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Case report of laparoscopic adrenalectomy for a giant pheochromocytoma : Medical and surgical challenge

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Introduction

Pheochromocytomas are rare catecholamine-producing tumors arising from chromaffin cells in the adrenal medulla. While the majority of pheochromocytomas are relatively small in size, ranging from a few millimeters to a few centimeters, a distinct subset of cases presents with an atypical feature: giant pheochromocytomas. These tumors, characterized by an unusually large size, pose unique diagnostic and therapeutic challenges due to their potential for causing extensive local invasion, compression of adjacent structures, and a heightened risk of catecholamine-related complications

Case Report :

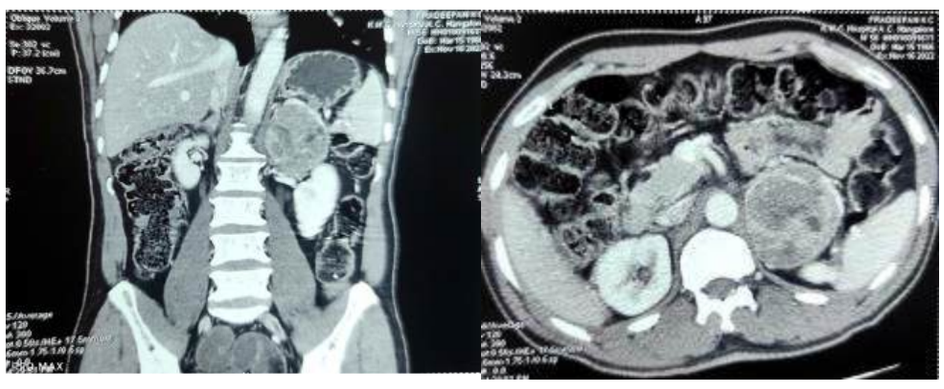
We describe a case of 56 year old gentleman who was referred to our department with a left adrenal adrenal mass. He had diabetes mellitus and hypertension for the last few years for which he was on insulin and multiple anti hypertensives. He had occasional sweating , palpitation and headache which was connected to hypoglycemia which was not documented. As he had lower urinary symptoms, he underwent ultrasound of abdomen and pelvis which showed an left adrenal mas. Hormonal evaluation is given in Table 1. He was changed to selective alpha blocker from our department. It took 3 weeks to get adequate control with prazosin of 17.5 mg and Metoprolol 100 mg in divided doses. He underwent laparoscopic trans peritoneal left adrenalectomy. Left adrenal tumor was large(95x60x40mm)(weight : 180 gm) and highly vascular in nature. Multiple venous and arterial connections to the retro peritoneum was present. After clipping the adrenal vessels , Peritumoral dissection was done and specimen removed through a separate pfannensteil incision in the supra pubic region . Highest blood pressure recorded in the peri procedure was 15/90 mm Hg. Post operatively he had hypotension which was managed by ionotropes for 24 hours. He was not on insulin or any hypertensives in the post operative period and discharged on post operative day 4. Histopathology reported as pheochromocytoma with Pheochromocytoma of the Adrenal gland Scaled Score (PASS) score of 6 which suggests that this is an aggressive tumor. He was further investigated with metaiodobenzylguanidine (123 I-MIBG) scan to rule out any metastasis which was normal. He was on close follow up for last one year and his plasma normetanephrines and metanephrines were within normal limits.

Discussion:

Giant pheochromocytoma are tumors larger than 7 cm in size. Majority of these tumors are lacking classical symptoms like headache,palpitation and diaphoresis and not producing catecholamines unlike our case. Tumour necrosis, abundant interstitial tissue compared to chromaffin cells and encapsulation of tumour by connective tissue are the causes of paucity of catecholamine production. Pre operative management of pheochromocytoma is crucial to attain normal blood pressure, heart rate and restore effective circulating blood volume to avoid hemodynamic instability during peri operative period. The definitive management of adrenal pheochromocytoma is surgical excision. Laparoscopic adrenalectomy is the best and safe procedure for large pheochromocytomas.Laparoscopic adrenalectomy shows lower estimated blood loss, lower transfusion rate, lower hemodynamic instability, less postoperative complications, less Clavien-Dindo score 3 complications, shorter return to diet time, and shorter length of hospital stay.Post operatively patient experienced a favorable course with normalization of blood pressure and catecholamine levels. This case exemplifies the successful resolution of a challenging medical condition, ultimately improving the patient's quality of life including high blood pressure and diabetes mellitus.

Conclusion

This case report not only underscores the effectiveness of laparoscopic adrenalectomy as a minimally invasive surgical option for large pheochromocytomas but also emphasizes the importance of a multidisciplinary approach involving endocrine surgeons, anesthesiologists and pathologists. Furthermore, it contributes to the growing body of evidence supporting the feasibility and safety of laparoscopic techniques in the management of adrenal tumors.



PICTURE 1. Contrast enhance computerized tomography showed large well defined left adrenal mass

PICTURE Specimen picture of left adrenalectomy and Post operative picture showing laparoscopic ports and pfannensteil incision

Table 1. Biochemiocal Evaluation

S. Cortisol 8 AM	17.40 mcg/dl	(5-23)
Aldosterone Renin Ratio	3.5	(<30)
24 hour Urine VMA	66.83 mg/24 hrs	(<13.6)
ECHO	LVEF 67% No RWMA, Normal LVSF , LVDD	
S. creatinine	1.09 mg/dl	
sodium	136 meq/dl	
Potassium	4.6 meq/dl	