

Tricuspid Valve Infective Endocarditis Following Septic Abortion: A Case Report

Rebecca Pradhan¹, Bibek Shrestha², and Agnimshwor Dahal³

¹Dhaka National Medical College and Hospital

²Tribhuvan University Institute of Medicine

³Nepal Intensive Care Research Foundation

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Authorship

Rebecca Pradhan, Dhaka Medical College Hospital, University of Dhaka

Email: rebiccapradhan@gmail.com

Bibek Shrestha, Maharajgunj Medical Campus, Tribhuvan University, Institute of Medicine,

Email: shresthabibek85iom@gmail.com

Agnimshwor Dahal, Patan academy of Health Sciences, Nepal

Email: agnimshwordahal@pahs.edu.np

Statement of contribution

S. N	Name	Contribution
1	Rebecca Pradhan	Conceptualization, data curation, formal analysis, methodology, project administration, original draft writing, supervision, validation, visualization, and data curation
2	Bibek Shrestha	Conceptualization, data curation, formal analysis, methodology, project administration, original draft writing, supervision, validation, visualization, and data curation
3	Agnimshwor Dahal	Resources, supervision, validation, conceptualization, investigations, and data curation

Corresponding author

Bibek Shrestha, Maharajgunj Medical Campus, Tribhuvan University, Institute of Medicine,

Email: shresthabibek85iom@gmail.com

Declaration

1. Ethics approval and consent to participate: The Institutional Review Board of the Institute of Medicine, Nepal, does not mandate ethical approval for the writing or publication of case reports, and patient consent was obtained. Informed written consent was obtained from the patient before writing this case report.
2. Consent for publication: Informed written consent was obtained from the patient for the publication of this case report in a scientific journal.
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ABSTRACT

Infective endocarditis (IE) is a serious infection of the heart valves and endocardium, most commonly affecting left-sided valves, though right-sided infective endocarditis, particularly of the tricuspid valve, is increasingly reported, especially among intravenous drug users and patients with implanted cardiac devices. This report presents the rare case of a 31-year-old female who developed tricuspid valve infective endocarditis following a septic abortion. The patient had undergone a medical termination of pregnancy at 16 weeks gestation and was treated for an incomplete septic abortion with manual evacuation and intravenous antibiotics. Despite initial treatment, the patient returned with persistent fever, chills, and mild vaginal bleeding. Blood cultures confirmed methicillin-resistant *Staphylococcus aureus* (MRSA), and echocardiography revealed vegetation on the tricuspid valve, confirming the diagnosis of IE. The patient was treated with a combination of broad-spectrum antibiotics, including piperacillin-tazobactam, vancomycin, and gentamicin, along with supportive therapies. The case highlights the importance of considering IE in patients with septic abortion, particularly when fever and infection persist despite treatment. Early recognition and management are crucial to prevent life-threatening complications. This case underscores the need for multidisciplinary management and adherence to best practices, such as antibiotic prophylaxis, to reduce the risk of infection in gynecological procedures.

not-yet-known not-yet-known

not-yet-known

unknown

1 Key clinical message Infective endocarditis, particularly of the tricuspid valve, can develop as a rare but severe complication following a septic abortion. Persistent fever and infection, despite treatment for septic abortion, should raise suspicion for IE, especially when accompanied by signs of systemic infection. Early diagnosis through blood cultures and echocardiography is crucial for effective treatment. Multidisciplinary management, including the use of broad-spectrum antibiotics and adherence to sterile techniques during gynecological procedures, is essential to prevent life-threatening complications.

1 Key clinical message

Key words

infective endocarditis; septic abortion; tricuspid valve; vegetations.

Introduction

Infective endocarditis (IE) is an endovascular microbial infection of cardiovascular structures characterized by vegetation composed of platelets, fibrin, microorganisms, and inflammatory cells (1). While IE typically affects left-sided valves, tricuspid valve endocarditis (TVIE) is increasingly recognized, particularly in intravenous drug users and patients with cardiac implantable devices. *Staphylococcus aureus* is the predominant causative organism in TVIE (3). Diagnosis relies on clinical manifestations, blood cultures, and echocardiography, with complementary imaging techniques providing additional information (3). Common symptoms include fever, pulmonary embolism, and bacteremia, with pulmonary events present in 80% of cases (3). Septic abortion, a significant cause of pregnancy-related deaths worldwide, involves infection of the placenta and can lead to severe complications. Prompt removal of infected tissue, fluid resuscitation, and antibiotic administration are crucial treatments (4). Complications can be life-threatening, including bacteremia, which may progress IE (5). Other severe complications may include septic arthritis, reactive arthritis, and mitral valve vegetation. IE is a rare but potentially life-threatening complication of septic abortion. While uncommon in modern practice due to improved access to care and the legalization of abortion, cases still occur (6). Common causative organisms include *Streptococcus viridans* and *Staphylococcus aureus*, but rare pathogens like *Escherichia coli* have also been implicated (5). Herein, we will discuss a case of a 31-year-old female with a diagnosis of Right-sided IE following septic abortion which necessitates the need of prophylactic antibiotic adherence to sterile techniques during gynecological procedures.

Conclusion and results

Based on the clinical history, examination, laboratory and echocardiography, provisional diagnosis of Right sided IE following Septic Abortion was made. Right sided IE was made following modified Duke's criteria (16). The patient was initiated on piperacillin-tazobactam (4.5 g IV QID) for the treatment of suspected bacterial infection, particularly due to the presence of methicillin-resistant *Staphylococcus aureus* (MRSA) in blood cultures. Vancomycin (1 g IV BD) was added to target MRSA, which is resistant to many other antibiotics. Gentamicin (80 mg IV BD) was prescribed as an additional broad-spectrum antibiotic to cover Gram-negative organisms, especially in the context of sepsis and possible systemic infections. Pantoprazole (40 mg PO OD) was given to prevent stress-related gastric acid secretion and reduce the risk of gastrointestinal bleeding, commonly associated with prolonged illness and antibiotic use. Paracetamol (1 g IV QID) was used for symptomatic management of fever. Multivitamins (1 capsule PO OD) were prescribed to address any potential nutritional deficiencies during illness. Probiotic (15 mL PO TDS) was included to maintain gut flora balance, particularly to counteract the disruption caused by broad-spectrum antibiotics. Lactulose ($\frac{1}{2}$ tablet PO OD) was prescribed to manage constipation, which can be a side effect of opioid analgesics or immobility in hospitalized patients. Four units of packed red blood cells (PRBC) were transfused, improving her hemoglobin level to 9.6 g/dL. Due to the patient's family request, she was referred to a higher center for further management.

Discussion

In this case, a 31-year-old female with no history of smoking, and substance abuse and two prior cesarean sections presented with recurrent high-grade fever, chills, rigors, and mild vaginal bleeding following a medical termination of pregnancy at 16 weeks gestation with diagnosis of incomplete septic abortion. Despite initial treatment, her symptoms persisted, leading to her presentation at our center. Blood cultures were positive for methicillin-resistant *Staphylococcus aureus* (MRSA), and echocardiography revealed vegetation on the tricuspid valve, suggesting IE secondary to septicemia. IE is a life-threatening infection of the heart's endocardial surface, often affecting those with underlying heart conditions or prosthetic valves (7). Diagnosis

relies on the modified Duke criteria, which incorporate clinical, microbiological, and echocardiographic findings. Common causative organisms include *Staphylococcus aureus*, viridans *Streptococcus*, and enterococci (8). The incidence of IE is increasing due to more frequent cardiac interventions and an aging population with comorbidities. Septic abortion remains a significant cause of maternal mortality and morbidity in developing countries. Studies have reported incidence rates ranging from 6.6% to 8.2% of all abortions. Most cases result from induced abortions, often performed by unqualified individuals. Mortality rates from septic abortion range from 6% to 15.4% (11,12). Common complications include peritonitis, septicaemia, renal failure, and septic shock (13). IE is a rare but potentially severe complication of septic abortion, particularly affecting the right side of the heart. Cases have been reported involving various pathogens, including *Escherichia coli* and *Staphylococcus aureus* (9). IE following septic abortion can lead to life-threatening systemic complications, such as septic arthritis, reactive arthritis, and pulmonary septic embolization (10). The infection can spread from the pelvic veins to the right heart, with *Staphylococcus aureus* being a common causative organism. Diagnosis typically involves clinical presentation, echocardiography, and blood cultures (9). Herein, our case presented with the history of fever and mild bleeding with the history of septic abortion for which we suspected IE because of septic abortion which was further confirmed by detailed history, examination and investigation. Blood culture was done which revealed the presence of methicillin resistant *staphylococcus aureus*. Echocardiography plays a crucial role in diagnosis, revealing vegetations on affected valves (6). Echocardiography of our case revealed vegetation on the tricuspid valve leaflet of 2.5 cm. Dilatation and curettage appear to have been important factors in the development of right-sided IE because the infection can enter the venous system through the pelvic veins following a gynaecological procedure and then travel to the right side of the heart. This infection can also occur a few days after the procedure in a person who is otherwise healthy and does not have a known risk factor for right-sided IE, increasing the likelihood that cause, and effect are related. The American Heart Association does not advise antibiotic prophylaxis for women having surgical abortions, however, in the event if congenital heart disease, prior IE, or valvular heart disease are present (9, 14). Our case underwent conventional dilatation and curettage method manual evacuation of retained products of conception following medical termination of pregnancy by mifepristone. Early diagnosis and treatment are crucial, often requiring multispecialty consultation due to potential systemic complications (6). Prophylactic antibiotics and adherence to sterile techniques during procedures can help prevent IE (9). National Institute for Health and Care Excellence abortion care guidance recommends offering antibiotic prophylaxis (3-day course of oral doxycycline) to women having a surgical abortion (15). However, our case was not given prophylactic antibiotics following manual evacuation of retained products of conception. Treatment typically involves intravenous antibiotics, with surgical intervention sometimes necessary (6). This case highlights the importance of the recent history of obstetric and gynaecological procedure in a patient presenting with the feature of endocarditis. This involves detailed history taking including past medical history, clinical examination and appropriate investigations. This facilitates prompt diagnosis and aid in necessary treatment.

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Images

Figure 1: Vegetation seen on Tricuspid Valve and Tricuspid Regurgitation.

Figure 2: Mild Tricuspid Regurgitation.

Declarations

1. Ethics approval and consent to participate: The Institutional Review Board of the Institute of Medicine, Nepal, does not mandate ethical approval for the writing or publication of case reports, and patient consent was obtained. Informed written consent was obtained from the patient before writing this case report.
2. Consent for publication: Informed written consent was obtained from the patient for the publication of this case report in a scientific journal.

3. Availability of data and materials: The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.
4. Competing interests: None
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