

EP05.146 Unexplained elevated maternal alpha-fetoprotein as a clue to Potter sequence due to bilaterally small kidneys: a case series

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Objectives

To describe the association between unexplained elevation of maternal serum alpha-fetoprotein (MSAFP) and Potter sequence caused by bilaterally small fetal kidneys, and to highlight the importance of targeted fetal ultrasound in identifying severe renal pathology when common causes of AFP elevation are absent.

Methods

We present a case series of three pregnancies referred to a tertiary fetal medicine unit following detection of elevated maternal serum alpha-fetoprotein during second-trimester screening. Detailed fetal ultrasound examinations were performed focusing on renal morphology, renal biometry, bladder visualization and amniotic fluid volume. Renal size was assessed using gestational age-specific reference charts, and echogenicity was compared with the adjacent liver.

Results

All three pregnancies demonstrated markedly elevated MSAFP levels (>2.5 MoM) without evidence of open neural tube defects or abdominal wall defects. Targeted ultrasound evaluation revealed severe oligohydramnios or anhydramnios with bilaterally small kidneys measuring below the 3rd percentile for gestational age

The fetal urinary bladder remained persistently non-visualized on serial scans over a 30-minute observation period. No additional major structural anomalies were identified. These findings were consistent with Potter sequence secondary to severe bilateral renal hypoplasia. After multidisciplinary counselling regarding the poor prognosis due to pulmonary hypoplasia, all pregnancies underwent termination.

Conclusion
Unexplained elevation of maternal serum alpha-fetoprotein may represent an early biochemical indicator of severe fetal renal pathology. In the absence of neural tube or abdominal wall defects, careful ultrasound evaluation of renal size, echogenicity, bladder filling and amniotic fluid volume is essential. Recognition of this association may facilitate earlier diagnosis of Potter sequence and improve prenatal counselling and clinical decision-making.

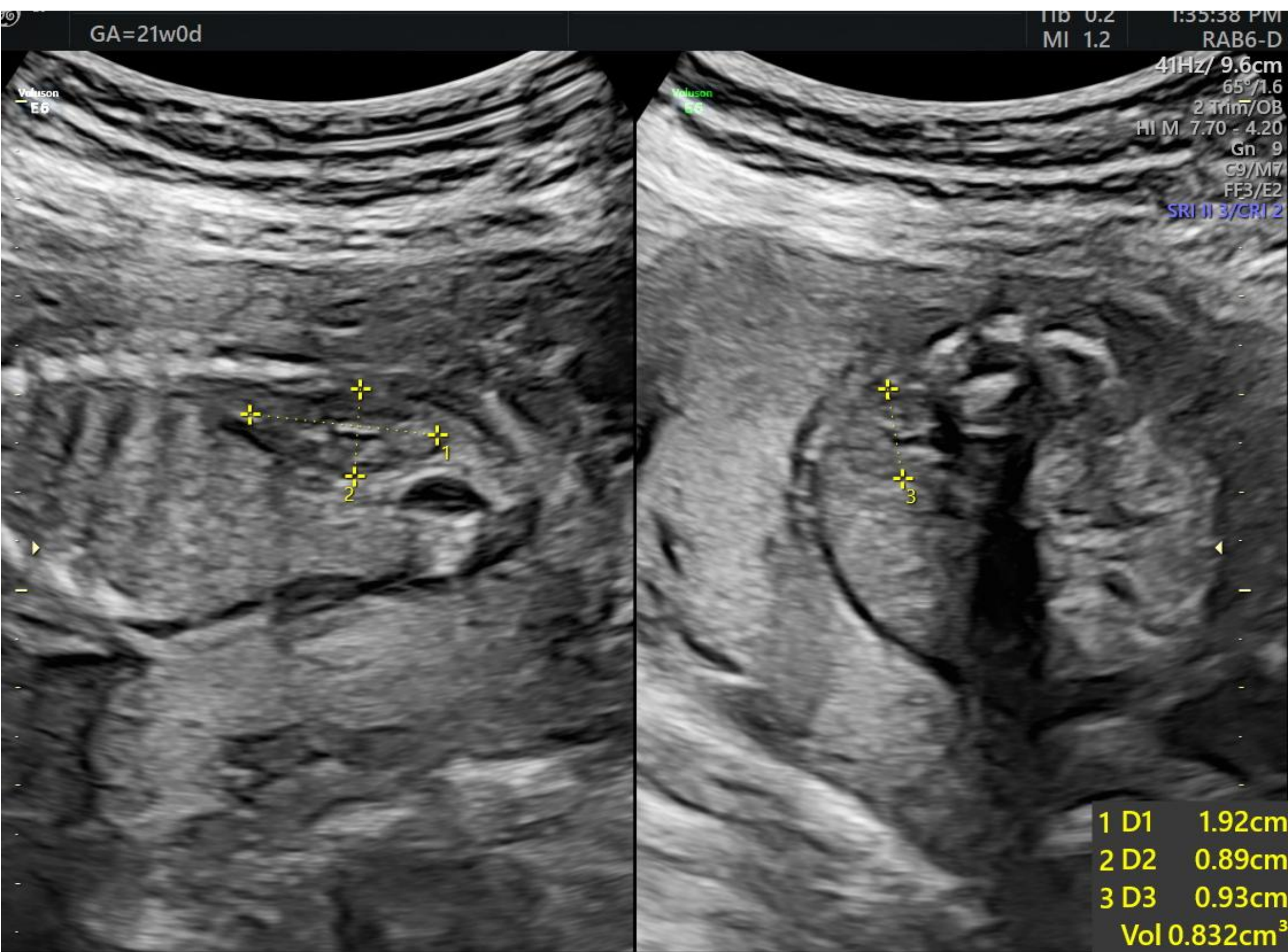


Figure 1. (Case 1) Reduced Kidney volume of <3rd centile for the Gestational age

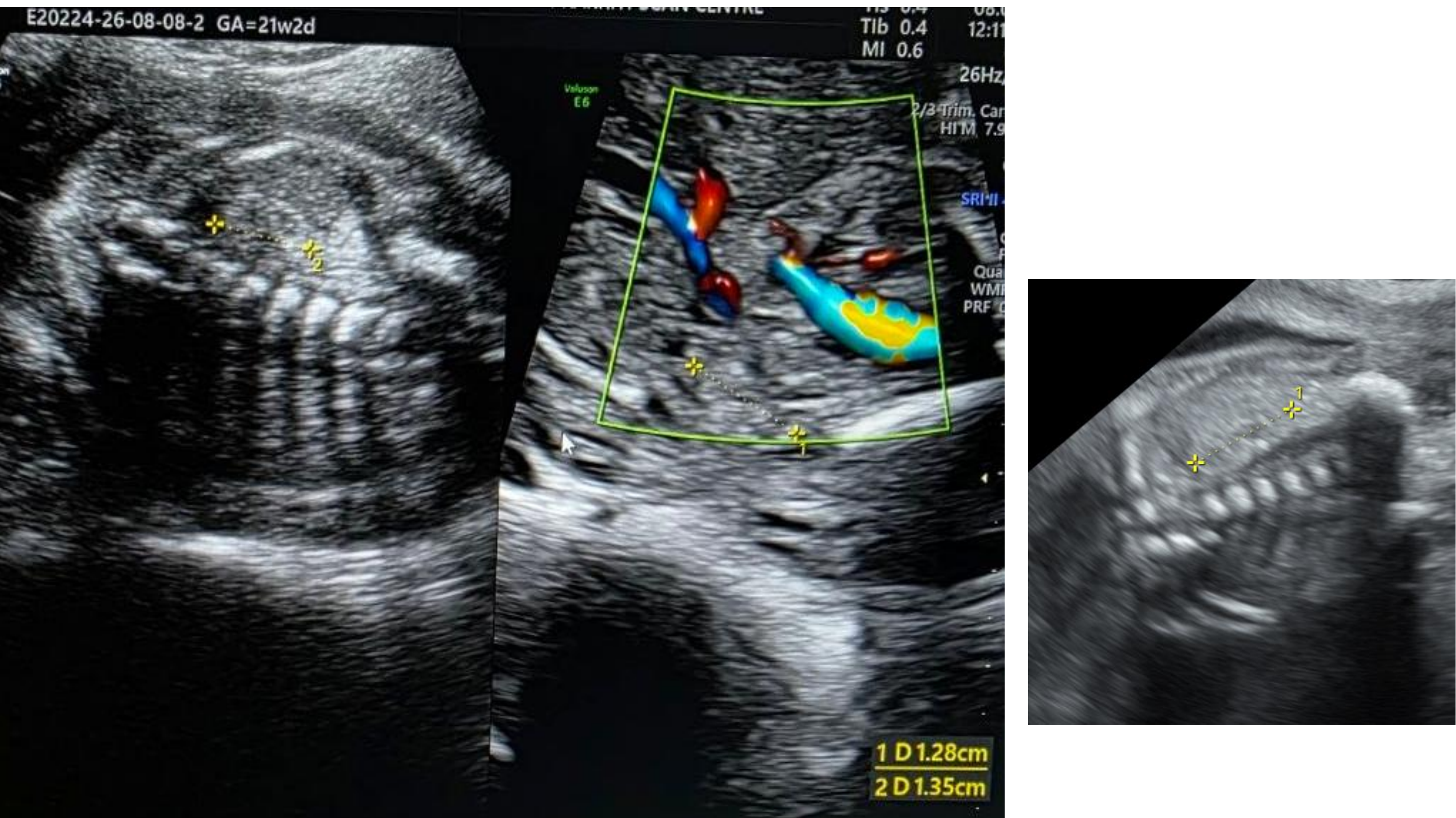


Figure 2 & 3. (Case 2 & 3) Reduced Kidney length of <3rd centile for the Gestational age