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Case Report

Laparoscopic adrenalectomy for large adrenal pheochromocytoma: a case report and discussion

Shwetank Prakash[1], Vaibhav Thakare[1]*, Anubhav Goel[1], Atiharsh Mohan[2]

[1]Department of Surgery, Sarojini Naidu Medical College, Agra, Uttar Pradesh, India
[2]Department of Anesthesia, Sarojini Naidu Medical College, Agra, Uttar Pradesh, India

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***Correspondence:**
Dr. Vaibhav Thakare,
E-mail: drvaibhavthakare10@gmail.com

ABSTRACT

A 40-year-old patient who presented hypertension and hyperglyemia, on CECT showing 7x6.2x5 cm sized retroperitoneal mass lesion in left para-aortic region extending to suprarenal region, diagnosed as pheochromocytoma. Patients BP monitored hourly, started antihypertensive and insulin. After adequate control of blood pressure and blood sugar patient planned for laparoscopic adrenalectomy by lateral transperitoneal approach. GA and combined epidural spinal anesthesia given. The patient was placed in the right-lateral decubitus position with the left side up. The surgeon and assistant stand on the right side of the table. and 4 trocars were inserted. The first port is situated 2 cm below the costal margin at the midclavicular line. The lateral port is placed under direct visualization at the anterior axillary line. The remaining port was placed between the two port. Adrenal Vein bluntly dissected, the vein is carefully doubly ligated with hemlock clips and transacted between clips. The adrenal gland was retracted in a superolateral direction and the harmonic scalpel was used to continue dissection laterally. The specimen was retrieved via a small, 4 cm incision on lateral costal margin. Histopathology of tumor specimen confirmed diagnosis as pheochromocytoma. Laparoscopy offers a better anatomical exposure, shorter length of stay, a decrease in postoperative pain, faster return to preoperative activity level, improved cosmesis, and reduced blood loss, early to resumption of oral feeding.

Keywords: Hyperglycemia, Hypertension, Laparoscopic adrenalectomy, Lateral transperitoneal approach, Pheochromocytoma

INTRODUCTION

Frankel in 1886 first linked attacks of headaches, palpitation and sweating with adrenal tumors, when an 18-year-old girl died and her autopsy showed a bilateral adrenal tumor. The term pheochromocytoma (Pheo) was coined by Pick in 1910. In 1992 L'Abbe and his colleagues first made the fascinating observation that a paroxysmal crisis of hypertension occurred in a 28-year-old woman and her autopsy to have a pheochromocytoma.[1]

CASE REPORT

40-year-old housewife was admitted to the surgery department with complaints of recurrent attacks of headaches, palpitation, diaphoresis, abdominal pain, nausea, vomiting, anxiety, flank pain and constipation. The symptoms took place several times a day and were triggered by factors such as: physical exertion, anxiety, stress, bowel movement. Clinical examination revealed blood pressure 210/130 mmHg and Pulse rate 110/min.

Blood investigation showed fasting blood sugar of 160mg/dl and Postprandial blood sugar of 220mg/dl.

The abdominal CT scan revealed 7x6.2x5 cm sized retroperitoneal mass lesion in the left para-aortic region which was extending to the suprarenal region (Figure 1). The mass showed significant post contrast enhancement with few areas of necrosis within. The mass receives its arterial supply from the left renal artery. The 24-hours urinary VMA level reported 22 mg (Normal <13.5 mg).

Her blood pressure monitored hourly and controlled by antihypertensive drugs like amlodipine 10mg BD, prazocin 5 mg TDS, telmisartan 40 mg TDS and clonidine 0.3 mg. BD. Tablet propanolol 10 mg BD was given for control of tachycardia. For DM, regular insulin was administered. After ten days, the patient was taken up for laparoscopic adrenalectomy.

Intra operative management

In the morning, she wasn't administered a dose of tab. prazocin. A combined epidural spinal anesthesia and General anesthesia was given. Radial artery was cannulated for continuous invasive blood pressure (IBP) monitoring. The entire period of the operation went uneventful.

Approach: Lateral transperitoneal

The patient was placed in the right-lateral decubitus position. The first port was situated two cm below the costal margin at the midclavicular line. The lateral port was placed under direct visualization at the anterior axillary line. The remaining two port was placed between the two ports. The splenic flexure was mobilized to expose the splenorenal ligament. The splenorenal ligament was divided in a cephalad direction until the stomach and short gastric vessels were visualized. This allowed for the medial mobilization of the spleen and tail of pancreas. The hook electrocautery was used to dissect in a cephalad to caudad direction creating a "V" between the aorta medially and the periadrenal tissue laterally.

The vein was carefully doubly ligated with hemlock clips and transected. The superior pole of the kidney was visualized properly and it was ensured that renal vessels were free from the tumour and the lateral dissection was proceeded. The harmonic scalpel was used to expeditiously divide the inferior and lateral attachment of the adrenal gland. Hemostasis was achieved. The specimen was retrieved via a small 4cm incision on the lateral costal margin.

In the immediate post op period went uneventful. On post-operative day-1 BP was 112/70 mmHg. The nasogastric tube and the Foley catheter were removed within 24 hours after surgery. Clear liquids were given on the day after surgery and pain was controlled with intermittent parenteral narcotics. The histopathological study of the specimen confirmed the tumor as being a pheo (Figure 2).

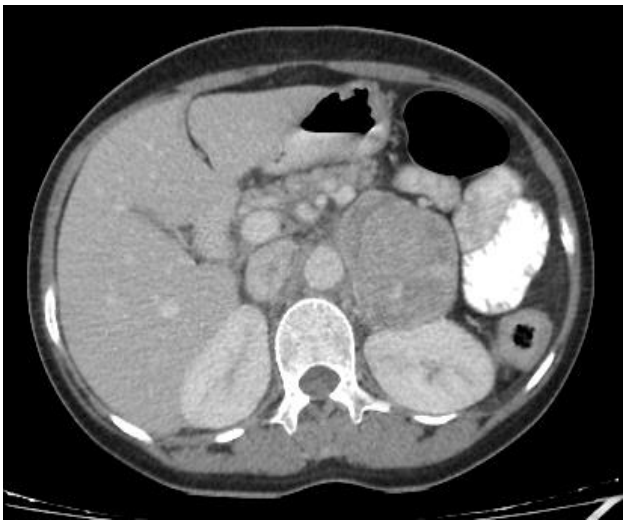

Figure 1: Abdominal CT scan showing 7x6.2x5 cm sized retroperitoneal mass lesion in the left para-aortic region which was extending to the suprarenal region.

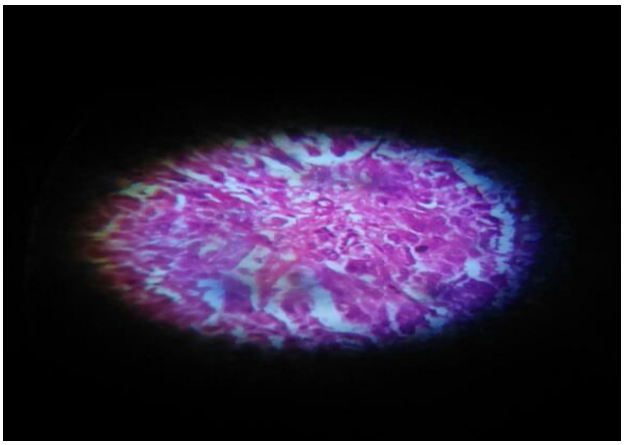

Figure 2: H and E image of adrenal pheochromocytoma:the typical growth pattern is that of nests of tumor cells (zellballen) surrounded by a discontinuous layer of sustentacular cells and fibrovascular stroma.

DISCUSSION

The first successful surgical removal of the pheochromocytoma was performed by Roux in 1926. The first laparoscopic adrenalectomy (LA) was performed by Gagner and his colleagues in 1992.[2] Laparoscopy offers a better anatomical exposure, a shorter length of stay, a decrease in postoperative pain, faster return to the preoperative activity level, improved cosmesis, and reduced blood loss, early to resumption of oral feeding.[3,4]

Our operative time was 150 min, blood loss was 90ml, clear liquids started a day after surgery, and discharge

was made on day 6, and patient resumed normal activity 15 days after surgery.

The lateral transperitoneal adrenalectomy (LTA) is performed within the peritoneal space, having the patient in the lateral decubitus position, whereas the posterior retroperitoneoscopic adrenalectomy (PRA) is performed in the retroperitoneal space with the patient being prone. The posterior retroperitoneoscopic adrenalectomy is a safe and fast procedure, particularly advantageous in patients who have undergone prior open abdominal surgery or who are moderately obese.[5,6]

The most frequently encountered complications of adrenalectomy are: vascular injuries, injuries of the bowel, pleural tears, and injuries to the liver, spleen and pancreas, adrenal artery, vein, IVC, renal vein, the right lobe of liver, retroperitoneal hematoma, abscess of the adrenal bed.

Laparoscopic adrenalectomy is not indicated for malignancy because it is associated with higher recurrence rates. The local infiltration of surrounding tissue or caval invasion should be managed by open surgery.[7]

CONCLUSION

Laparoscopy offers a better anatomical exposure, shorter length of stay, a decrease in postoperative pain, faster return to preoperative activity level, improved cosmesis, and reduced blood loss, early to resumption of oral feeding.

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Ethical approval: Not required

REFERENCES

1. Manger WM, Gifford RW. Pheochromocytoma. 1st ed, New York: Springer-Verlag; 1977.
2. Gagner M, Lacroix A, Bolte E. Laparoscopic adrenalectomy in Cushing's syndrome and pheochromocytoma. NEJM. 1992;327:1033.
3. Mac Gillivary DC, Shichman SJ, Ferrer FA, Malchoff CD. A comparison of open vs Laparoscopic adrenalectomy. Surg Endosc. 1996;10:987-90.
4. Gagner M. Laparoscopic adrenalectomy. Surg Clin North Am. 1996;76:523-37
5. Callender GG, Kennamer DL, Grubbs EG, Lee JE, Evans DB, Perrier ND. Posterior retroperitoneoscopic adrenalectomy. Adv Surg. 2009;43:147-57.
6. Walz MK, Alesina PF, Wenger FA. Posterior retroperitoneoscopic adrenalectomy- results of 560 procedures in 520 patients. Surgery. 2006;140(6):943-8
7. Zografos GN, Vasiliadis G, Farfaras AN, Aggeli C, Digalakis M. Laparoscopic Surgery for malignant adrenal tumors. JSLS. 2009;13(2):196-202.

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