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(CASE REPORT)

Retained twin miscarriage associated with preterm prelabor rupture of membranes and chorioamnionitis in a 32-year-old woman: A case report

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Abstract

Chorioamnionitis currently framed within the broader concept of intra-amniotic infection and/or inflammation is linked to preterm prelabor rupture of membranes (PPROM), preterm birth, maternal sepsis, and adverse neonatal outcomes. Diagnosis is largely clinical and requires close surveillance, particularly around the threshold of viability. We report a 32-year-old woman with a monochorionic diamniotic twin pregnancy at 23+4 weeks who presented with uterine-contraction like pain, vaginal bleeding, and watery vaginal leakage. On admission she was febrile (38.9 °C) with laboratory evidence of an inflammatory response; transvaginal ultrasound showed a normal cervix with a closed internal os and an anterior fundal placenta located >3 cm from the os. After a voluntary discharge, she re-presented with persistent fluid loss, abdominal pain, and marked leukocytosis. Repeat ultrasound demonstrated absence of fetal cardiac activity in both fetuses, leading to the diagnosis of retained twin miscarriage complicated by suspected intra-amniotic infection. Uterine evacuation was performed and inpatient management was completed. This case highlights the need for early recognition of suspected intra-amniotic infection criteria, optimized monitoring and counselling, and timely intervention to reduce maternal and fetal complications. [1–4]

Keywords: Chorioamnionitis; Preterm Prelabor Rupture Of Membranes; Twin Pregnancy; Retained Miscarriage; Intra-Amniotic Infection

1. Introduction

Chorioamnionitis, now encompassed within the concept of intra-amniotic infection and/or inflammation (IAI), represents a maternal–fetal inflammatory syndrome triggered by microorganisms and/or sterile inflammatory pathways. In clinical practice, the term "Triple I" (intrauterine infection or inflammation, or both) is also used. [1,2] IAI is strongly associated with PPROM and contributes to preterm birth, maternal endometritis, bacteremia and sepsis, as well as neonatal sepsis and long-term morbidity. [3–6] Diagnosis is commonly clinical; recent guidance from the American College of Obstetricians and Gynecologists (ACOG) considers suspected IAI when maternal temperature is ≥39.0 °C or 38.0–38.9 °C accompanied by at least one additional finding (maternal leukocytosis, fetal tachycardia, or purulent amniotic fluid). [2] When PPROM occurs at the threshold of viability, management requires shared decision-making, careful maternal risk assessment, and realistic counselling about perinatal outcomes—especially in multiple gestations. [6–10]

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2. Case presentation

A 32-year-old woman with no relevant past medical history, no prior surgeries, and no known allergies presented at 23+4 weeks' gestation (based on last menstrual period). Family history was notable for maternal hypertension. She reported sudden onset approximately three hours before admission of progressive hypogastric pain described as uterine contractions, associated with bright-red vaginal bleeding of moderate amount and clear watery vaginal leakage. A prior evaluation at an outside facility suggested a complete placenta previa and a positive fern test; she was therefore referred to a higher-level center.

On arrival she was alert. Vital signs were: blood pressure 131/72 mmHg, heart rate 97 bpm, respiratory rate 19 breaths/min, and temperature 38.9 °C. General examination was unremarkable. Abdominal examination showed a gravid uterus with an estimated fundal height of 21 cm and no peritoneal signs. On obstetric evaluation with a sterile speculum, leakage of fluid through the vaginal canal was documented; no significant cervical dilation was recorded. She was admitted to the Obstetrics service for monitoring and further evaluation.

Table 1 Complete blood count on admission

Biometría hemática	**Biometría hemática**	**Biometría hemática**	**Biometría hemática**
PARÁMETROS	RESULTADOS	UNIDADES	VALORES DE REFERENCIA
GLÓBULOS BLANCOS	* 11,6	K/µL	4.8 - 10.8
LINFOCITOS	1,5	K/µL	1 ,0– 7,0
LINFOCITOS %	*12.8	%	30,0-42,0
MONOCITOS	0,6	K/µL	0.0 – 1,0
MONOCITOS %	5,3	%	0.0 - 10.0
NEUTRÓFILOS	*8,0	K/µL	1,1-6,6
NEUTRÓFILOS %	*77,6	%	30,0-51,0
EOSINÓFILOS	0,1	K/µL	0.0 – 0,5
EOSINÓFILOS %	1,20	%	0.00- 5.00
BASÓFILOS	0.0	K/µL	
BASÓFILOS %	0,3	%	0.0 - 2.0
GLÓBULOS ROJOS	3.0	M/µL	3,8-5,3
HEMOGLOBINA	9,4	g/dL	10,5-14,4
HEMATOCRITO	26,9	%	32,0-43,0
PLAQUETAS	227,000		150,0-450,0

Table 2 Basic chemistry and inflammatory markers on admission.

Quimica sanguinea	**Quimica sanguinea**	**Quimica sanguinea**	**Quimica sanguinea**
PARÁMETROS	RESULTADOS	UNIDADES	VALORES DE REFERENCIA
Glucosa	97,6	mg/dl	60,0-100,0
Urea	20,3	mg/dl	10,0-50,0
Creatinina	0,5	mg/dl	0,3-0,5
PCR	2.5	mg /l	0,0-5,0
Procalcitonina	0,2	ng /ml	

Initial laboratory testing showed mild leukocytosis with neutrophilia and anemia (Table 1), with low-range C-reactive protein (Table 2). Transvaginal ultrasound revealed a normal-appearing cervix with a closed internal os and an anterior fundal placenta located >3 cm from the os. Reported fetal biometry included: BPD 4.42 cm, HC 17.3 cm, AC 14.9 cm, FL 3.3 cm; estimated fetal weight 342 g (Twin A). The study impression was a monochorionic diamniotic twin pregnancy.

A cervicovaginal sample was obtained for wet mount and Gram stain, showing abundant leukocytes (6–8 per high-power field), red blood cells (25–30/HPF), bacteria (++), pH 6, negative amine test, and a few blastoconidia on KOH preparation. Gram stain showed occasional Gram-positive cocci in pairs and absence of Lactobacillus-type Gram-positive rods, suggesting vaginal dysbiosis with possible Candida colonization. [11] Given maternal fever, PPROM and inflammatory findings, suspected intra-amniotic infection/chorioamnionitis was considered.

Clinical course: after approximately 72 hours of inpatient care, the patient requested discharge against medical advice with a diagnosis of twin pregnancy and threatened preterm labor. Three days later she re-presented due to persistent moderate watery vaginal leakage and two hours of contraction-like abdominal pain. Repeat ultrasound showed absence of fetal heart activity in both fetuses; the diagnosis was retained twin miscarriage complicated by suspected chorioamnionitis. Urgent uterine evacuation was performed and laboratory work-up was repeated.

Table 3 Complete blood count on re-admission (three days after discharge)

Biometría hemática	**Biometría hemática**	**Biometría hemática**	**Biometría hemática**
PARÁMETROS	RESULTADOS	UNIDADES	VALORES DE REFERENCIA
GLÓBULOS BLANCOS	* 19,4	K/µL	4.8 - 10.8
LINFOCITOS	* 0,8	K/µL	1 ,0– 7,0
LINFOCITOS %	*4.0	%	30,0-42,0
MONOCITOS	1,1	K/µL	0.0 – 1,0
MONOCITOS %	5,6	%	0.0 - 10.0
NEUTRÓFILOS	16,8	K/µL	1,1-6,6
NEUTRÓFILOS %	*86,8	%	30,0-51,0
EOSINÓFILOS	0,0	K/µL	0.0 – 0,5
EOSINÓFILOS %	0,20	%	0.00- 5.00
BASÓFILOS	0.1	K/µL	
BASÓFILOS %	0,4	%	0.0 - 2.0
GLÓBULOS ROJOS	3.5	M/µL	3,8-5,3
HEMOGLOBINA	10,9	g/dL	10,5-14,4
HEMATOCRITO	31,4	%	32,0-43,0
PLAQUETAS	303,000		150,0-450,0
TP	14.4		10.8-14.5
TTP	33.4		20.0-42.0

On re-admission, marked leukocytosis with neutrophilia was documented (Table 3), consistent with an acute infectious/inflammatory process. The patient remained under follow-up by the treating team after uterine evacuation.

3. Discussion

Suspected intra-amniotic infection is primarily a clinical diagnosis. According to ACOG, maternal temperature 38.0–38.9 °C plus an additional criterion such as maternal leukocytosis supports the suspected diagnosis and warrants prompt management. [1,2] In this case, fever on presentation and progression to marked leukocytosis on re-admission together with PPROM and uterine symptoms supported a diagnosis consistent with IAI/"Triple I". Clinical criteria alone cannot

reliably distinguish microbial infection from sterile inflammation, and evidence supports integrating clinical evolution with complementary tests when available. [3–5]

Periviable PPROM involves a complex trade-off between prolonging latency for fetal maturation and increasing maternal risks, including sepsis. SMFM recommends an individualized approach for previable/periviable PPROM, with structured counselling, clear monitoring strategies and thresholds for intervention when infection, bleeding or maternal-fetal deterioration occurs. [6] A UK national cohort study of PPROM before 23 weeks found that only a minority of pregnancies managed expectantly resulted in infants discharged alive, and maternal morbidity was substantial, emphasizing the importance of realistic counselling and timely escalation of care. [8]

In twin gestations, outcomes after very early PPROM tend to be poorer than in singleton pregnancies. Contemporary evidence including a systematic review and meta-analysis reports variable survival and complication rates when PPROM occurs before 26 weeks in twins; although survival may be meaningful if periviability is reached, the risk of extreme prematurity and infection remains high. [9,10] The rapid progression to intrauterine fetal demise observed in this case illustrates the potential severity of the infectious-inflammatory process in PPROM and highlights the need for close follow-up and access to specialized care.

Finally, microbiological findings suggesting Candida colonization deserve contextual interpretation. Yeast colonization and symptomatic vulvovaginal candidiasis are common in pregnancy; a systematic review suggests that symptomatic infections may be associated with inflammatory changes and some adverse outcomes, including preterm birth, although causality is not always clear. [11] In contrast, true intra-amniotic Candida infection is rare but has been described as a high-risk condition for the fetus. [12]

4. Conclusion

Chorioamnionitis/intra-amniotic infection in the setting of PPROM particularly at the threshold of viability and in twin pregnancy requires early recognition, close monitoring, evidence-informed counselling and shared decision-making. Maternal fever accompanied by inflammatory markers should be treated as a warning sign prompting timely intervention. This case also underscores the importance of precise clinical documentation and strategies aimed at reducing maternal complications and fetal loss.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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