

The role of laparoscopic surgery in isolated adrenal metastasis: our personal experience

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SUMMARY: The role of laparoscopic surgery in isolated adrenal metastasis: our personal experience.

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Background. Over the past 25 years, mini-invasive adrenalectomy has become the treatment of choice for most adrenal diseases, and even adrenal malignancies in selected cases. The aim of this retrospective evaluation is to assess the effectiveness of laparoscopic adrenalectomy as a treatment of choice for adrenal metastases.

Methods. From 2008 to 2018, 207 laparoscopic adrenalectomies have been performed in our Department of Surgery. Among these, in 12 cases the indication to adrenalectomy was metastatic adrenal lesion.

Results. The right adrenal gland was removed in 8 cases and the left adrenal gland in 4 cases. A complete resection (R0) was achieved in all patients. The median operative time was 130.6 ± 23.3 min. The median postoperative hospitalization was 3.5 ± 2.0 days. Only one patient showed postoperative grade II complications, according to Clavien-Dindo classification. All patients underwent follow-up at 6-12-18 months without showing disease recurrence. There was no intra and perioperative mortality. Conversion to laparotomic surgery has never been performed. Mean tumor size was 2.4 cm ± 1.6 cm.

Conclusions. Laparoscopic adrenalectomy for metastasis permits to achieve similar results to the open approach in term of oncological outcomes, but gaining in terms of postoperative hospitalization, intra and post-operative complications as well a greater patient compliance.

KEY WORDS: Adrenalectomy - Adrenal metastasis - Adrenal gland - Laparoscopy - Laparoscopic adrenalectomy.

Introduction

Over the past 25 years, mini-invasive adrenalectomy has become the treatment of choice for most adrenal diseases, and even adrenal malignancies in selected cases (1, 2). In general, the laparoscopic approach has proved its effectiveness in various areas, in particular for the treatment of most abdominal and pelvic diseases, in obesity surgery, and in many others (3-6). Concerning laparoscopic adrenalectomy, it can be performed with different approaches, but lateral transperitoneal approach is still consid-

ered the gold standard. The general advantages obtained are now recognized in terms of optimization of hospitalization times, less blood loss, faster postoperative recovery, better analgesic control and overall better compliance by the patient (1, 2, 7-9). Main indications to the laparoscopic approach are represented by benign functioning and non-functioning lesions (10, 11). The aim of this retrospective evaluation is to assess the effectiveness of laparoscopic adrenalectomy as a treatment of choice for adrenal metastases.

Patients and methods

From 2008 to 2018, 207 laparoscopic adrenalectomies were performed in our Academic Depart-

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ment. Among these, in 12 cases the indication to adrenalectomy was metastatic adrenal lesion.

All patients underwent laparoscopic adrenalectomy performed by a single surgeon, using the lateral transperitoneal approach. Resection was defined complete if the margins of the sample were negative for malignancy (R-0 resection). All patients performed a CT scan at 6 months from the date of surgery and other follow-up after 12 and 18 months.

Results

Isolated adrenal metastasis were diagnosed in 12 patients: 7 men and 5 women with a mean age of 59 +/- 14 years old. The most common primary tumor was non-small cell lung cancer (6 cases), followed by gastric carcinoma (2 cases), hepatocellular carcinoma (2 cases), breast carcinoma (1 case) and renal clear cell carcinoma (1 case).

Mean tumor size was 2.4 cm ±1.6 cm. The right adrenal gland was removed in 8 cases and the left adrenal gland in 4 cases (Table 1).

A complete resection (R0) was achieved in all patients. Mean operative time was 130.6±23.3 min. Conversion to laparotomic surgery has never been performed. Mean postoperative hospitalization was 3.5 ± 1.1 days. There was no intra and perioperative mortality. Only one patient showed postoperative grade II complications (8%) according to the Clavien-Dindo classification (12) (Table 1). Follow

up was performed at 6, 12 and 18 months postoperatively for 9 on 12 patients, while the last 3 patients did not still perform 18 months evaluation. No local recurrence was diagnosed during the follow-up period.

Discussion

Adrenal glands represent elective sites of metastasis for many tumors (1, 13-15). The incidence of adrenal metastases is variable according to the site of the primary tumor: lung (non-small cell carcinoma) 35%, gastro-enteric tract 30%, urinary tract and prostate 10-15%, breast 5-10%, melanoma 5%, others (thyroid, uterus, ovary) 1-5% (14-17). Despite the relative rarity of adrenal metastasis, they represent an elective indication for laparoscopic approach. In contrast, laparoscopy is generally contraindicated for primary adrenal malignancies since the high incidence of loco-regional recurrence and/or tumor infiltration to surrounding tissues and vessels. This is due to the characteristics of metastasis that are, first of all, early diagnosed since oncologic patients typically undergo a strict clinical and radiological follow-up, thus allowing to the eventual identification of small size metastasis. Furthermore, secondary adrenal tumors have a different biological behavior, characterized by expansive growth, and rarely signs of local infiltration or extra-capsular border crossing (14-19). In particular,

TABLE 1 - DEMOGRAPHICS, CLINICAL AND SURGICAL OUTCOMES.

Median Age (years +/- DS)	59.2±14.3
Sex (M/F)	7/5
Primary tumor site:	
-Lung	6
-Stomach	2
-Liver	2
-Breast	1
-Kidney	1
Side (R/L)	8/4
Size (cm)	2.4±1.6 cm
Operative time (min)	130.6±23.3
Complications	1, grade II (Clavien-Dindo)
Post-op stay (days)	3.5±1.1
Follow up:	
-6 months	12 patients with no local recurrence
-12 months	12 patients with no local recurrence
-18 months	9 patients with no local recurrence

in our Academic Department, which is part of a Referral Center for Adrenal Diseases and Secondary Hypertension, 12 patients underwent laparoscopic adrenalectomy for metastasis. 8 right and 4 left adrenalectomies have been carried out, with a mean operative time of 130.6 ± 23.3 min. Complete resection (R0) was achieved in all patients, since metastases showed reduced size ($2.4 \text{ cm} \pm 1.6 \text{ cm}$) and no local invasiveness, above all thanks to the early diagnosis. In no case conversion to open surgery was needed, because no intraoperative criteria for change of surgical approach were found (20, 21). Benefits of laparoscopic surgery, even for resection of metastases are well known. In fact, laparoscopic approach, which has shown to be related to shorter

recovery of daily activities, has a greater influence in the outcome of oncologic patients, since a quicker return to normal life permits to enhance the start and efficacy of adjuvant therapies that can affect the patient prognosis.

Conclusions

Laparoscopic adrenalectomy for secondary adrenal malignancies permits to achieve similar results to the open approach in terms of oncological outcomes, but gaining in terms of postoperative hospitalization, intra and post-operative complications as well a greater patient compliance.

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