



Introduction

Sickle cell disease is an autosomal recessive hemoglobinopathy. Pregnant individuals with sickle cell disease have an increased risk of maternal and perinatal morbidity and mortality. Vaso-occlusion and chronic hemolysis occurs resulting in anemia, endothelial dysfunction, inflammation and tissue ischemia.

Objective

Describe maternal and fetal outcomes in pregnant women with sickle cell disease (SCD) through a case series, highlighting clinical challenges in a middle-income setting.

Methods

- Case series study analyzed singleton pregnancies in women with SCD.
- Instituto Nacional de Perinatología, Mexico City
- January 1, 2017, through December 31, 2024
- **Inclusion criteria:** Singleton pregnancies with sickle cell disease diagnosed by genetic testing of the betaglobin gene.
- Data were retrieved from the electronic medical records
- The variables are presented as mean, and the obtained values are shown. Reference parameters for normal pregnant patients were taken from Abbassi-Ghanavati et al, 2009.

Results

Four pregnant women with SCD were identified

- Three with HbSS and one with HbSC genotypes. All pregnancies were spontaneous.
- The mean maternal age was **31 years** (range: 29–33), with a mean body mass index (BMI) of **26.5 kg/m²** (range: 23.0–29.0). No maternal comorbidities were reported.
- Antenatal medications included aspirin (**75%**), low molecular weight heparin (**25%**), high-dose folic acid (**50%**), and unfractionated heparin (**50%**).
- All patients required antenatal blood transfusions, with a mean of **3.5 units** (range: 3–5).
- Signs of placental dysfunction, such as fetal growth restriction and elevated uterine artery pulsatility index (≥ 95 th percentile), were observed in **50% of cases**, accompanied by trophoblast hypoxia on placental examination.
- One patient (**25%**) developed preeclampsia without severe features.
- Deliveries were via cesarean section, **50% at term and 50% preterm**, with a mean estimated blood loss of **400 ml** (range 300-600 ml)
- Maternal complications included vaso-occlusive crises (**25%**), acute chest syndrome (**50%**), thrombosis (**25%**), and ICU admissions (**75%**). One neonate required NICU admission for hypoxic-ischemic encephalopathy.
- **No cases of fetal anemia** due to maternal alloantibodies were reported. Despite significant maternal and neonatal morbidity, there were **no instances of maternal or perinatal mortality**.

In the following figures, the normal reference range during pregnancy is shown in **blue**, while the measured values in patients with SCD are highlighted in **red**, illustrating changes in laboratory parameters.

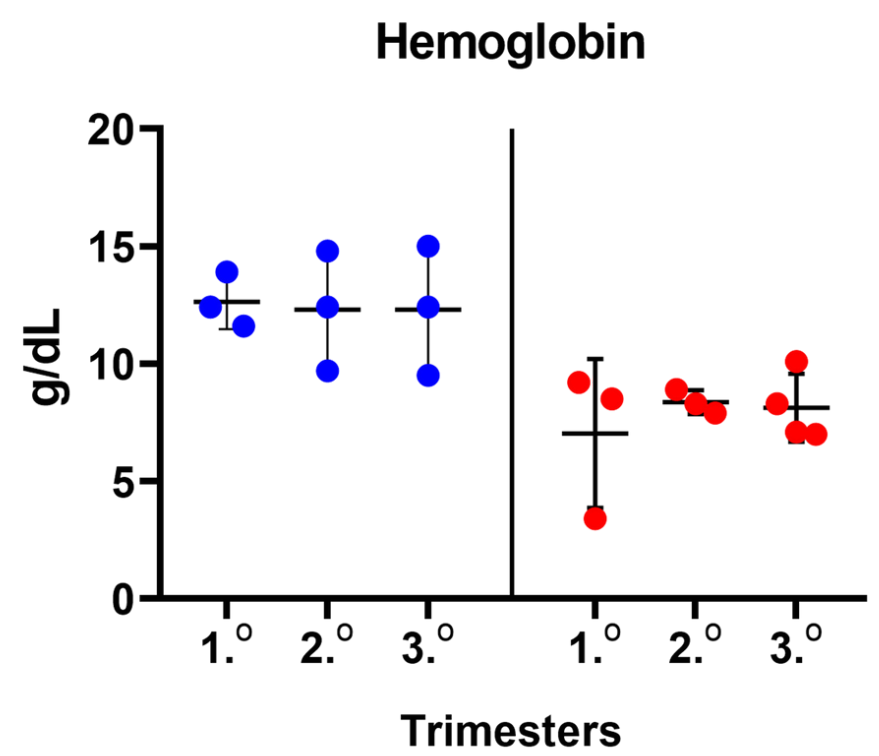


Figure 1

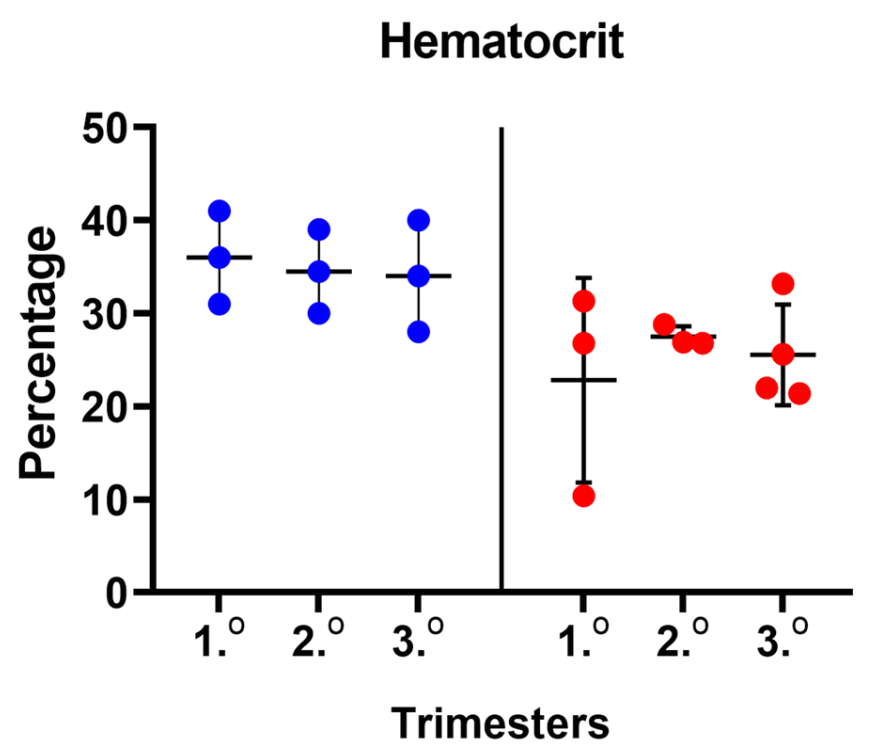


Figure 2

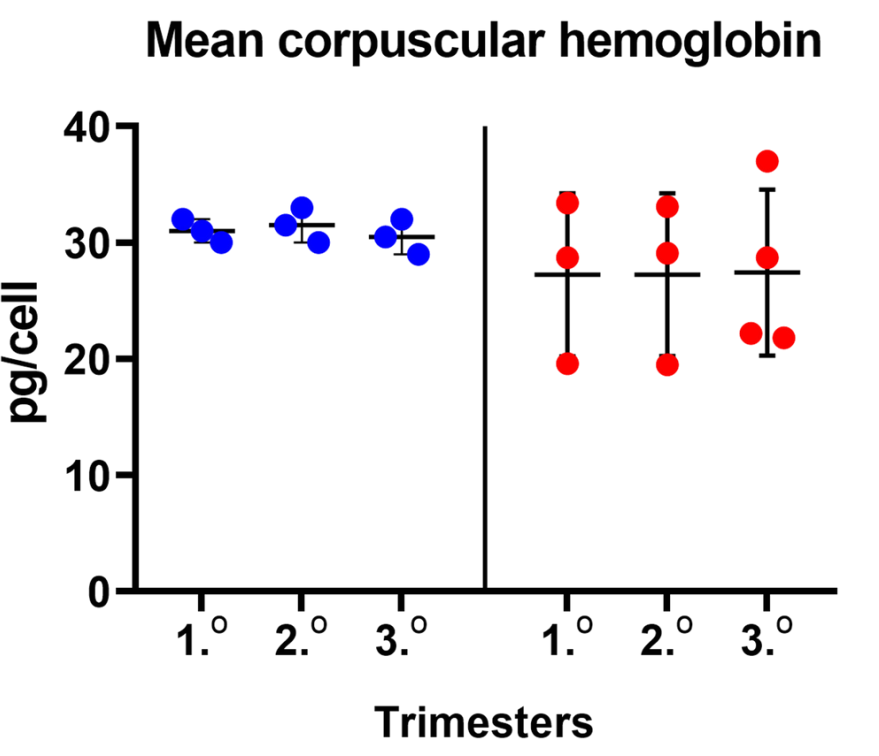


Figure 3

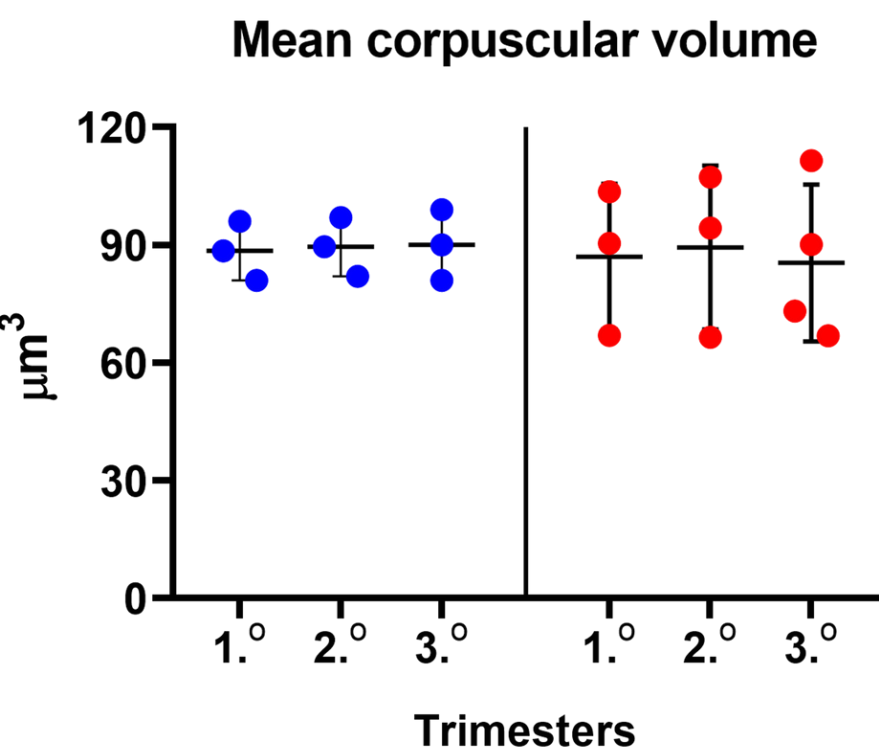


Figure 4

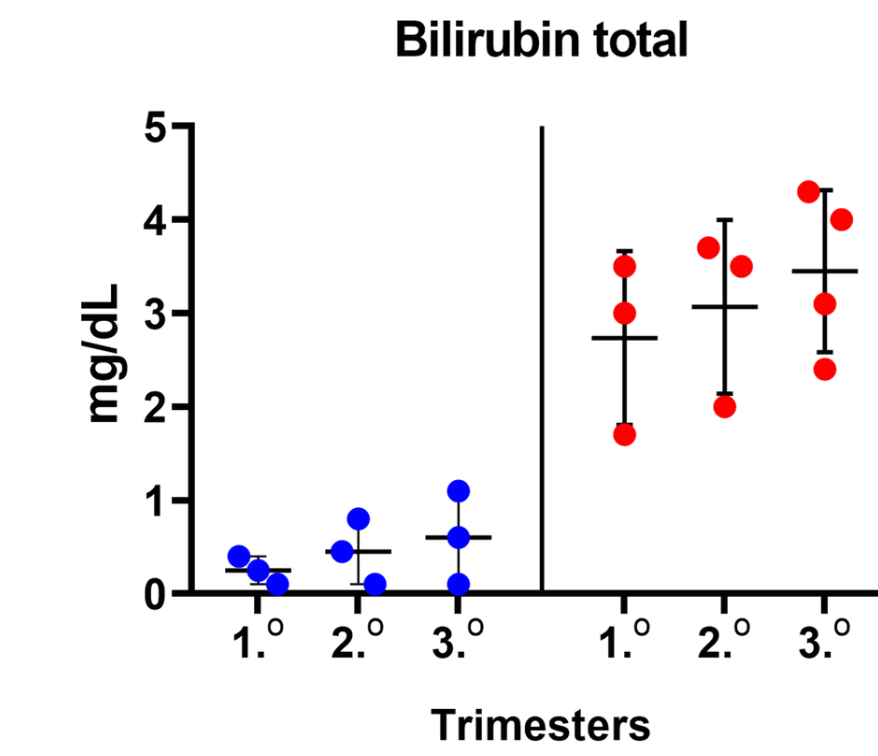


Figure 5

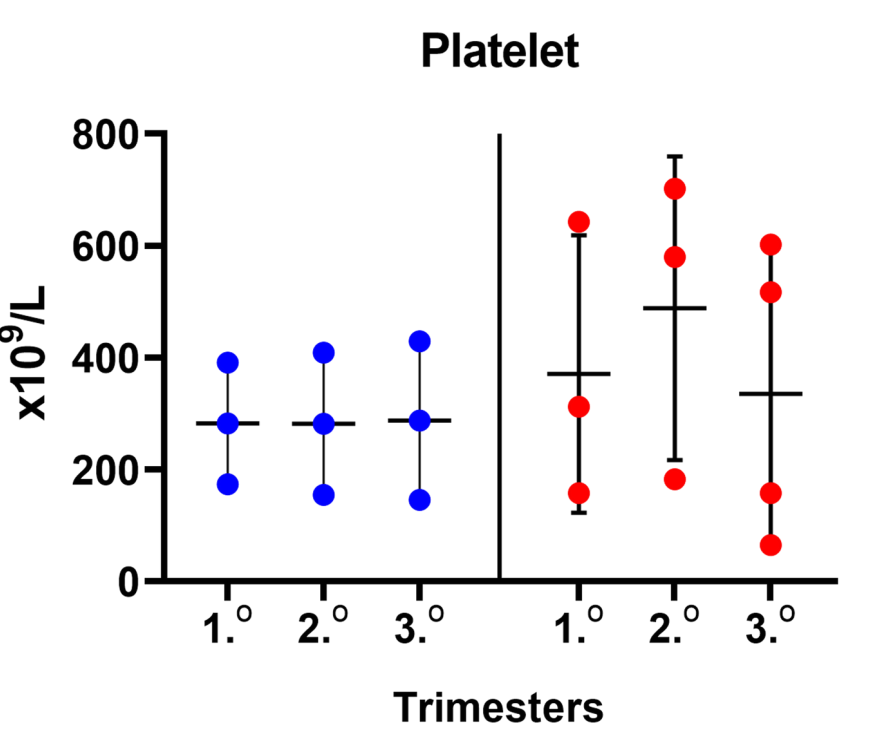


Figure 6

Conclusion

This case series underscores the considerable morbidity associated with pregnancies in women with SCD. Comprehensive antenatal and postnatal care, along with proactive management of complications, is essential for improving maternal and fetal outcomes in these high-risk pregnancies.

References

1. Macy, L, et al. (2023). JAMA Network Open
2. Sinkey, R, et al. (2024). Society for Maternal-Fetal Medicine Consult Series
3. Abbassi-Ghanavati, M. (2009). American College Obstetricians and Gynecologists