

# An unusual case of transitional obstructive acute renal failure during labor

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## Summary

An unusual case of transitional obstructive acute renal failure during labor which resolved after delivery is described.

*Key words:* Obstructive renal failure; Labor.

## Introduction

Acute renal failure rarely occurs in pregnancy or delivery, especially in the absence of prior renal disease. It may be due to obstructive or nonobstructive causes. The English literature contains only 19 cases of renal failure in pregnancy due to bilateral obstructive uropathy from ureteral compression [1-3]. The major risk factor was first pregnancy, followed by twin pregnancy, polyhydramnios, and solitary kidney [1-3].

The case reported hereafter describes an unusual case of transitional obstructive acute renal failure during labor.

## Case report

A 30-year-old woman, gravida 1 para 0, was admitted to our delivery room at 40 weeks' gestation with regular uterine contractions, 70% effacement, and 2-cm dilatation of the cervix. Past history was unremarkable. Gestational diabetes mellitus A1 (GDMA1) had been diagnosed in gestational week 24 by an oral glucose tolerance test (OGTT). Other pregnancy follow-up tests were normal. Estimated fetal weight by ultrasound performed two days before admission was 3,800 g.

On admission, there were no abnormal findings on physical examination. Blood pressure measured 130/80 mmHg, pulse 100 beats/min, temperature 36.8°C. Cardiotocography showed a reactive strip, a fetal heart rate of approximately 140 bpm with excellent variability and regular contractions every 5 minutes.

Routine blood count and chemistry tests were performed two weeks prior to her admission, hemoglobin concentration was 10.2 g/dl and creatinine level was 0.7 mg/dl while all other tests were within normal range.

An epidural catheter was inserted and I.V. oxytocin infusion (3 mu/min) was started. One-hour later, artificial rupture of the membranes was performed, internal fetal scalp monitoring was started, and an indwelling urethral catheter was inserted.

Over the next ten hours, the patient produced only 200 cc of urine despite a positive fluid balance of over three liters. There were no signs or symptoms of pulmonary congestion. At that point, the urea nitrogen level measured 50 mg/dl, creatinine 1.5

mg/dl, hemoglobin 10.2 g/dl (hematocrit 33%), uric acid 8.1 mg/dl, urine sodium 102 mEq/l, potassium 10 mEq/l, with no proteinuria. Cervical dilatation was 5 cm with 90% effacement.

The diagnosis was acute renal failure (ARF). Renal experts were consulted.

Abdominal ultrasound revealed bilateral severe hydronephrosis; no urine jets were obtained.

Four hours later, the serum creatinine level increased to 1.9 mg/dl. Cervical dilatation was now 8 cm with complete effacement.

The prolonged second stage of labor was shortened by wide mediolateral episiotomy. After a failed vacuum extraction attempt, a vacuum extraction with forceps was performed, and a healthy 4,120-g female infant was delivered. Apgar scores were 7 and 9 at 1 and 5 minutes, respectively. Arterial umbilical pH was 7.20. It was noteworthy that throughout all stages of labor, fetal heart rate was reactive. The mother received two units of packed red blood cells because of postpartum bleeding and a hemoglobin concentration of 4.9 g/dl (hematocrit 15.2%).

One day after delivery, urine output was maintained at 100-150 ml/h without furosemide, and creatinine level was 1.5 mg/dl. Forty-eight hours after delivery, the serum creatinine level was 0.8 mg/dl and hemoglobin level 7.9 g/dl (hematocrit 24.2%). Renal ultrasonography demonstrated no hydronephrosis.

Both mother and baby were discharged in good condition after three days. The mother was prescribed iron and folic acid supplements.

## Discussion

Our patient presented with renal failure during labor and a macrosomic fetus, which can theoretically cause bilateral ureteral obstruction at the pelvic brim. Although reduced urinary output during labor is not uncommon, an increase in creatinine level is unusual, and is indicative of acute renal failure. It is possible that the prolonged labor accompanied with bilateral ureteral obstruction contributed to the development of bilateral hydronephrosis. We suspect that this condition would be detected more often if urine output were measured routinely by an indwelling

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catheter, as done in our patient because of epidural anesthesia. Delivery by itself relieved the ureteral obstruction, urine output increased and the creatinine level returned to normal shortly after.

In these cases, management may include close observation, amniotomy to relieve ureteral pressure in case of polyhydramnios, administration of oxytocin and shortening of second stage of labor in order to decrease the duration of the impaired renal function.

## References

[1] Mitch W. E., Jena M.: "Rapidly reversible acute renal failure from ureteral obstruction in pregnancy". *Am. J. Kidney Dis.*, 1996, 28, 457.

- [2] Niharika K., Hien N.: "Reversible acute renal failure in association with bilateral obstruction and hydronephrosis in pregnancy". *Am. J. Obstet. Gynecol.*, 2001, 184, 239.
- [3] Brandes J. C., Fritsche C.: "Obstructive acute renal failure by a gravid uterus: a case report and review". *Am. J. Kidney Dis.*, 1991, 18, 398.

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