

# Adrenal Myelolipoma And Membranoproliferative Glomerulonephritis: Case Report

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## Citation

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## Abstract

Adrenal myelolipoma is a rare neoplasm typically <4 cm. It is usually discovered as an incidental finding and is asymptomatic. Currently, no known association exists between adrenal myelolipomas and membranous glomerulonephritis. This case demonstrates the coexistence of a large adrenal myelolipoma with a history of membranous glomerulonephritis (MGN) in the ipsilateral kidney.

## INTRODUCTION

An adrenal myelolipoma is a rare, benign neoplasm that consists of mature adipose tissue and hematopoietic elements.<sup>1</sup> It is not hormonally functional, usually unilateral, and may be associated with obesity. The majority of masses are asymptomatic and discovered at autopsy or as an incidental radiographic finding. Most adrenal myelolipomas measure <4 cm, although some cases have reported the masses measured >30 cm.<sup>2</sup> Whereas large adrenal myelolipomas have previously been reported in the literature, little has been mentioned about the mass that coincides with ipsilateral membranous glomerulonephritis (MGN), known as inflammation and thickening of the glomerular basement membrane and nephrotic syndrome. This Case Report describes such a case.

## CASE REPORT

A 37-year-old Caucasian female was first seen with chest pain and a computed tomography (CT) scan was obtained to rule out a pulmonary embolism. The CT scan incidentally showed an enlarging right adrenal mass that consisted of mostly adipose tissue. The patient reported right, intermittent costovertebral angle discomfort, but was otherwise asymptomatic. She denied dysuria, gross hematuria, or urinary tract infections, as well as anxiety, heart palpitations, or diaphoresis. The patient also had a history of type 1 membranoproliferative glomerulonephritis with hypertensive crisis for several years. She denied a family history of polycystic kidney disease.

On examination, the patient was afebrile, in no acute

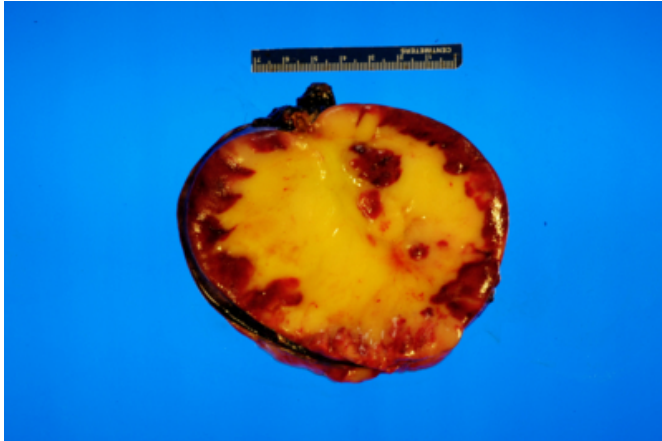
distress, and without virilization. The abdomen was obese, soft, nontender, and nondistended. Her physical examination was otherwise normal. Results of the urinalysis showed 3+ microscopic blood and 2+ proteinuria. Laboratory results showed that the complete blood cell count, electrolytes, and adrenocorticotrophic hormone levels were within normal limits. Her pregnancy test was negative. Catecholamine and metanephrine testing were negative and not consistent with a hormone-producing tumor. The CT scan showed a large heterogeneous mass arising from the right adrenal gland that exerted a mass effect on the inferior vena cava and medial hepatic lobe, while deviating the right kidney. Cystic masses in both kidneys were also seen with Hounsfield units <10.

Previous right kidney biopsy results showed diffuse proliferative glomerulonephritis with predominantly subendothelial deposits of IgG, IgM, and C3. Additionally, the previous urine protein measured 410 during the time period of the patient's active glomerulonephritis. The antinuclear antibody, C3, C4, and RF were all within normal limits. She was negative for Hepatitis B and C.

Subsequently, the patient underwent a right adrenalectomy to remove the mass. The resulting cytology was negative for malignant cells, and pathologic findings showed a myelolipoma of the adrenal gland that measured 16 cm at its greatest diameter (Fig. 1).

**Figure 1**

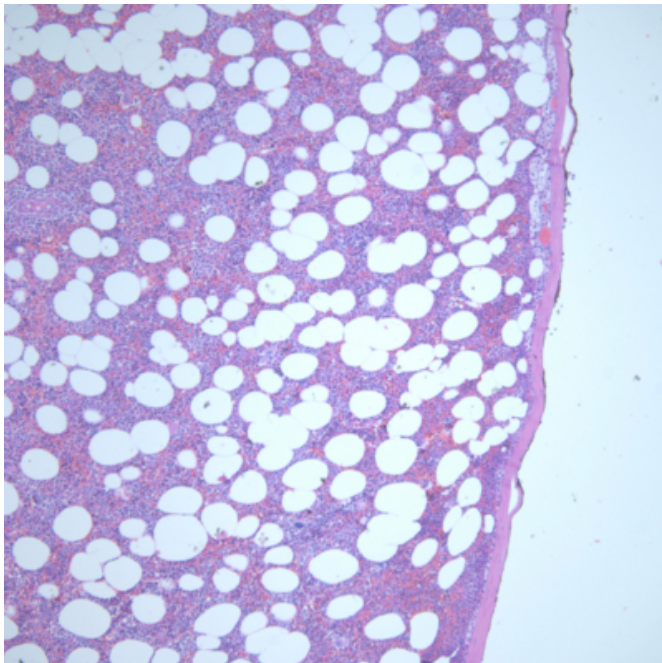
Figure 1. An encapsulated, 16 x 12 x 6.5-cm mass with a variegated yellow-to-red cut surface. At one aspect, is compressed 3.1 x 0.6 x 0.8-cm adrenal gland with a distinct yellow cortex and brown medulla is shown.



Microscopy showed a well-circumscribed lesion that contained numerous fat cells (Fig. 2).

**Figure 2**

Figure 2. Microscopy shows a well-defined capsule with numerous adiposity cells present throughout the specimen.



The excision of the cyst wall showed dense, fibroconnective tissue with smooth lining consistent with a benign cyst wall and benign renal parenchyma with mild chronic inflammation. The patient tolerated the procedure well and was discharged from the hospital without complications.

## DISCUSSION

Whereas the overall incidence of an adrenal mass is thought to be 2.7%-5%, adrenal myelolipomas are rare, with the incidence estimated at 0.02%-0.4%.<sup>2</sup> According to the literature, only about 250 cases have been reported with less than half of those surgically resected. However, the literature suggests that asymptomatic masses of <4 cm should be watched and only surgically removed if the patient becomes symptomatic.<sup>3</sup> For example, indications for surgery would include abdominal distention and discomfort, nausea, vomiting, and shortness of breath. The probability of the manifestation of these symptoms increases proportionally to the size of the mass. Most reported adrenal myelolipomas measure several millimeters to centimeters, whereas this patient's adrenal myelolipoma measured 16 cm. It was exerting a mass effect not only by the medial deviation of her right kidney, but it was also compressing her inferior vena cava and hepatic lobe. One worrisome complication of a mass of this size is either spontaneous or traumatic rupture that consequently results in hemorrhage.

Additional origins for an adrenal mass of this size should also be considered in addition to an adrenal myelolipoma. The differential diagnosis includes adrenal adenoma, pheochromocytoma, and liposarcoma. An adrenal adenoma is unlikely because the CT scan demonstrated Hounsfield units of <10. A pheochromocytoma can be ruled out, because of the negative results of the catecholamine and metanephrine testing. An adrenal liposarcoma would present similarly, but would not appear as homogenous with regular margins.<sup>4</sup>

In addition to the remarkable size of the adrenal myelolipoma in this patient, it is also noteworthy to mention her history of MGN. This is an immune-mediated disease in which immune complexes are deposited on the membrane. The causes can be infectious, autoimmune, drug-induced, or neoplastic. To date, no known association exists between adrenal myelolipomas and MGN. However, an association between these two findings may be considered because of the ipsilateral presentation within three years. A possible correlation between the two processes may be obesity, as reported in a case with coexisting adrenal myelolipoma and focal segmental glomerulosclerosis—a type of nephrotic syndrome. Obesity increases the glomerular filtration rate and glomerular size, and causes stress on the glomerulus.[] 5 Furthermore, hypertension is commonly found in obesity and nephrotic syndrome, and has been reported in several cases of adrenal myelolipomas.[] 6 However, because the

prevalence of obesity and hypertension is high, these may be confounding factors. Nevertheless, further investigation of a correlation between glomerulonephritis and adrenal myelolipomas with obesity and hypertension is warranted, because a causal relationship between them has yet to be determined.

### **CONCLUSIONS**

Adrenal myelolipoma is a rare neoplasm. Lesions are typically <4 cm. This incidental finding is usually asymptomatic. Currently, no known association exists between adrenal myelolipomas and membranous glomerulonephritis. This case demonstrates the coexistence of a large adrenal myelolipoma with a history of MGN in the

ipsilateral kidney.

### **References**

1. . Akamatsu H, Koseki M, Nakaba H, et al. Giant adrenal myelolipoma: Report of a case. *Surg Today* 2004;34:83-5.
2. . Lamont J, Lieberman Z, Stephens J. Giant adrenal myelolipoma. *Am Surg* 2002;68(4):392-4.
3. . Patel VG, Babalola OA, Fortson JK, et al. Adrenal myelolipoma: report of a Case and Review of the Literature. *Am Surg* 2006;72(7):649-54.
4. . Lamont J, Lieberman Z, Stephens J. Giant adrenal myelolipoma. *Am Surg* 2002;68(4):392-4.
5. . Rutkowski P, Klassen A, Sebekova K, et al. Renal disease in obesity: The need for greater attention. *J Renal Nutr* 2006;16(3):216-23.
6. . Ross WR, McGill JB. Epidemiology of obesity and chronic kidney disease. *Adv Chronic Kidney Dis* 2006;134:325-35.

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