

Don't Be Conned by Primary Hyperaldosteronism: Anesthetic Considerations for Conn Syndrome

 James Espeleta, BS¹; Vincent H. Bargnes III, MD²; Adrian Fischl, MD²

¹ Renaissance School of Medicine, Stony Brook University
² Department of Anesthesiology, Stony Brook Medicine

Conn Syndrome, or primary hyperaldosteronism, results in excessive aldosterone secretion independent of renin regulation. It is the most common cause of secondary hypertension and is present in up to 10 to 20% of patients with hypertension and 40% of patients with resistant hypertension.

Hyperaldosteronism leads to sodium retention and potassium excretion, causing hypertension, hypokalemia, and metabolic alkalosis. Patients often present with resistant hypertension despite multiple antihypertensive medications, hypokalemia-related symptoms such as weakness or muscle cramps, and occasionally with incidental findings of adrenal masses on imaging.

Perioperatively, hyperaldosteronism can cause profound potassium depletion, increasing risk of arrhythmias. Hypertension can also occur with manipulation of the mass, increasing risk of hypertensive crisis and intraoperative complications.

Case Description

A 46-year-old male with a history of hypertension, class III obesity, and obstructive sleep apnea initially presented for an acute heart failure exacerbation due to uncontrolled hypertension. He was hypokalemic and remained hypertensive despite aggressive diuresis and the addition of carvedilol and hydralazine. Further workup revealed elevated serum aldosterone, low plasma renin activity, CT findings indicating a thickened left adrenal gland, and elevated left and normal right adrenal vein aldosterone, confirming primary hyperaldosteronism.



Perioperative Management of an Aldosteronoma

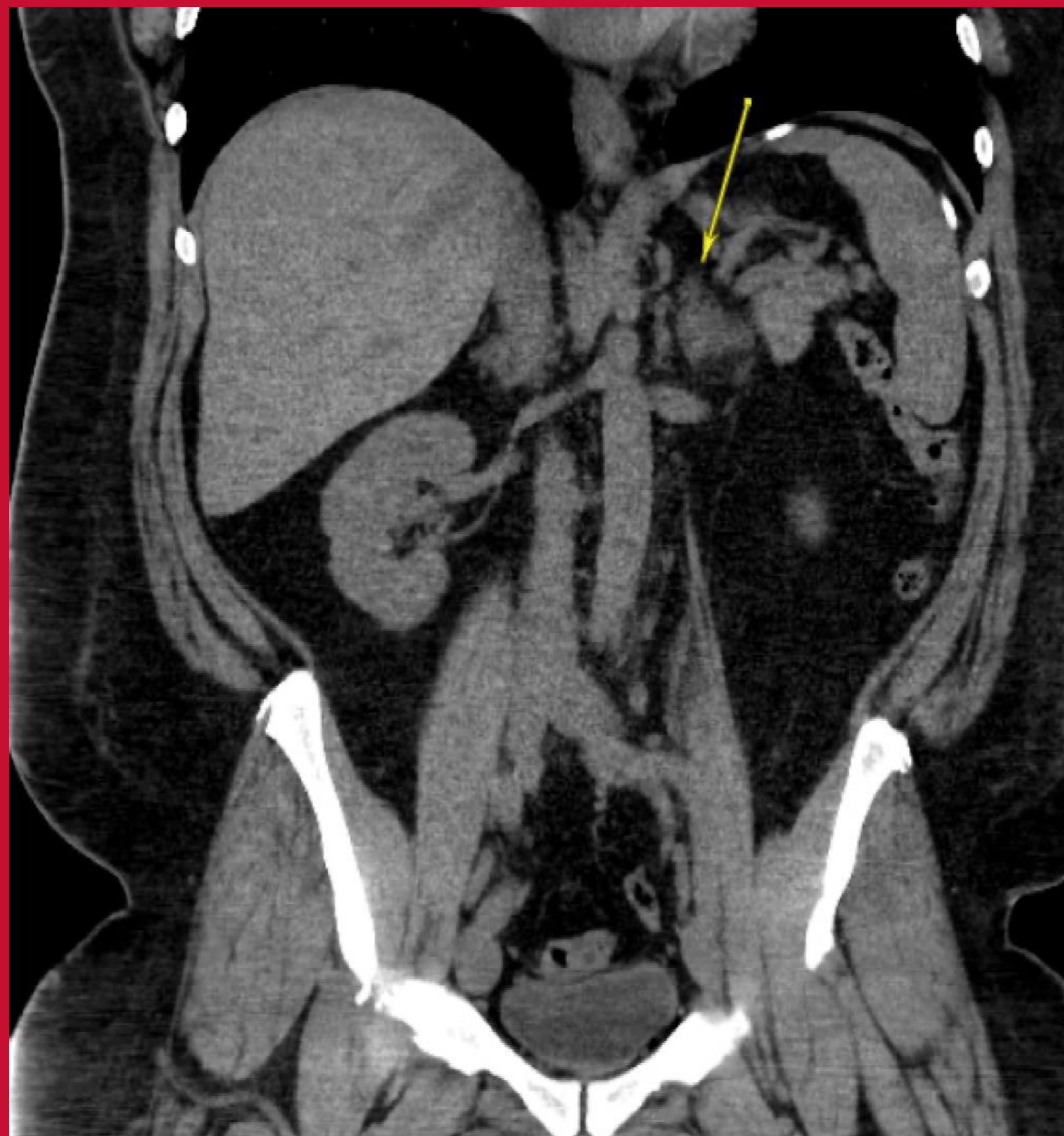


Figure 1. Preoperative CT showing 1.3 cm nodular thickening of the left adrenal gland

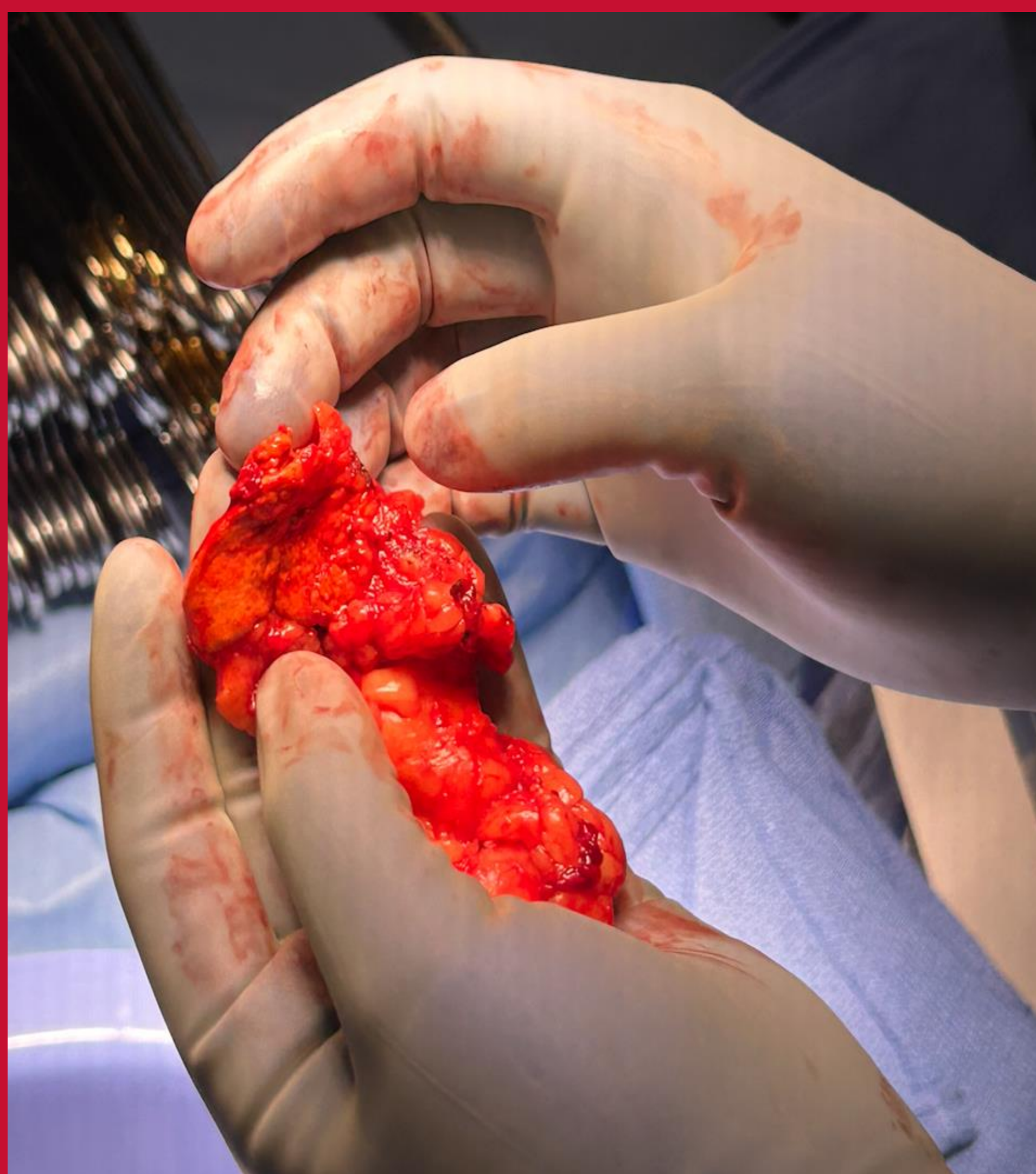
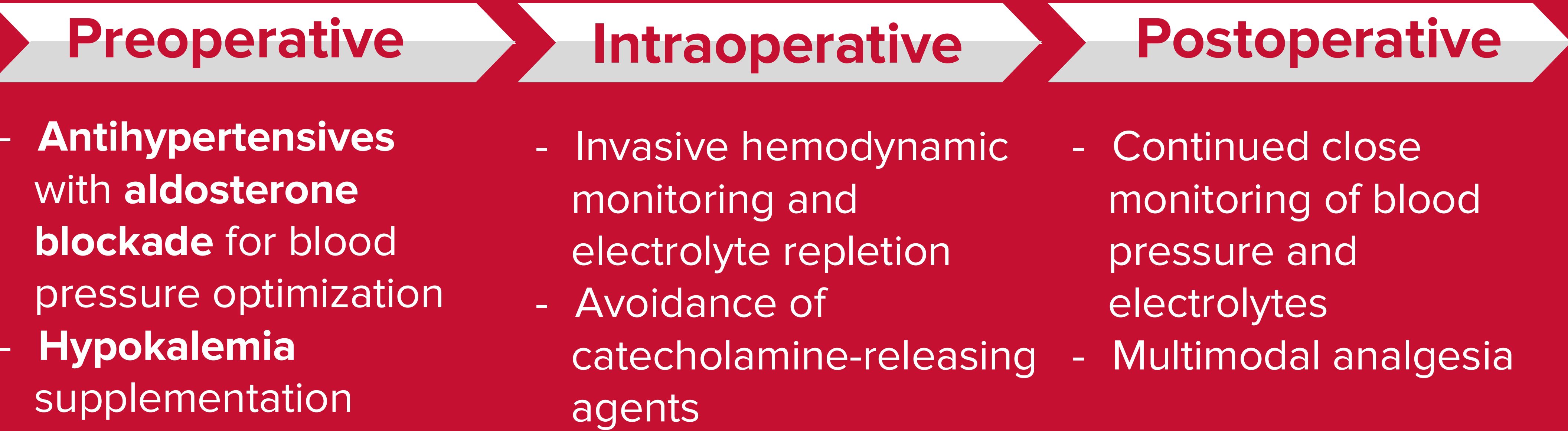


Figure 2. Post-resection of 6.4 x 2.5 x 1.7 cm adrenal mass



Preoperative Management

- Hyperaldosteronism management: spironolactone 50 mg daily, potassium chloride 20 mEq BID
- Hypertension control: carvedilol 25 mg BID, hydralazine 50 mg BID, Lasix 40 mg daily, losartan 100 mg daily
- BP goals: <130/80 mmHg

Intraoperative Management

- Careful monitoring of blood pressure during induction and mass manipulation / resection
- Post-induction arterial line
- Managed pre-mass resection hypertension with:
 - Nicardipine
 - Minimize catecholamine surge by avoiding glucocorticoids, desflurane, ketamine, morphine, metoclopramide
- Fluids: Crystalloids 1.8 L, EBL 150 mL

Postoperative Management

- Admission to surgical floors
- Careful surveillance for adrenal insufficiency
 - Daily monitoring for hypotension, hyponatremia, hyperkalemia, and hypoglycemia
- Prophylactic antibiotics
- Multimodal pain control (acetaminophen, NSAIDs, muscle relaxants). PCA (hydromorphone)

Conclusion

This case underscores the intricate challenges associated with the perioperative management of an aldosteronoma. Age-specific considerations necessitate individualized pharmacological strategies, particularly in controlling hypertension and electrolyte imbalances. Perioperative management should include potassium repletion, mineralocorticoid antagonism, invasive hemodynamic monitoring during tumor manipulation, and postresection observation to optimize patient safety. A collaborative, multidisciplinary approach is imperative to ensure optimal outcomes in the management of this complex endocrine disorder.

References available on request. Thank you.