Laparoscopic extirpation of giant adrenal ganglioneuroma

George P Abraham, Avinash T Siddaiah, Krishanu Das, Ramaswami Krishnamohan, Datson P George, Jisha J Abraham, Sreerenjini K Chandramathy

Departments of Urology, *Pathology, Lakeshore Hospital, Kochi, India

Address for Correspondence: Dr. Siddaiah Avinash T, Department of Urology, Lakeshore Hospital, NH-47 Bypass, Maradu, Nettoor P.O., Kochi-682040, Kerala, India. E-mail: avinashtalya@gmail.com

Abstract

Laparoscopic adrenalectomy is the standard of care for management of adrenal neoplasms. However, large sized adrenal lesions are considered as relative contraindication for laparoscopic extirpation. We report laparoscopic excision of giant ganglioneuroma of adrenal gland in a 33-year-old female patient. Patient was presented with left loin pain of 2 months duration. Computed tomography (CT) scan was suggestive of non-enhancing left suprarenal mass measuring 17 × 10 cm. Preoperative endocrine evaluation ruled out functional adrenal tumor. Patient underwent transperitoneal excision of suprarenal mass. The lesion could be completely extirpated laparoscopically. Duration of surgery was 250 minutes. Estimated blood loss was 230 milliliters. Specimen was extracted through pfannenstiel incision. No significant intraoperative or postoperative happenings were recorded. Microscopic features were suggestive of ganglioneuroma of adrenal gland.

Key words: Adrenal, diagnosis, laparoscopy, suprarenal, transperitoneal

INTRODUCTION

Laparoscopic adrenalectomy is emerging as a standard of care approach for extirpation of adrenal neoplasms. Albeit, due to technical constraints, this approach is seldom utilized for management of lesions with a definitive or presumed diagnosis of invasive adrenal cortical carcinoma or very large adrenal tumors. We report a case of a large adrenal ganglioneuroma (GN) measuring 17 × 11 × 7.5 cm that was removed completely by the laparoscopic approach and evaluate the feasibility of this approach for managing large adrenal neoplasms.

CASE REPORT

A 33-year-old female presented to us with left flank pain and ultrasonography suggestive of left suprarenal mass. Present and past medical history was unremarkable. Computed tomography (CT) scan revealed a large left suprarenal mass which was well-margined with homogenous low CT attenuation, non-enhancing, and free from surrounding structures [Figure 1]. Preoperative endocrine evaluation was normal. A diagnosis of non-functioning suprarenal tumor probably benign was presumed. Definitive extirpation was planned through laparoscopic approach.

Patient was positioned in right lateral decubitus. Access was obtained through transperitoneal route. Four ports were utilized. A large suprarenal mass was identified encroaching medially beyond the medial border of aorta, superiorly abutting the diaphragm, laterally extending up to the parietal wall and displacing the kidney inferiorly [Figure 2]. Peritumoral plane was defined and dissection was carried out along this plane. Spleenopancreatic complex was released from lateral attachments and surface of tumor using harmonic scalpel through 5 mm lateral port. Dissection was continued with meticulous attention to hemostasis [Figure 3]. The adrenal vein was identified and control was achieved at the confluence with left renal vein. A plane of cleavage was defined between the aorta and the neoplasm and the attachments were freed along this plane. The lesion could be
completely extirpated laparoscopically. Duration of surgery was 250 minutes. Estimated blood loss was 230 milliliters. Specimen was extracted through pfannenstiel incision. No significant intraoperative or postoperative happenings were recorded. Patient tolerated orals on first postoperative day. Drain was removed on the second day and the patient was sent home on the following day. On gross inspection, the specimen appeared bosselated with intact capsule measuring $17 \times 11 \times 7.5$ cm [Figure 4]. Microscopic features were suggestive of GN, mature subtype of adrenal gland.

DISCUSSION

GN is a rare benign, slow-growing tumor that may arise anywhere along the paravertebral sympathetic plexus and occasionally from the adrenal medulla and accounts for 0-6% of incidentalomas.[1] These neoplasms are usually hormonally naïve and the clinical symptoms are chiefly attributable to their size/location. Although certain radiological features like presence of discrete calcifications and a low non-enhanced T1-weighted signal with a late and gradual enhancement on dynamic magnetic resonance imaging (MRI) may suggest GN, definitive diagnosis depends on histopathological features. The management of adrenal GN is essentially complete surgical resection through either an open or laparoscopic approach.

Laparoscopic approach is progressively gaining popularity in management of adrenal lesions.[3] This is chiefly attributable to the appealing morbidity profile and outcome obtained following this approach. The size threshold for offering laparoscopic adrenalectomy is debatable. Several authors limit the laparoscopic adrenalectomy to lesions less than 6 cm in size.[1,4] However, few authors have reported laparoscopic adrenalectomy for larger lesions without any significant morbidity.[5] Shah et al., reported successful laparoscopic removal of $8.5 \times 7$ cm adrenal neoplasm in a 12-year-old girl.[3] Zografos et al., successfully resected a 13 cm GN of adrenal gland in a 23-year-old female with laparoscopic approach.[5]
Extensive experience in advanced laparoscopic techniques and reports of successful laparoscopic extirpation of large adrenal tumors motivated us to embark on this approach for definitive management in this case. Transperitoneal approach was preferred in view of the larger workable space and the procedure could be completed conveniently. Additionally, in view of nonfunctioning characteristics, no hemodynamic fluctuations were encountered during tumor manipulation at laparoscopy.

To the best of our knowledge, we are reporting the largest adrenal neoplasm which has been removed laparoscopically till date. The prognosis in these scenarios is usually excellent. Recurrence after margin free extirpation is hitherto unreported. Additionally the morbidity due to incisional approach could be avoided. Adrenal GN is rare benign tumor with good prognosis. Laparoscopic removal of large benign, nonfunctioning adrenal tumor is possible with minimal morbidity, however requires expertise in advanced laparoscopy.

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