

When Dialysis Meets Delivery: Anesthetic and Multidisciplinary Challenges in a Pregnant Patient with Type 1 Diabetes, End-Stage Renal Disease on Intensive Dialysis, and Chronic Hypertension

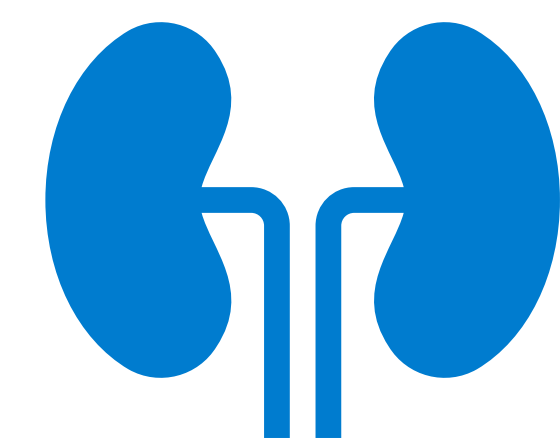
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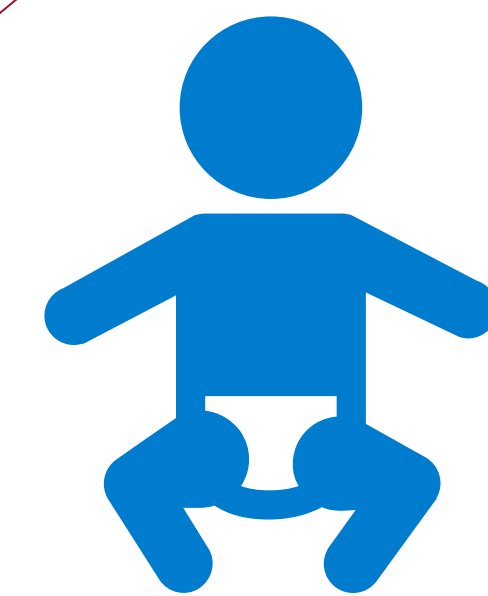
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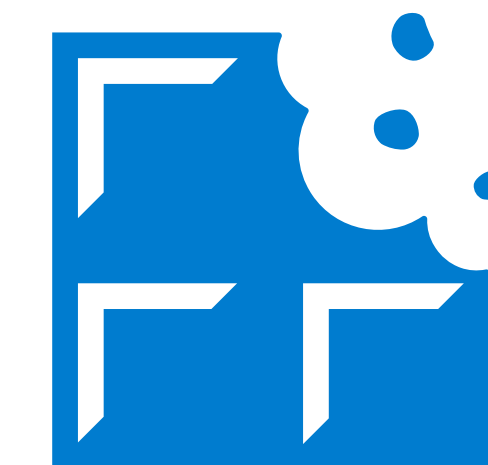
BACKGROUND



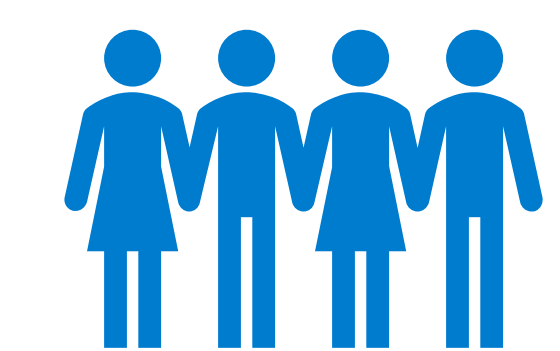
Pregnancy in women with end-stage renal disease (ESRD) is rare and high risk, with complications including preeclampsia, preterm birth, and fetal growth restriction.



Even with dialysis, historical live birth rates were 40–50%. Outcomes improve with intensive hemodialysis; near-daily regimens prolong gestation and increase live birth rates compared with conventional schedules.



Superimposed chronic hypertension (cHTN) and type 1 diabetes mellitus (T1DM) further elevate maternal and fetal risk through end-organ progression and glycemic instability.



Optimal management requires multidisciplinary coordination among obstetrics, nephrology, endocrinology, and anesthesiology.

CASE PRESENTATION

A 32-year-old G2P0101 with T1DM complicated by retinopathy, neuropathy, gastroparesis, and nephropathy presented at 32 weeks with ESRD on near-daily dialysis, cHTN, anemia, and anti-Kell alloimmunization.

Prior pregnancy ended in preterm cesarean for preeclampsia with severe features at 33 weeks.

On admission, she had labile systolic pressures of 160-190 mmHg requiring high-dose labetalol, nifedipine, and hydralazine.

Dialysis was performed six times weekly for volume and metabolic optimization.

Fetal echo showed a transient pleural effusion that resolved with intensified dialysis.

Glucose was uncontrolled despite an insulin pump, necessitating endocrinology-directed adjustments and supplemental NPH.

At 34 weeks, recurrent severe-range pressures raised concern for superimposed preeclampsia versus cHTN/CKD progression.

After multi-disciplinary discussion, repeat cesarean was performed under spinal anesthesia following preoperative dialysis.

Estimated blood loss was 481 mL with stable perioperative vital signs.

Magnesium sulfate was withheld due to toxicity risk in ESRD.

Postop, she resumed thrice-weekly dialysis.

The patient is now considered for kidney transplant but requires cardiac rehabilitation due to systolic dysfunction with LVEF 35% on echo.



TEACHING POINTS

This case illustrates the complexity of peripartum management in ESRD with T1DM and cHTN.

Multidisciplinary care enabled favorable maternal and neonatal outcomes despite **overlapping high-risk comorbidities**.

Intensive dialysis was critical for maternal metabolic stability and fetal wellbeing, likely contributing to resolution of fetal pleural effusion. Prior studies show increased dialysis frequency **improves fetal growth** and **survival** while reducing complications such as polyhydramnios.

Blood pressure management required individualized targets **balancing renal perfusion** and **avoidance of severe hypertension**.

Avoiding magnesium underscores anesthetic challenges in weighing eclampsia prophylaxis against toxicity risk, particularly when severe hypertension may reflect **poorly controlled cHTN** rather than preeclampsia.

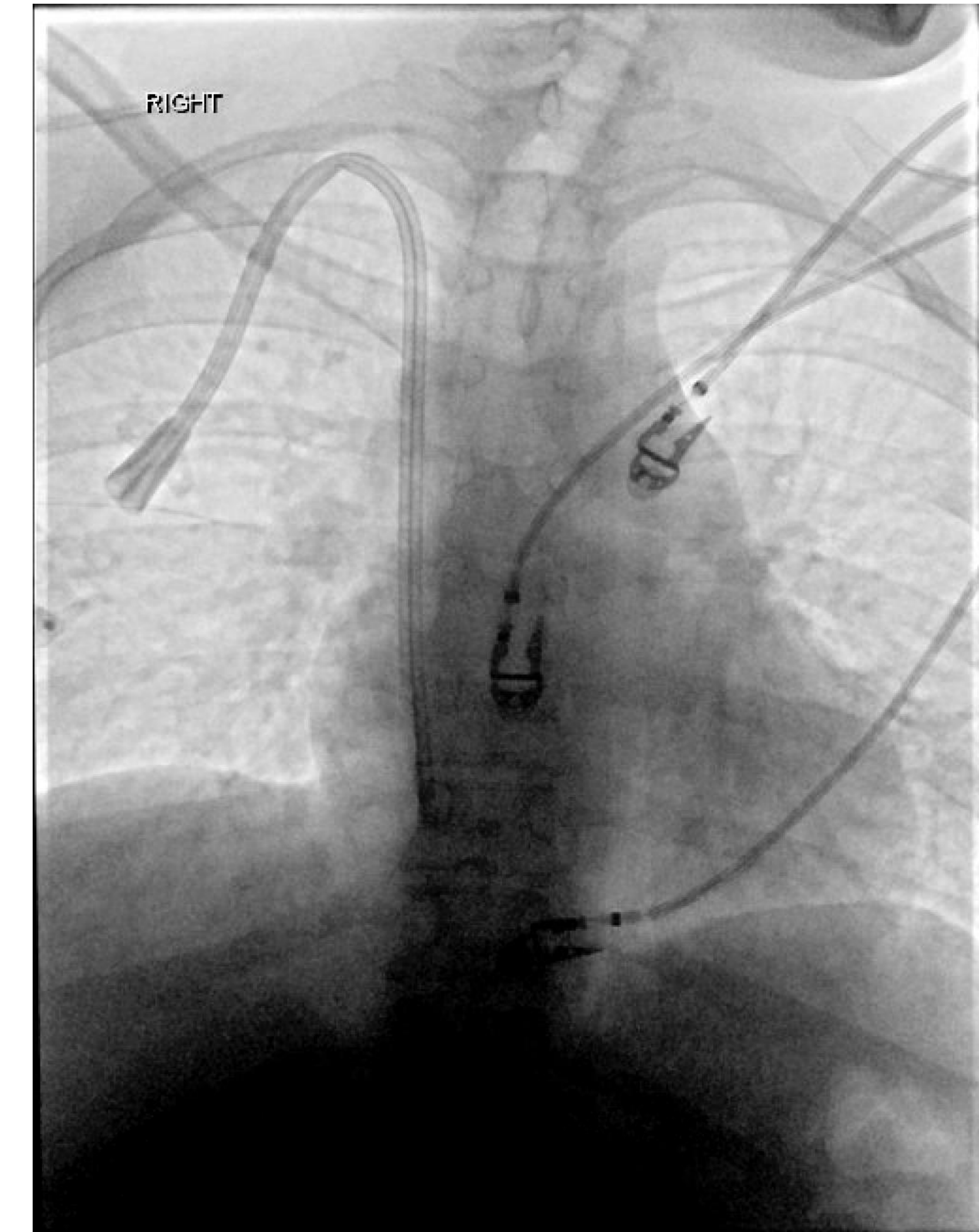


Image: This patient's tunneled dialysis catheter