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Letter to Editor

Synchronous bilateral adrenalectomy by midline incision: A reliable method for treatment of hypercortisolism

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Cushing syndrome is one of the diseases associated with adrenals secreting too much cortisol. The syndrome was first described by Harvey Cushing in 1932.[1] It can be caused either by a tumor originating from the corticotroph cells located in pituitary glands, called corticotroph adenoma, or primary adrenal hyperplasia. It can be also the consequence of some other rare conditions such as ectopic corticotropin-releasing hormone (CRH) causing increased adrenocorticotropic (ACTH) secretion and macronodular adrenal hyperplasia (a primary pigmented nodular adrenal disease).[2,3] To manage the situation, previous articles demonstrated some strategies including two main groups of surgical treatments and non-surgical procedures.

Surgical interventions are very important to completely cure this condition. Pituitary surgery, referred to as transsphenoidal operation, is the treatment of choice for patients with secondary disease.[2] However, in some situations, e.g. in patients with recurrent or persistent Cushing syndrome and those not responding to medical therapies after the surgery, the effectiveness of pituitary surgery is under question. Such patients are the best candidates for bilateral adrenalectomy. Some previous articles outlined this method.[4] Laparoscopy is one of the methods recently used for adrenalectomy.[5,6] During the surgery, some complications may occur which deteriorates patient's condition with noticeable rates of 9.5 to 12%. These complications are bleeding, organ damages, pain and deep vein thrombosis.[7,8]

Although in recent years the experts have achieved great improvements in management and treatment of the patients suffering from Cushing syndrome, some controversies still exist. In this manuscript, we explained a new method to accomplish a reliable bilateral adrenalectomy to manage the disease and cure the condition completely.

After opening the abdomen, left adrenal gland is determined and adjacent vessels are ligated. Then, the enlarged adrenal gland would be entirely removed. However, adrenalectomy at the right side is not as simple as the left side. Renal vein detachment from the inferior vena cava can be a serious complication of right adrenalectomy if it is performed without enough exposure and experience. Massive bleeding in such clinical setting may significantly compromise patient's outcome. To avoid this complication during the procedure we can perform a new method explained below.

Access to the right gland cannot be obtained by conventional retraction of the liver and it is necessary to mobilize the right hepatic lobe by fully incising the falciform ligament, the right triangular ligament, and rotating the right lobe medially. In this procedure, the bare area of the liver is dissected from the diaphragm. Care must be taken to avoid twisting and occluding the vena cava during this maneuver. After medial rotation of the liver in the proper position, the right adrenal and inferior vena cava can be directly visualized. This excellent exposure makes adrenalectomy very simple and minimizes the risk for renal vein detachment as a significant complication.

This method was conducted on 6 cases admitted due to Cushing syndrome in Alzahra Hospital, Isfahan, Iran. While no major complications were observed, favorable outcomes

were found in the 6-month follow-up period.

Based on our experience, bilateral adrenalectomy via a midline incision is a promising and acceptable technique for patients with Cushing syndrome. However, due to excess adipose tissue and lack of enough exposure, adrenalectomy by lumbotomy in such patients has prominent limitations. Therefore, midline incision provides feasible exposure for direct visualization of both adrenals.

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Conflict of Interests

Authors have no conflict of interests.

References

1. Cushing H. The basophil adenomas of the pituitary body and their clinical manifestations (pituitary basophilism). 1932. Obes Res 1994; 2(5): 486-508.
2. Tritos NA, Biller BM, Swearingen B. Management of Cushing disease. Nat Rev Endocrinol 2011; 7(5): 279-89.
3. Mancini T, Porcelli T, Giustina A. Treatment of Cushing disease: overview and recent findings. Ther Clin Risk Manag 2010; 6: 505-16.
4. Malley D, Boris R, Kaul S, Eun D, Muhletaler F, Rogers C, et al. Synchronous bilateral adrenalectomy for adrenocorticotropic-dependent Cushing's syndrome. JSLS 2008; 12(2): 198-201.
5. Vance ML. Cushing's disease: radiation therapy. Pituitary 2009; 12(1): 11-4.
6. Jagannathan J, Sheehan JP, Pouratian N, Laws ER, Steiner L, Vance ML. Gamma Knife surgery for Cushing's disease. J Neurosurg 2007; 106(6): 980-7.
7. Chow JT, Thompson GB, Grant CS, Farley DR, Richards ML, Young WF, Jr. Bilateral laparoscopic adrenalectomy for corticotrophin-dependent Cushing's syndrome: a review of the Mayo Clinic experience. Clin Endocrinol (Oxf) 2008; 68(4): 513-9.
8. Assalia A, Gagner M. Laparoscopic adrenalectomy. Br J Surg 2004; 91(10): 1259-74.

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