Spontaneous Massive Adrenal Hemorrhage: A Management Dilemma

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Abstract

Adrenal hemorrhage (AH) is a rare but life-threatening condition. Small focal hemorrhage may present subclinically, but massive hemorrhage may lead to rapid cardiovascular collapse and ultimately death if not diagnosed appropriately and treated quickly. Most cases reported in the literature have been treated conservatively. In an event of increasing hemorrhage during conservative management, it may be tricky to intervene surgically because of the hematoma around the gland. Here we describe a case where we managed a large spontaneous AH by a combination of angioembolization and laparoscopic adrenalectomy.

Introduction and Background

Adrenal hemorrhage (AH) is a rare but life-threatening condition, especially when it occurs bilaterally. Etiology includes both traumatic and nontraumatic events. Clinical manifestation depends on the degree and rate of hemorrhage. Small focal hemorrhage may present subclinically, but massive hemorrhage may lead to rapid cardiovascular collapse and ultimately death if not diagnosed appropriately and treated quickly. Most cases reported in the literature have been treated conservatively. In an event of increasing hemorrhage during conservative management, it may be tricky to intervene surgically because of the hematoma around the gland. Here we describe a case where we managed a large spontaneous AH by a combination of angioembolization and laparoscopic adrenalectomy. To the best of our knowledge, it has not been reported in the literature yet.

Presentation of Case

A 26-year-old, nonhypertensive young lad presented to us in emergency with left-sided acute abdominal pain of 1 day duration. Pain was sudden in onset, severe, continuous, and nonradiating. On initial examination, he was hemodynamically stable with blood pressure of 140/70 mm Hg and heart rate of 110 beats per minute. On abdominal examination, he had a tender vague lump in the left upper quadrant of abdomen. Bowel sounds were normal. First, ultrasound (USG) abdomen and, later, contrast-enhanced CT scan abdomen were performed, which revealed hemorrhagic collection of $9 \times 8.2 \times 8.2$ cm near the left suprarenal region with $4 \times 4.5 \times 4.2$ cm adrenal mass. To evaluate the adrenal mass, MRI was performed, which showed the left suprarenal mass with large hemorrhagic component, suggestive of spontaneous hemorrhage in an adrenal mass (Fig. 1). Based on imaging finding, a working diagnosis of pheochromocytoma was made and he was started on phenoxymenzamine 10 mg twice a day to prepare him for surgery. His

FIG. 1. MRI showing left suprarenal mass with large hemorrhagic component, suggestive of spontaneous hemorrhage in an adrenal mass, likely representing pheochromocytoma.
urinary catecholamines were sent before starting phenox-
benzamine. He was kept in intensive care unit for close
monitoring. There was one blood pressure recording of
>160 mm Hg (systolic). He complained of resurgence in pain,
so a bed-side USG of the abdomen was performed, which
revealed an increase in collection by 500 mL resulting in a drop
of Hb by 2 gm/dL. He was transfused 2 units of packed red
blood cells. Immediately, angioembolization was performed
using Gelfoam (Fig. 2). No blood pressure variation was re-
corded during the procedure. Thirty-six hours later, he was
taken up for laparoscopic exploration with adrenalectomy.
Laparoscopy revealed a large collection of clotted blood in the
retroperitoneum pushing the kidney inferiorly. Fortunately,
there was no active hemorrhage. The ruptured adrenal gland
was isolated after evacuation of the hematoma and removed
after securing the pedicles. There was no blood pressure fluc-
tuation during the surgery. Postoperative period remained un-
eventful. Results of urinary catecholamine levels came after
the surgery and were normal. He was discharged on postop-
erative day 5. Histopathologic examination revealed adreno-
cortical adenoma based on the Weiss criteria. Follow-up
performed after 6 and 12 months revealed no abnormality in
positron emission tomography CT scan.

**Discussion and Literature Review**

AH may result from acute illness/stress, anticoagulation,
coagulopathy, underlying tumor-like angiomyolipoma, trauma,
or idiopathic disease. Most of the reported cases of AH in the
literature are seen in pregnancy. These are usually intra-AHs.
In young adults, idiopathic spontaneous AH is extremely rare
and has never been reported. The presenting symptoms usually
are hemorrhagic shock, flank pain, and fever.

AH has been reported in 0.3% to 1.8% of undetected cases
in autopsy studies. Tumors known to cause spontaneous bleed
are pheochromocytoma, myelolipoma, metastasis, carcinoma,
and rarely adenoma. There are ~ 50 reported cases of spon-
taneous rupture of adrenal pheochromocytoma causing hae-
morrhage in the literature, but there is no reported case of
adrenal adenoma causing massive bleeding.

Once adrenal pathology is suspected in a patient with ret-
roperitoneal hemorrhage, he should be managed in an inten-
sive care unit with close hemodynamic monitoring. Serial
hematocrit and USG monitoring of size of hematoma has to be
performed. Pheochromocytoma should always be kept in mind
while dealing with such a case. MRI is the imaging modality of
choice for diagnosis of nontraumatic AH.

In patients with active bleeding, angiographic embolization
is a valuable tool to achieve hemostasis. If complete hemo-
stasis is achieved, patient is asymptomatic, and hemodynam-
ically stable, then immediate surgical exploration should be
avoided. But if patient deteriorates, surgical exploration may
have to be performed. All preoperative principles performed in
pheochromocytoma should be followed.

This is the first case report of such a massive spontaneous
AH in adrenal adenoma in a young adult, which was effec-
tively managed laparoscopically.

**Conclusion**

A high index of suspicion is required to make a timely
diagnosis of AH. Although acute surgical removal of an ad-
renal tumor within a large hematoma should be avoided, as
proper oncologic resection may not be possible, it sometimes
has to be performed in a symptomatic hemodynamically
deteriorating patient.

**Disclosure Statement**

No competing financial interests exist.

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**Abbreviations Used**

AH = adrenal hemorrhage
CT = computed tomography
MRI = magnetic resonance imaging
USG = ultrasound

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