arteriography for preoperative embolization of the main arterial pedicles.[3–5] During the same procedure, they also recommend identifying the pathway of the anterior spinal artery (artery of Adamkiewicz) to avoid intraoperative injury. In 75% of cases, this is a branch of the last left intercostal arteries and is responsible for most of the spinal cord irrigation, therefore its injury can lead to irreversible spinal cord ischemia.[6]

The location of the tumor in the aortic hiatus raises doubts about the best type of surgical approach, since it can be performed by thoracotomy, laparotomy or minimally invasive techniques.

The laparoscopic approach is complex, requiring mobilization of the right hepatic lobe, opening of the hiatus and access to the posterior mediastinum with difficult vascular control. In addition, possible adhesions secondary to previous abdominal surgeries could make these maneuvers difficult, as in the first case described in this article. Laparotomy offers better vascular control than laparoscopy, although it requires a wide incision and mobilization of the viscera. In case of hemorrhage of the vascular pedicles in the thorax or thoracic aortic lesion, control from the abdomen seems insufficient and unsafe; therefore, the thoracic approach appears to be more indicated in these cases.

Thoracotomy provides a good operative field, and it is possible to expand to thoracophrenotomy or thoracophrenolaparotomy if needed.[4] However, VATS offers excellent visualization of the aortic hiatus and control of tumor vascular pedicles, along with the added benefits of mini-invasive surgery (less pain, faster recovery, lower costs and fewer days of hospitalization).[7] Video-assisted thoracoscopy should be indicated provided that it always meets criteria for oncologic resectability while maintaining patient safety, and conversion to thoracotomy is always a possible option.

We believe that preoperative arteriography (and embolization if needed) together with the VATS approach should be considered in cases of thoracoabdominal tumors located in the aortic hiatus since they allow us to treat this type of tumors with mini-invasive techniques, thereby reducing perioperative risk.

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2173-5077/

Abdominal Aorta Aneurysm and Synchronous Colorectal Cancer. Changes in Treatment?☆,☆☆

Aneurisma de aorta abdominal y cáncer colorrectal sincrónico. ¿Cambios en el tratamiento?

The synchronous presentation of abdominal aortic aneurysm (AAA) and colorectal cancer (CRC) is rare, with an estimated incidence of 0.49%–2% of AAA cases.[1,2] There are several therapeutic options, but no accepted protocol has been established to date.

We present the case of an 83-year-old man with arterial hypertension, ischemic heart disease treated with percutaneous revascularization 9 years earlier, and Paget's disease. He came to the emergency room with symptoms of bowel obstruction, and computed tomography (CT) revealed a obstructive carcinoma of the descending colon, liver metastases in segments IV–VIII and VII, and asymptomatic infrarenal AAA measuring 6.4 cm (Fig. 1). Given the clinical stability of the patient, a stent was placed in the colon, which resolved the obstructive symptoms. Afterwards, endovascular exclusion of the AAA was performed percutaneously with a bifurcated aortoiliac endoprosthesis, anchored in both common iliac arteries (C3® Excluder®, Gore® Medical), with no incidences or endoleaks (Fig. 2). Ten days later, a left hemicolectomy was performed along with resection of the liver metastases. The patient had a favorable postoperative course without complications, and the 3-month follow-up with CT angiogram showed no pathological findings.

In spite of the low incidence of the synchronous presentation of these diseases (0.49%–2% of AAA cases[1,2]), CRC represents 50% of cancers associated with AAA[3] and 9%–13% of abdominal neoplasms.[4] Its incidence is increasing due to population aging and the presence of common risk factors. Even so, treatment continues to be controversial.

After confirming the surgical indication of CRC (depending on its TNM classification[5]), we considered the need for operating the AAA. Since the publication by Szilagyi et al.[6] in 1967, we are aware of the increased risk for AAA rupture associated with performing laparotomy secondary to the lysis of collagen induced by the intervention itself, nutritional depletion and surgical dissection, which is estimated at 6%–11%, especially if the AAA is larger than 5 cm.[1,2,5] Hence, the recommended treatment indication is stricter than in the general population, reducing the established diameter of 5.5 cm[7] or even disregarding it.[1] Most authors concur in treating the AAA first in cases where it is symptomatic, even though these cases are rare.

Baxter et al.[8] support the initial treatment of AAA if it is larger than 5 cm. However, they observed a significant delay in the treatment of CRC, which was 122 days on average, and expected improved results with the development of endovascular techniques. More recently, Lin et al.[4] concurred with this plan and defend the endovascular exclusion of AAA (EVAR) in infrarenal cases due to the significant decrease observed in intraoperative blood loss, hospital stay and CRC treatment delay, as well as higher 48-month survival.

If the anatomical characteristics are appropriate, Shalhoub et al.[1] also defend the use of EVAR, although they recommend the initial treatment of AAA greater than 6 cm after observing

☆ Please cite this article as: López Arquillo IM, Vidal Rey J, Encisa de Sá JM. Aneurisma de aorta abdominal y cáncer colorrectal sincrónico. ¿Cambios en el tratamiento? Cir Esp. 2017;95:114–116.
☆☆ This study was presented at the 24th International Coloproctology Symposium.