

Saddle Pulmonary Embolism in A Living Kidney Donor: QAPI

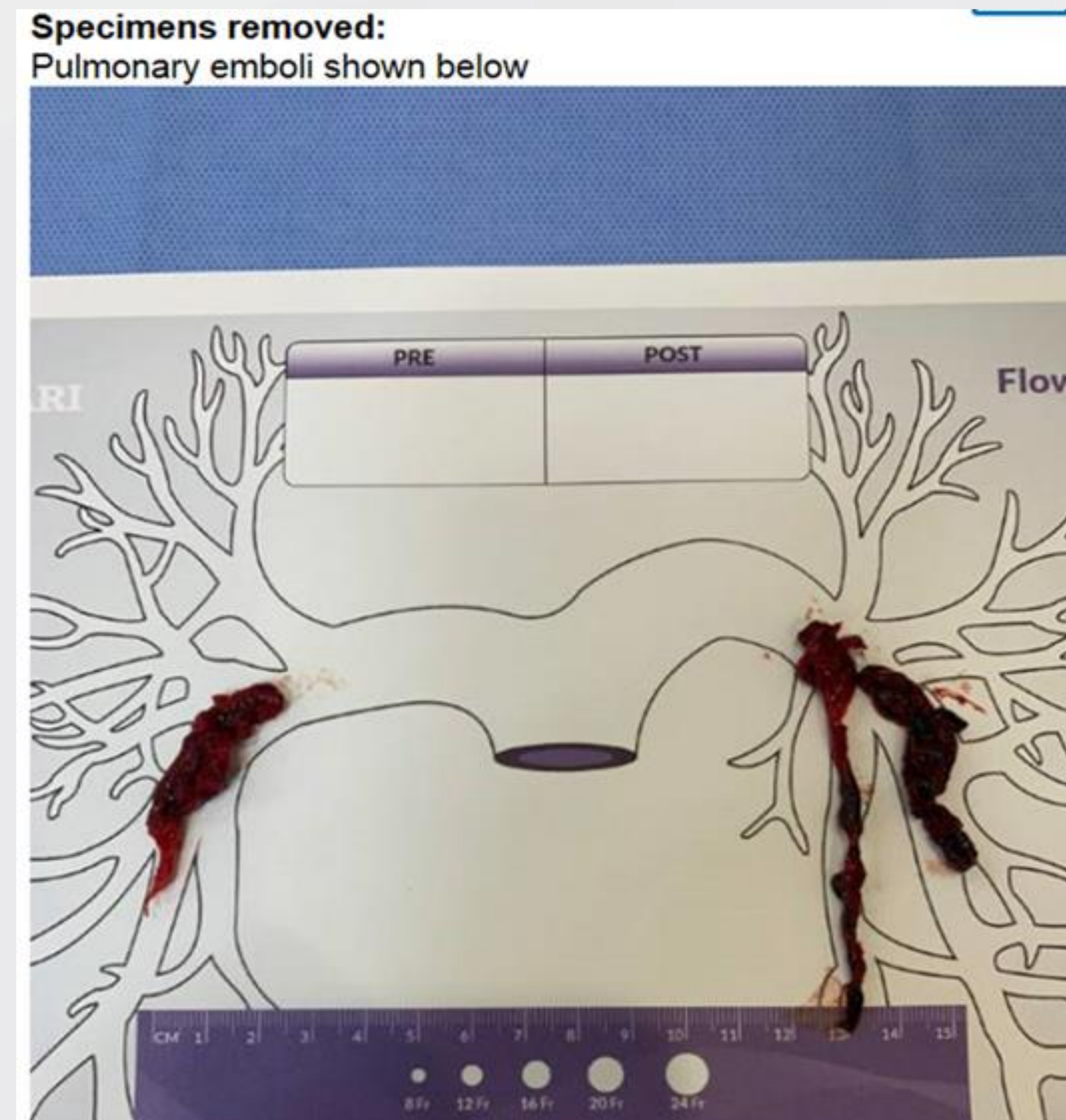
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Introduction

- Living kidney donation improves survival and quality of life to an individual with end stage kidney disease.
- This case describes a post-operative pulmonary embolism (PE) following a laparoscopic living kidney donor nephrectomy successfully treated by catheter-directed clot removal.
- We will attempt to identify potential factors that may have been associated with abnormal thrombus formation.



Picture 1: Pulmonary Emboli retrieved from thrombectomy

Caprini Risk Score:

Suggested Prophylaxis Protocols

Caprini Score	Risk Score	VTE Risk	Recommendation	Prophylaxis
0-2	Low	< 0.5% (without prophylaxis)	Early ambulation [1]	During hospitalization
3-4	Moderate	< 0.7% (without prophylaxis)	Early ambulation [1]	During hospitalization
5-6	High	1.8% (without prophylaxis)	Early ambulation UFH or LMWH, or IPC [2]	7-10 days
7-8	Very high	4.0% (without prophylaxis)	Early ambulation UFH or LMWH, ± IPC [1] [2]	7-10 days
9+	Highest	10.7% (without prophylaxis)	Early ambulation UFH or LMWH, + IPC [1] [2]	30 days

Table: Caprini Risk Score

Case Presentation

Mr. H is a 59-year-old healthy male who underwent a left donor nephrectomy with no complications and minimal blood loss.

While admitted, Mr. H received SQ heparin, fitted with sequential compression devices, ambulated per institutional protocol and discharged home the following day in good condition.

During his 2-week follow up visit, he reported left calf tenderness after walking a mile. A venous duplex study revealed an acute, occluding deep vein thrombosis (DVT) to the right femoral, popliteal, tibial and peroneal veins. Mr. H was transferred to the Emergency Department for direct admission and initiation of a heparin drip.

Upon his admission, he remained symptom free other than calf pain. He underwent a CT which demonstrated a Saddle PE extending into multiple bilateral segmental and subsegmental pulmonary arteries without right heart strain. Serum troponin was elevated, and echocardiogram revealed mild right heart dilation.

The PE Resuscitation Team was consulted for evaluation. Given his elevated troponin, persistent leg discomfort and clot burden, he underwent a successful suction embolectomy and IVC placement. His Leg pain resolved, and he was started on apixaban at discharge.

Following his 6-month clinic visit he reported feeling well with improving fatigue and activity. Repeat duplex revealed complete resolution of DVT in the R leg and his IVC filter was removed. Follow up from Hematology determined that the DVT was provoked due to surgery. His workup was negative for hypercoagulable state and malignancy. Mr. H. was transitioned to aspirin prophylaxis.

Discussion

- PEs are uncommon, life-threatening complications after a living donor nephrectomy and among the leading cause of death.
- The incidence of post-surgical DVT is 1% with one-third of patients developing PEs.
- Despite early ambulation and surgical DVT prophylaxis, patients including healthy living kidney donors will develop thromboembolic events without prior identification of high predisposing risk factors.
- PE's remains a diagnostic and therapeutic challenge. Perhaps, there are elements that have yet to be identified that will offer more optimal prevention.
- More studies are needed to determine unrecognized factors that contribute to provoked surgical thromboembolic events, and prevention in the LKD patient.
- This case has given an opportunity to review and reinforce our center strategies for preventive care of thromboembolic events.

Summary

- In review of this case, we identified there were no deviations of standards of practice and no potential factors that increased risk outside of the surgical procedure.¹
- At our center, we have established a practice guideline: Hand Assisted Laparoscopic Living Donor Nephrectomy Protocol addressing DVT prophylaxis, early hospital ambulation and a post follow up visit at two weeks.²
- The Caprini Risk Assessment Model (RAM)³ was used to evaluate predisposing individual risk factors. The numeric model showed a moderate risk or 0.7% DVT risk without prophylaxis.⁴ Evidence based recommendations were listed as early ambulation and prophylaxis during hospitalization.

References

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