

# Laparoscopic Adrenalectomy with Concurrent Retroperitoneal and Pelvic Lymphadenectomy for the Treatment of Metastatic Melanoma: A Case Report

## Adrenalectomia Videolaparoscópica Concomitante a Linfadenectomia Retroperitoneal e Pélvica para Tratamento de Metástase de Melanoma: Relato de Caso

HERON CRUSOÉ CANGUSSU<sup>1,2,4,5,7</sup>; JADSON MURILO SILVA REIS<sup>1,2,4,5,7</sup>; PAULO VICTOR SOARES<sup>8</sup>; GALENO JOSÉ EGÍDIO DE MAGALHÃES NETO<sup>2,4,5,7</sup>; EDVALDO FAHEL<sup>2,3,5,6,7</sup>

<sup>1</sup>. Specialist in Oncologic Surgery; <sup>2</sup>. Certified as a specialist in Laparoscopic Surgery by the Brazilian Society of Videosurgery/Endoscopic Surgery (SOBRACIL); <sup>3</sup>. Full Professor of General Surgery, Bahian School of Medicine and Public Health; <sup>4</sup>. Assistant Professor of General Surgery, Bahian School of Medicine and Public Health; <sup>5</sup>. Preceptor of the Residency in General Surgery at São Rafael Hospital; <sup>6</sup>. Fellow of American College of Surgeons; <sup>7</sup>. Member of the Brazilian College of Surgeons; <sup>8</sup>. Resident in General Surgery at São Rafael Hospital.

### ABSTRACT

**Introduction:** Melanoma with adrenal metastases constitutes advanced disease with a poor prognosis and limited therapeutic options. The use of laparoscopy in the treatment of cancer patients, be it for curative or palliative goals, is feasible and has low morbidity. Several studies support adrenalectomy as a therapeutic option with improvement, in some cases, of life expectancy. **Case report:** We describe a laparoscopic approach for treatment of metastatic melanoma using left adrenalectomy and retroperitoneal and pelvic lymphadenectomy performed without changing the patient's position. This major surgical procedure was performed without complications and with no residual disease (R0 surgery). The patient was discharged on the second postoperative day. The patient is being followed as an outpatient without signs of recurrence. **Discussion:** Performing major laparoscopic procedures is now a reality, maintaining the benefits of minimally invasive surgery. In this case, we avoid the Sims position, opting instead to perform the transperitoneal adrenalectomy with the patient supine and the surgical table tilted in order to be able to also perform the retroperitoneal and pelvic lymphadenectomy. Although surgical time of the procedure was long, the analysis of separate times was quite satisfactory, and the patient was still discharged hospital quickly/early. We believe that in the face of metastatic melanoma, the laparoscopic procedure is beneficial, improving disease control and quality of life.

**Key words:** Laparoscopic adrenalectomy. Retroperitoneal lymphadenectomy. Melanoma. Pelvic lymphadenectomy.

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### INTRODUCTION

Advanced melanoma is a disease with high mortality and with limited systemic therapeutic options for disease control or for palliative treatment of symptoms. Patients with advanced disease need palliative care with less morbidity to improve the quality of life, and even, in some cases, disease-free survival. Today, laparoscopy constitutes a feasible and effective access route for oncological procedures for cancer of small to major curative or palliative and aimed mainly extremely important tool in the

surgical staging of various pathologies. Metastatic disease in the adrenal gland secondary to melanoma is a disease with limited prognosis. The literature offers us few studies that define the best approach to take in this clinical situation.<sup>1</sup> Laparoscopic adrenalectomy was reported in a few studies as a treatment option with improved life-expectancy.<sup>2,5,6</sup> In this article we report a case where a laparoscopic approach was used to perform left adrenalectomy and retroperitoneal and pelvic lymphadenectomy in the same surgical time for the treatment of metastatic melanoma.

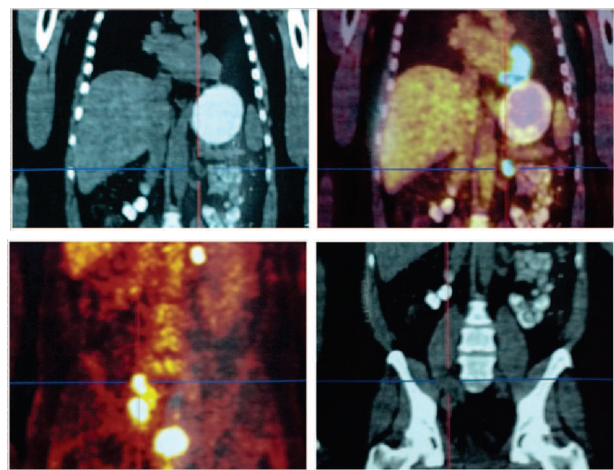
## CASE REPORT

A 49 year old male, with idiopathic vitiligo and a familial history of melanoma, presented with lymphadenomegaly in the right inguinal lymph node chain, associated with asthenia and evening fevers, without skin lesions suggestive of malignancy. Laboratory studies were remarkable for a LDH of 1074. He initially underwent right inguinal lymph node biopsy for clinical suspicion of a lymphoma. The result of the pathology analysis was consistent with metastatic melanoma, which was confirmed with immunohistochemistry and an independent review of the tissue slides. For preliminary staging purposes MRIs of the head and the entire abdomen as well as a CT of the chest were obtained. These studies revealed extensive right-sided inguinal and pelvic lymphadenopathy extending to the right common iliac compatible with lymph node metastasis, and a 3.0 cm nodule in the left adrenal suggestive of an adenoma. There were no pathologic findings in the head and chest imaging studies.

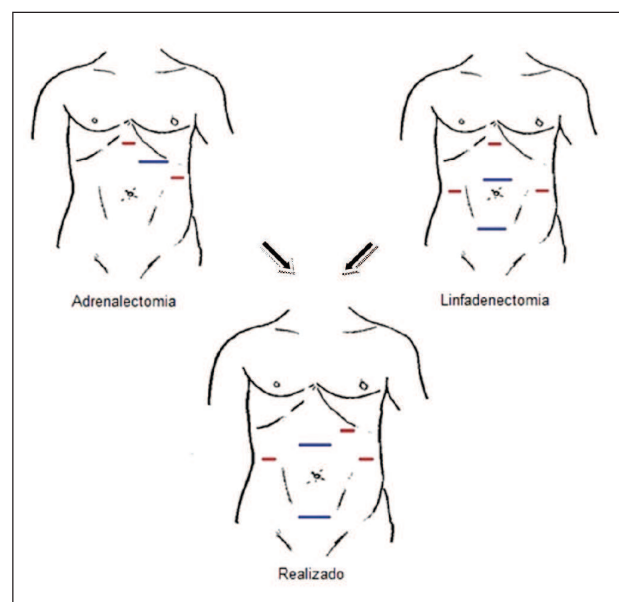
Given the extent of the disease and in order to plan adjuvant/ therapy, a PET-CT study was obtained which showed evidence of tumor activity with a SVU of 16.7 in the right inguinal and pelvic region, a subcutaneous nodule in the lower third of the right thigh, and a left juxtarenal para-aortic lymph node (Figure 1). The clinical predicament of metastatic melanoma of unknown primary was discussed in a multidisciplinary oncology case conference. Given the different findings of the PET-CT and the abdominal MRI, surgery was recommended to complete the staging by establishing whether the adrenal nodule was or was not a metastasis, and to reduce the tumor burden in case the patient was a candidate for chemotherapy.

The surgical approach chosen was left adrenalectomy associated with right retroperitoneal and pelvic lymphadenectomy through a laparoscopic approach with radical right inguinal lymphadenectomy and resection of the subcutaneous nodule in the right thigh with ample margins. The procedure began with a laparoscopic approach with the patient in dorsal decubitus and reverse Trendelenburg, the surgeon positioned between the patient's legs, and the monitor at the head of the surgical table. A 12 mm trocar for the optic was inserted 2 cm above the umbilicus and three 5 mm trocars were placed in the right flank, left flank and left upper quadrant (Figure 2).

After initial inspection, lesions in the peritoneum and left hemidiaphragm suggestive of metastasis were submitted to pathology; frozen section examination was negative for malignancy. The presence of retroperitoneal lymphadenopathy extending to the right pelvic chain was noted. No other suspicious lesions were observed. The operating table was tilted 45 degrees to the right in preparation for the approach to left adrenal. The splenic flexure of the colon was freed using ultrasonic coagulating scissors and the spleen and tail of the pancreas were



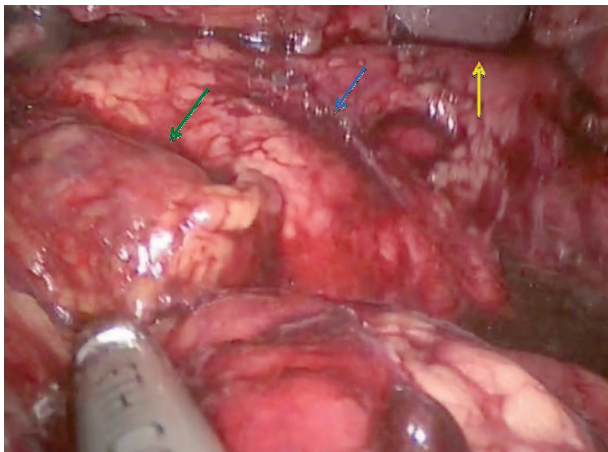
**Figure 1** - Identification of metastatic lesions by PET-CT: lesion shown in the left adrenal topography, with large uptake (top right without contrast; top left with contrast); right iliac lymph nodes (bottom right, with uptake, and lower left, without contrast).



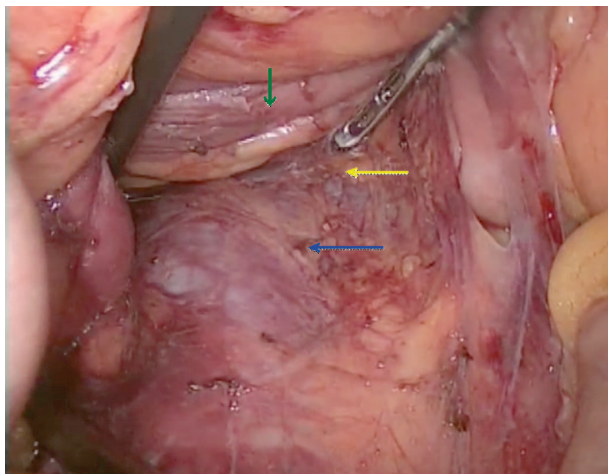
**Figure 2** - Adaptation of the placement of trocars so that the three procedures can be performed with the same approach.

dissected and pulled medially. This was followed by dissection of the left adrenal gland which had a tumor of approximately 3.0 cm in diameter with a nodular appearance (Figure 3).

The adrenal vessels were ligated with an Ultracision harmonic scalpel and the adrenalectomy was completed. The specimen was removed in the finger of a glove and sent to the pathology service. After reversing the lateral table tilt and with the patient in Trendelenburg, another 5 mm trocar was introduced in the epigastrium and another 12 mm trocar below the umbilicus to which the optic was transferred. The round ligament of the liver was transected, and the transverse colon and greater omentum as well as proximal segment of the small intestine were reflected cephally. The root of the mesentery was retracted for median exposure of the retroperitoneum.



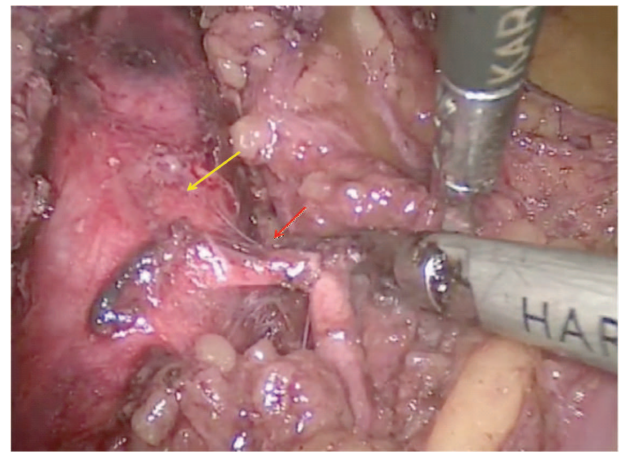
**Figure 3** – View of the left adrenal (green arrow), inferior pole of the spleen (yellow arrow) and tail of the pancreas (blue arrow).



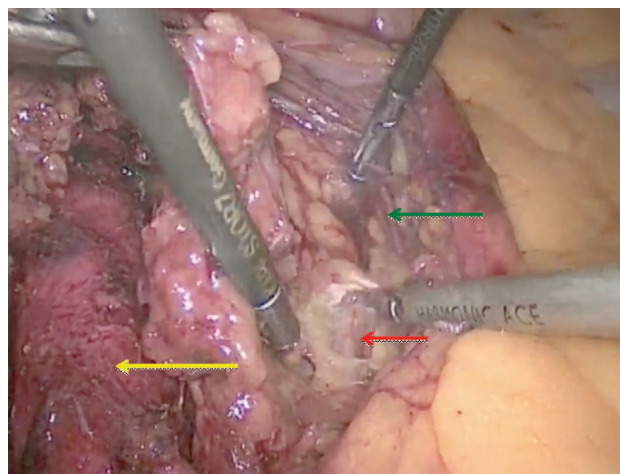
**Figure 4** – Medial retroperitoneal access with visualization of the vena cava (blue arrow) and the left renal vein (yellow arrow). The duodenal arch was folded upward (green arrow).

The retroperitoneal dissection began with medial access, close to the cecum and extending until release of duodenal arch and identification of the left renal vein (Figure 4). The paracaval space was dissected with preservation of the right ureter and gonadal vessels. All paracaval lymph node tissue was dissected to the left of the aorta, from the left renal vein to the left common iliac artery, preserving the inferior mesenteric artery (Figures 5 and 6).

The left ureter and gonadal vessels were displaced laterally. The para-aortic and aortic-intercaval lymph nodes were dissected with preservation of the nerve plexus, leaving the vena cava and aorta completely exposed; this completed the retroperitoneal lymphadenectomy (Figure 7). We opted to not ligate the lumbar vessels following nerve preservation principles adopted by our service. The



**Figure 5** – Dissected aorta (yellow arrow), with identification of the inferior mesenteric artery (red arrow).



**Figure 6** – Dissected aorta (yellow arrow), with the laterialized gonadal vessels (green arrow), and identification of the left ureter (red arrow).

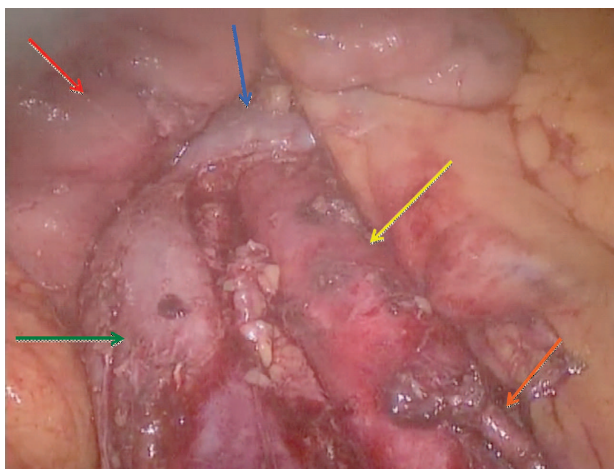
surgical specimen was removed from the cavity using a 10 mm Endopouch®.

The monitor was then moved to the patient's right side, close to right foot, for better visualization of the pelvic lymph nodes. The dissection was initiated in the medial portion of the psoas muscle, close to the cecum, displacing the right ureter medially. Dissection progressed to deep inguinal ring, where Cloquet's ganglion was identified.

Medially, lymphadenectomy was performed with exposure of the common and external iliac artery and vein. The obturator fossa was accessed, exposing the obturator nerve. Pelvic lymphadenectomy was performed with preservation of the superior vesical artery. The surgical specimens were extracted inside a 10 mm Endopouch®.

The cavity was inspected and the ports closed. With the abdominal time concluded, Trendelenburg was reversed and the patient repositioned with legs closed. Antisepsis was performed and surgical fields were prepared over the groin and right thigh. A nodular tumor in lower third of the right thigh was excised with resection of adjacent tissue to the pre-fascial plane. After closure, the right inguinal lymphadenectomy was started. A italics "S" shaped incision was made encompassing the previous scar (Figure 8).

A skin graft was fashioned and dissection down to the *vastus medialis* and sartorius muscle laterally, and the angle of Scarpa's triangle, inferiorly, was performed. Radical inguinal lymphadenectomy with saphenous vein ligation and complete exposure

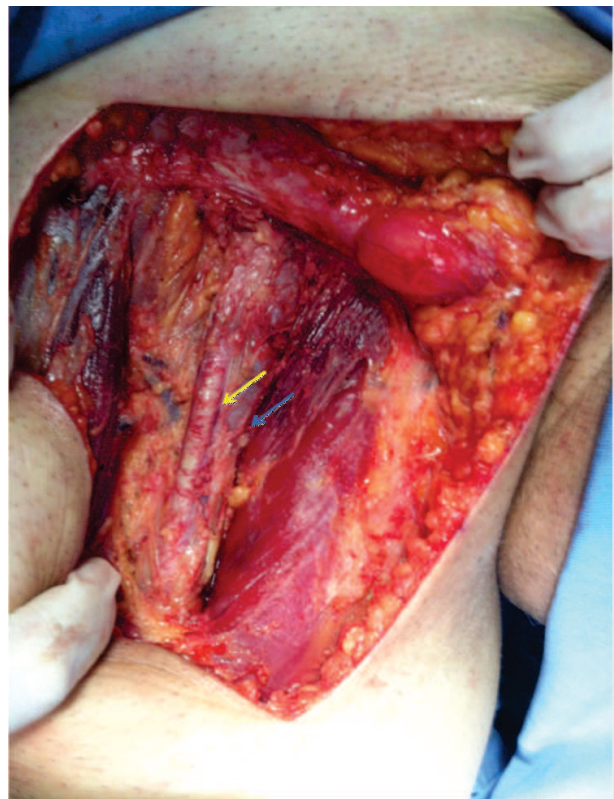


**Figure 7** – Final result of the retroperitoneal dissection with exposure of the vena cava (green arrow), duodenal arch (red arrow), left renal vein (blue arrow), aorta (yellow arrow) and superior mesenteric artery (orange arrow).

of the femoral vessels was performed (Figure 9). A 19 Fr closed drain was placed and the skin flaps were closed.



**Figure 8** – Italics "S" shaped incision in the right inguinal region.



**Figure 9** – Right inguinal region dissected with exposure of superficial femoral vessels: femoral artery (yellow arrow) and femoral vein (blue arrow).

The total surgical time of 300 minutes was distributed as follows: 40 minutes for the left adrenalectomy; 120 minutes for the retroperitoneal lymphadenectomy; 20 minutes for changing the position of the monitor; 50 minutes for the right pelvic lymphadenectomy; 30 minutes for preparing the inguinal field; 40 minutes for the resection of the subcutaneous tumor and the inguinal lymphadenectomy. The only intraoperative complication was minor bleeding from the external iliac vein, which was controlled with a single LT 300 metallic clip. Total blood loss from surgery was estimated at 100 ml after accounting for laparoscopic vacuum residue. At the end of surgery, there were no signs of residual disease.

The patient stayed overnight in the intensive care unit for 12 hours for better monitoring and was transferred to a regular room the next day with good acceptance of diet in 24 hours. He was discharged on the second postoperative day with an inguinal drain. He was seen as an outpatient on the fourth post-operative day; he had no pain complaints, no lymphedema, and no gastrointestinal or genitourinary complaints. He returned again a week later with an uneventful course and continued asymptomatic. Pathological examination confirmed metastatic melanoma in the left adrenal and in the nodular tumor in the right thigh, but all 31 resected lymph nodes were inflammatory and negative for malignancy. Currently, the patient is being followed as an outpatient and receiving chemotherapy, without evidence of disease.

## DISCUSSION

Metastases to the adrenal are rare, but melanoma is among the principal neoplasias associated with such lesions. Several studies have shown that the prognosis of patients with adrenal metastases caused by melanoma is poorer than with other neoplasias.<sup>4,6</sup> There is no consensus in the literature regarding the surgical treatment of adrenal metastases from melanoma, nor whether there is any difference in outcomes between laparotomic or laparoscopic approaches.

One study with 154 cases of adrenal metastasis from melanoma conducted by

MITTENDORF and cols. found an average survival of 6.4 months, which correlated directly with elevated LDH and synchronicity of the lesion. Patients in this study who underwent surgery had longer disease-free survival rates. Another study, by SANCHO and cols., found that adrenalectomy was only indicated in patients with controlled local disease who had no other metastases, imaging studies compatible with adrenal metastases, and a performance status that permitted aggressive treatment.

Laparoscopic adrenalectomy is now considered a well established and safe approach — both by transperitoneal or retroperitoneal routes — with the patient in various positions for anterior, lateral and posterior access. Retroperitoneal lymphadenectomy is most commonly performed using an anterior transperitoneal approach primarily in gynecological and urological cancers, although these may also be performed using extraperitoneal access.

In our service we have performed transperitoneal adrenalectomy with 45 degrees recumbency and fixation of the hip and upper limbs as the position preferred to the Sims position. In this case, we also did not use the Sims position, opting for conducting the transperitoneal adrenalectomy with the patient supine and the surgical table tilted laterally in order to favor the major procedure which was the retroperitoneal and pelvic lymphadenectomy, while minimizing the total surgical time, since there were three procedures using the same approach.

Although we encountered considerable difficulty freeing the colon and pancreas and spleen, surgical time was still considerably reduced, as there was no need to secure the upper extremities and hips or reposition the patient in dorsal decubitus with the arms alongside, which we consider the best position for the lymphadenectomies.

Regarding the positioning of the trocars, we shifted the flank trocars 2.0 cm cephally, and we shifted the epigastrium trocar to the left upper quadrant to facilitate the adrenalectomy. Although the total procedure time was long, analysis of the separate times for each component was quite satisfactory, which we can attribute to better positioning of the trocars and the patient.

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**RESUMO**

**Introdução:** O melanoma avançado com metástase em glândula adrenal representa doença com prognóstico limitado e com terapêutica discutível. A utilização da laparoscopia no tratamento do paciente oncológico, paliativo ou curativo, é factível e com baixa morbidade. Alguns estudos defendem a realização da adrenalectomia como possibilidade terapêutica com melhora, em alguns casos, da expectativa de vida. **Relato de caso:** Neste artigo, descrevemos uma abordagem laparoscópica para realização de adrenalectomia esquerda associado à linfadenectomia retroperitoneal e pélvica no mesmo tempo cirúrgico e sem modificação no posicionamento do paciente, para tratamento de melanoma metastático. Procedimento de grande porte cirúrgico transcorrido sem intercorrências, sem doença residual (Cirurgia R0), com o paciente recebendo alta hospitalar no segundo dia pós-operatório. No momento em acompanhamento ambulatorial regular e sem sinais de recidiva. **Discussão:** A realização de procedimentos laparoscópicos de grande porte é hoje uma realidade, com manutenção dos benefícios da cirurgia minimamente invasiva. Neste caso, evitamos a posição de Sims, optando pela realização da adrenalectomia transperitoneal com decúbito horizontal e lateralização da mesa cirúrgica buscando beneficiar o procedimento de maior porte que seria a linfadenectomia retroperitoneal e pélvica. Apesar do tempo cirúrgico do procedimento ter sido longo, a análise dos tempos separados foi bastante satisfatória, e o paciente manteve alta hospitalar precoce. Acreditamos que diante de tal patologia, melanoma metastático, o procedimento laparoscópico traz benefícios, como também, melhora da qualidade de vida e controle da doença.

**Palavras chave:** Adrenalectomia laparoscópica. Linfadenectomia retroperitoneal. Melanoma. Linfadenectomia pélvica.

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**Correspondence address:**

HERON CRUSOÉ CANGUSSU

Av. Princesa Isabel 590, Apt. 902, Barra

Salvador, BA, Brazil

40140-000

Phone.: (71) 3267-2902 / 8197-1610

E-mail: heron@oncovideo.com.br