MANAGEMENT OF ADRENO CORTICAL CARCINOMA: CASE REPORT

[1] Diki Arma Duha, [2] Hendy Mirza.

[1] Department of Urology, Faculty of Medicine/Universitas Indonesia, Cipto Mangunkusumo National Hospital, Jakarta.
[1] Department of Urology, Faculty of Medicine/Universitas Indonesia, Persahabatan Hospitala, Jakarta.

ABSTRACT

Objective: *Adreno cortical carcinoma (ACC) is a rare malignancy. Currently, surgical resection offers the best chance of cure with localized tumor. Multimodal therapy including systemic chemotherapy and radiation therapy are often required for locally advanced and metastatic disease aims to decrease these high recurrence rates.* ***Case(s) presentation:*** *A 42-year-old male patient was referred from internist due to mass in left adrenal. Solid mass with calcification on left adrenal gland within size 9 x 11.8 x 11.5 cm was found in MSCT. We performed complete surgical resection (adrenalectomy), and results from pathology anatomy was ACC functional T2N1M0 (stage 3). The patient was planned eight times chemotherapy with etoposide and carboplatin, but he decided to stop the treatment after six times due to no constitutional complaint. We found no residual mass on follow up six months after operation and patient demonstrated a good clinical outcome after one year.* ***Discussion:*** *We perform open adrenalectomy and after surgery mitotane plus etoposide, cisplatin, doxorubicin (EDP) administered as first-line therapy but we only did chemotherapy with etoposide and carboplatin because mitotane was not covered by patient insurance. We chose to not perform radiation therapy due to lesser benefit of adjuvant radiotherapy as evidenced by many studies in term of recurrence-free survival and overall survival.* ***Conclusion:*** *In our case, adreno cortical carcinoma treated with open adrenalectomy combined with 6 times chemotherapy used etoposide and carboplatin demonstrated a good clinical outcome after 1 year.*

Keywords: *Adreno cortical carcinoma, adrenalectomy, adjuvant therapy, chemotherapy, EDP.*

ABSTRAK

Tujuan: *Adreno cortical carcinoma (ACC) merupakan kasus keganasan yang langka. Saat ini, tindakan operasi merupakan pilihan terbaik untuk tata laksana tumor yang terlokalisir. Terapi multimodal seperti kemoterapi sistemik dan terapi radiasi seringkali diperlukan untuk kasus locally advanced dan kasus metastasis untuk mengurangi resiko rekurensi yang cukup tinggi.* ***Presentasi Kasus:*** *Seorang laki-laki berusia 42 tahun dirujuk dari dokter spesialis penyakit dalam dikarenakan adanya massa pada adrenal kiri. Pada pemeriksaan MSCT ditemukan massa padat disertai dengan adanya kalsifikasi pada kelenjar adrenal kiri dengan ukuran 9 x 11.8 x 11.5 cm. Kami melakukan tindakan operatif reseksi total (adrenalektomi), dan hasil dari pemeriksaan patologi anatomi didapatkan adanya ACC fungsional T2N1M0 (stage 3). Pasien direncanakan tindakan kemoterapi selama delaman kali dengan etoposide dan carboplatin, namun pasien memutuskan untuk berhenti melakukan pengobatan setelah enam siklus karena sudah tidak ada keluhan. Kami tidak menemukan adanya massa sisa saat pasien follow-up, enam bulan pasca operasi dan pasien menunjukan keadaan klinis yang baik setelah satu tahun pasca tindakan.* ***Diskusi:*** *Kami melakukan tindakan adrenalektomi terbuka dan setelah operasi pasien diberikan mitotane dan etoposide, cisplatin, doxorubicin (EDP) sebagai terapi lini pertama. Namun pada pasien kami hanya memberikan kemoterapi dengan etoposide dan carboplatin karena mitotane tidak ditanggung oleh asuransi pasien. Kami memutuskan untuk tidak melakukan tindkan radiasi karena berdasarkan studi sebelumnya tidak menunjukkan adanya keuntungan dalam recurrence-free survival dan overall survival.* ***Simpulan:*** *Hasil dari terapi kombinasi tersebut menunjukan keadaan klinis pasien yang baik setelah 1 tahun terapi tersebut.*

Kata Kunci: *Adreno cortical carcinoma, adrenalektomi, terapi adjuvant, kemoterapi, EDP.*

Correspondence: Diki Arma Duha; c/o: Department of Urology, Faculty of Medicine/Universitas Indonesia, Cipto Mangunkusumo General Hospital, Jalan Diponegoro No. 71, Senen, Jakarta Pusat, DKI Jakarta10430, Indonesia. Telephone: +6221-3923631. Email: dikiarmaduha@gmail.com.

INTRODUCTION

Adreno cortical carcinoma (ACC) is a rare malignancy with an incidence of 0.5 to 2 per million that peaks in children in the first decade of life and adults in the fourth to fifth decades of life, with most patients are adults.[1] Currently, surgical resection offers the best chance of cure with localized tumor.

Successful tumor-directed surgery (R0 resection) for localized ACC is the only potentially curative treatment for ACC but even after complete resection, recurrence rates are high (30–50%) and are even higher in patients with incomplete resection. Multimodal therapy including systemic chemotherapy and radiation therapy are often required for locally advanced and metastatic disease aims to decrease these high recurrence rates.[1-2]

However, adjuvant therapy of this disorder has still not been fully understood until now. In this case report, we described management of a 42-year old male diagnosed with ACC functional stage III.

CASE(S) PRESENTATION

A 42-year-old male patient was referred from an internist at Persahabatan General Hospital Jakarta due to mass in left adrenal from Multiple slice computer tomography (MSCT). The patient felt pain on left upper abdomen since November 2015. The pain was intermittent, dull, and not radiated. There is no other constitutional symptom in this patient.

During the examination, we found hypertension and lower blood serum of cortisol and potassium in this patient, from MSCT we found solid mass with calcification on left adrenal gland within size 9 x 11.8 x 11.5 cm and during contrast phase there was enhancement inhomogen in it (Figure 1). There is no abnormality in other intraabdominal organs.

We performed complete surgical resection (adrenalectomy) on January 26th 2017, and we sent the adrenal tumor and the para aorta lymph node to the pathologist (Figure 2). From pathology anatomy, we found it was accordance to adreno cortical carcinoma with lymph node that contains tumor metastatic. The patient was discharged seven days after operation. The patient was planned eight times chemotherapy with etoposide and carboplatin, but he decided to stop the treatment after six times due to no constitutional complaint. We found no residual mass on follow up size months after operation. Our patient had demonstrated a good clinical outcome one year after operation and we recommended the patient perform follow-up MSCT every three to twelve months for up to five years.

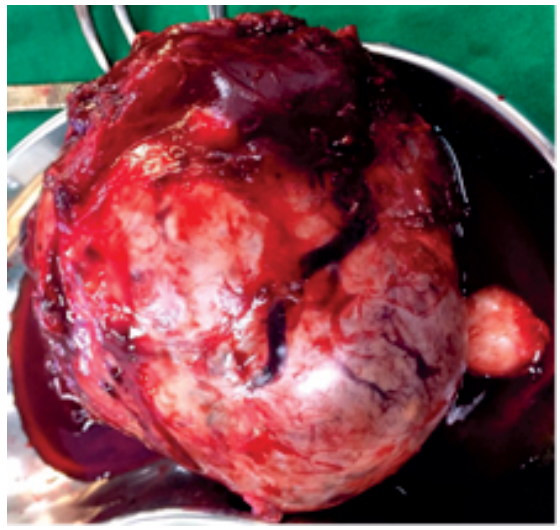

Figure 2. The adrenal tumor and the para aorta lymph node.

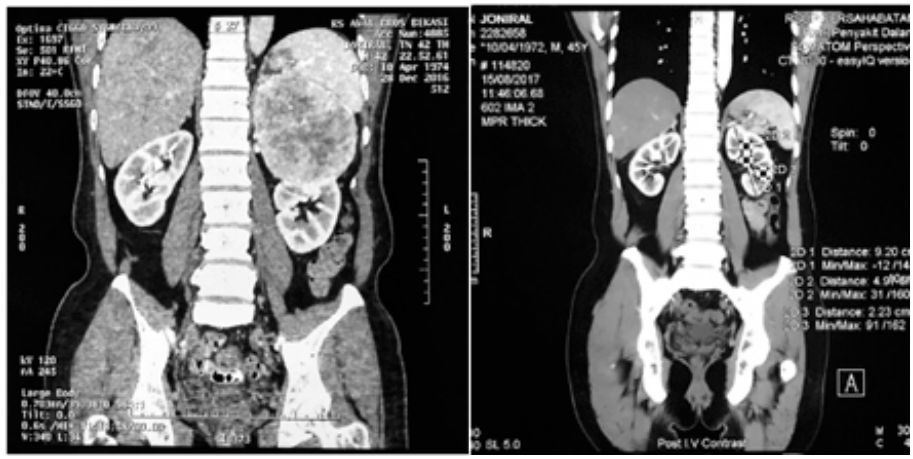

Figure 1. MSCT resut show that solid mass with calcification on left adrenal gland within size 9 x 11.8 x 11.5 and contrast phase.

DISCUSSION

Adreno cortical carcinoma (ACC) is a rare malignancy with an incidence of 0.5 to 2 per million that peaks in children in the first decade of life and adults in the fourth to fifth decades of life, with most patient are adult.[1] The majority of ACC are sporadic and unilateral. Several syndromes are associated with an increased incidence of ACC, including Li-Fraumeni syndrome, Beckwith-Wiedemann syndrome, Lynch syndrome, Carney complex, MEN-1, and McCune-Albright syndrome.[1] In this case, the patient 42 years old did not had history of another syndrome.

ACC symptoms can be secondary to local or systemic disease burden and/or hypersecretion of adrenal hormones. ACC functional are associated with the hypersecretion of adrenal hormones and usually without clinical symptoms. The most common hormone secreted by ACC is cortisol, resulting in the clinical manifestations of Cushing syndrome. Moreover, the symptoms of hypertension and hypokalemia are more likely secondary to other adrenal steroids produced by ACC. Nonfunctional ACC may cause more generalized tumor-related symptoms, such as abdominal fullness, back pain, nausea, vomiting, or other constitutional symptoms.[1] In this patient we diagnosed ACC functional because there was hypertension and hypokalemia, associated with upper left abdominal pain and no other constitutional symptoms.

Suspicion for ACC is based on clinical symptoms or radiographic findings and warrants the complete extent of disease evaluation, given the implications of this malignancy. Common characteristics on CT imaging include the presence of irregular borders, irregular enhancement, calcifications, and necrotic areas with cystic degeneration.[1] ACC usually larger than benign adrenal tumor with average size 10 to 12 cm. In incidentally detected adrenal tumors, size is a relative indicator of malignancy, with 4% to 5% of tumors smaller than 4 cm, 10% of tumors larger than 4 cm, and 25% of tumors larger than 6 cm found to be adrenal carcinomas. The most common sites of metastases in adrenal carcinoma are the lung and liver. [1]In this patient, from MSCT was found left adrenal mass within size 9x11,8x11,5 and had regular borders with enhancement and calcification in it and tumor size was >5cm and we found metastasis in para aorta lymph node so we diagnosed this patient with ACC functional T2N1M0 (stage 3).

Currently, surgical resection offers the best chance of cure with localized tumor. Successful tumor-directed surgery (R0 resection) for localized ACC is the only potentially curative treatment for ACC but even after complete resection, recurrence rates are

Table 1. American Joint Committee on Cancer (AJCC), TNM staging system for neuroendocrine tumors (adrenal).[2]

T	N	M
Tx : Primary tumor cannot be assessed	**Nx** : Nodes cannot be assessed	**M0** : No distant metastases
T0 : No evidence of primary tumor	**N0** : Regional lymph node metastasis	**M1** : Distant metastasis
T1 : Tumors ≤ 5cm	**N1** : Metastasis in regional lymph node (s)	
T2 : Tumor >5cm		
T3 : Tumor any size with local invasion, but not invading adjacent organs		
T4 : Tumor any size with invasion of adjacent organ*		

*Include : kidney, diaphragm, great vessels, pancreas, spleen, liver.

Table 2. Staging of Adrenocortical Carcinoma Including Stage at Diagnosis and 5-Year Survival Data.[1]

Stage	2004 UICC/WHO	At diagnostic	5-years survival
I	T1N0MO	3%-4%	33%-66%
II	T2N0M0	29%-46%	20%-58%
III	T1-2N1MO T3N0M0	11%-19%	18%-24%
IV	T1-4N0-1M1 T3N1M0 T4N0-1M0	39%-49%	<5%

high (30-50%) and are even higher in patients with incomplete resection.

Multimodal therapy including systemic chemotherapy and radiation therapy are often required for locally advanced and metastatic disease aims to decrease these high recurrence rates. [1-2]

Mitotane is an oral synthetic derivative of the insecticide dichlorodiphenyltrichloro-ethane (DDT) and is the most commonly used chemotherapeutic agent in the treatment of ACC. The agent has demonstrated clinical benefit in the adjuvant setting after surgical resection with or without metastatic disease.[1] Habra, et all from retrospective evidence found that adjuvant mitotane therapy can reduce the recurrence rate and improve survival in ACC patient.[3] M Terzolo, et all found that Mitotane concentrations > 14 mg/l had a significantly reduced risk of recurrence and the most important prognostic factors.[4-5] In this patient, we doing adrenalectomy and after surgery, we only did chemotherapy with etoposide and carboplatin because mitotane was not covered by patient insurance.

After 6 times of chemotherapy, the patient performed abdominal MSCT and we found no residual mass. The patient was planned 8 times chemotherapy with etoposide and carboplatin, but he decided to stop the treatment by himself due to no constitutional complaint.

Adjuvant radiation has been noted to decrease local recurrence rates after complete tumor resection, with reported local recurrence rates of 14% and 79%, with and without adjuvant radiation therapy, respectively.[1] In conclusion, our study demonstrates that adjuvant radiation therapy significantly lowers the risk of local recurrence for patients with ACC treated with resection.[6-7]

CONCLUSION

Adreno cortical carcinoma (ACC) is a rare malignancy with high recurrence rate even after complete resection. Chemotherapy and radiation are often required to decrease these high recurrence rates.

In our case, open adrenalectomy combined with chemotherapy used etoposide and carboplatin demonstrated a good clinical outcome after 1 year. Future studies are needed to confirm our findings.

REFERENCES

1. Kutikov A, Crispen PL, Uzzo RG. Pathophysiology, Evaluation, and Medical Management of Adrenal Disorders. Eleventh E. Elsevier Inc.; 2016.
2. Adrenocortical M. Management of Adrenal Masses in Children and Adults; 2017.
3. Ayala-Ramirez M, Jasim S, Feng L, et al. Adrenocortical carcinoma: Clinical outcomes and prognosis of 330 patients at a tertiary care Center. Eur J Endocrinol. 2013; 169(6): 891-899.
4. Terzolo M, Baudin AE, Ardito A, et al. Mitotane levels predict the outcome of patients with adrenocortical carcinoma treated adjuvantly following radical resection. Eur J Endocrinol. 2013; 169(3): 263-270.
5. Fassnacht M, Terzolo M, Allolio B, et al. Combination Chemotherapy in Advanced Adrenocortical Carcinoma. N Engl J Med. 2012; 366(23): 2189-2197.
6. Ross JS, Wang K, Rand J V, et al. Next-generation sequencing of adrenocortical carcinoma reveals new routes to targeted therapies. J Clin Pathol. 2014; 67(11): 968-973.
7. Aaron Sabolch, MD,* Tobias Else, MD, y Kent A. Griffith, MPH, MS, z Edgar Ben-Josef, MD, x Andrew Williams, BS et all. Adjuvant Radiation Therapy Improves Local Control After Surgical Resection in Patients With Localized Adrenocortical Carcinoma. 2015; 92(2): 252e259.