Genital and Chest Enteroccocal Infections Complicating Induced Abortion: A Case Report

Enaruna NO[1], Lofor PVO[2] & Aziken ME[1]

Abstract

Several complications of induced abortion have been reported in the literature. We report a rare case of simultaneous genital and chest enterococcal infections following induced abortion, in a teenager, at 14 weeks gestation.

Keywords: *Septic induced abortion, genital and chest enterococcal infection, University of Benin Teaching Hospital*

[1]*Department of Obstetrics and Gynaecology, University of Benin Teaching Hospital, Benin City.* [2]*Department of Medical Microbiology, University of Benin Teaching Hospital, Benin City.*

Correspondence: *Dr Nosakhare O ENARUNA, Department of Obstetrics and Gynaecology, University of Benin Teaching Hospital, PMB 1111, Benin City, Nigeria. E-mail: osaseruns@yahoo.com. Phone No: +2348033835761*

Introduction

Abortion complications contribute significantly to maternal mortality and morbidity figures in developing countries for several reasons. Whereas abortion services are restricted by law to situations where they are required to save the mother's life or the developing fetus is malformed beyond remedy by any form of intervention, women and young girls continue to procure abortion to solve the problem of unplanned or unwanted pregnancies.[1] The legal stance on abortion in these countries including Nigeria with restrictive abortion laws has driven the practice underground and made the provision of the service an all comers affair.[2,3] Hence a significant proportion of induced abortions in developing countries are unsafe[4] with attendant complications.[5] Haemorrhage, injury to abdominal or pelvic organs and infection are well documented complications of induced abortion.[6,7]

The infective agents in septic abortion vary according to environment, immune status of the individual as well as access to and proper utilization of antibiotics. Polymicrobial cultures, derived from the normal flora of the vagina and endo-cervix and sexually transmitted pathogens have commonly been reported,[5] though a few cases of single cultures of rare organisms continue to grace the literature.[8-10] In the USA, infection with Clostridium perfringens is largely associated with unsafe abortion,[8] while tetanus infection has been reported as a cause of death from

septic abortion in some third world countries.[9] Recently, Momoh et al[11] reported a positive culture of Treponema pallidum (TP) after a miscarriage at 8 weeks gestation but concluded that TP was a cause rather than a consequence of the abortion.

The rare nature of the index case, enterococcal endometritis and pneumonia complicating induced abortion, informed the report.

Case Presentation

An 18-year-old single nulliparous hairdressing apprentice who had junior secondary education was referred to our hospital two weeks after an induced termination of pregnancy at 14 weeks gestation. The procedure was carried out by a patent medicine store attendant in a village. The termination was achieved by intermittent intramuscular injections and intravenous infusions over 3 days. Following the expulsion of the fetus, she had profuse bleeding per vaginam 5 days later which necessitated an evacuation of retained products and plan to transfuse blood in a private hospital in Benin City; she was admitted for one week but declined to blood transfusion. Two days after the evacuation she developed cough with chest pain and fever which had continued for a week before presentation.

On examination, she was febrile (temperature: 38°C), markedly pale, tachycardic with gallop rhythm and tachypnoeic. She also had a haemic murmur and crepitations on the right lung. The liver was tender and enlarged to 6cm below the costal margin. Ultrasound examination revealed an empty uterus and no fluid collection in the pouch of Douglas. Her chest X-ray examination revealed homogenous opacities on the right hemithorax. The initial endocervical swab (ECS) culture yielded no growth.

The results of her investigations were as follows – packed cell volume :18%, white blood cells count : 10,700 cells/mm^3(neutrophilia), platelet count 195,000 cells/mm^3(normal), retroviral test : negative, blood group : O positive, genotype : AA, electrolyte, urea & creatinine : normal, sputum culture : no growth and sputum Gram stain : Gram-positive cocci.

Post-abortal septicemia with right lobar pneumonia and anaemic heart failure was diagnosed and the patient was admitted. Treatment initially consisted of oxygen therapy by nasal prongs, intravenous ceftriaxone, metronidazole and gentamicin, tablet artemeter-lumefantrine for malaria, blood transfusion and frequent monitoring of vital signs. She was initially co-managed with the hematologists and respiratory physicians.

On 3rd day of admission, cough, chest pain and fever persisted. A repeat full blood count showed PCV of 32%, thrombocytosis and neutropenia. Antibiotics were continued. On 7th day of admission, she still had fever and cough, and had developed bleeding per vaginam. Repeat malaria parasite test was negative, 24-hour urine hCG was 650iu/ml (not significant). She had uterine evacuation and minimal products of conception was retrieved and sent for histology. The histology report excluded gestational trophoblastic disease.

On 11th day of admission, a diagnosis of pyrexia of unknown origin was considered. The medical microbiologists were invited to review and co-manage the patient. They

requested blood film for malaria parasite and endocervical swab, sputum specimen, midstream urine and blood specimen for culture. All the tests were negative except the endocervical swab and sputum cultures which yielded Enterococcus faecalis. She was then placed on parenteral amoxicillin/clavulanate and continued on gentamicin, a combination to which E. faecalis had documented sensitivity. Fever and cough improved within 3 days of commencing these antibiotics and she was discharged home on 20th day of admission with normal vital signs and PCV of 30%.

She was seen in the gynaecological clinic 4 weeks later and she was stable. She had menstruated 12 days earlier and it was normal. She was then referred to the teenage counseling unit of the family planning clinic for contraception and was given a 12-week appointment to the gynaecological clinic. She subsequently was lost to follow-up.

Discussion

Enterococci are Gram-positive cocci that can survive harsh conditions in nature. They are known to colonize the gastrointestinal tract of humans. Enterococci have proven to present a therapeutic challenge because of their resistance to many antimicrobial drugs, including vancomycin.[12] It is likely that the patient we reported acquired the infection during or following the unsafe abortion.

In the antibiotic treatment of septic abortion, several drugs are utilized because of the variety of organisms that can be associated with the condition. Commonly reported groups of bacteria include Gram-positive aerobes, Gram-negative aerobes, facultative or obligate anaerobes, Neisseria gonorrheae and Chlamydia trachomatis.[4,5] The initial choice of antibiotics for this patient which included ceftriaxone, gentamicin and metronidazole was appropriate to cover for Gram-positives, Gram-negatives and anaerobes. The deterioration in clinical state and the emergence of new symptoms while receiving these antibiotics presented a management dilemma. It was expected that evacuation of the uterus would have provided a platform for progressive recovery. However, fever and cough persisted, and these were the first suggestion that a resistant organism might be responsible for the poor clinical state.

The resumption of bleeding per vaginam was quite alarming and necessitated a quantitative beta-hCG screen for gestational trophoblastic disease (GTD), but the value of 650 iu/ml was reassuring. The need to carry out repeat infection screening with sputum, urine, endocervical swab and blood thus became apparent. This sepsis screening was directly supervised by the consultant microbiologist, who ensured that results were ready in good time. From the record of the laboratory, this culture report of E. faecalis in two different specimens from the same patient was the first ever documented by them. Furthermore, E. faecalis was not a common culture from endocervical swabs in this facility. The multidrug resistance known to be associated with E. faecalis is another strong reason to support the role this organism might have played in the clinical course observed in this patient.

In the past, most cases of septic abortion and shock in the USA were mainly as a result of Gram-negative organisms, Clostridium welchii and Clostridium perfringens as well as

non-clostridial anaerobes such as Bacteriodes and Streptococci.[13-15] Similarly, Rotimi and Abudu[16] in Nigeria reported that the predominant flora in septic abortion were anaerobes such as Bacteriodes and facultative bacteria such as Escherichia coli, Klebsiella aerogenes and Streptococcus faecalis.

Hospitalization and exposure to antibiotics have been identified as factors promoting the emergence of multidrug resistant *E. faecalis* infection.[17,18] In the case we presented, the initial cultures did not yield this organism, and this might suggest that the infection was acquired after the use of the multiple antibiotics. It is also possible that the initial culture was not thorough enough to identify the organism. The source of infection could have been the gastrointestinal tract or the genital tract. However, the explanation for the chest infection is not immediately apparent, but this might have resulted from a blood-borne infection. Even so, the blood culture taken at the same time as the sputum and ECS cultures did not yield any growth.

Enterococci have been known to demonstrate both intrinsic and acquired resistance to antibiotics. Unlike streptococcal species, enterococci are relatively resistant to penicillin, with minimum inhibitory concentrations (MICs) that generally range from 1-8 mcg/mL for E faecalis and 16-64 mcg/mL for E faecium.[12] Therefore, exposure to these antibiotic agents inhibits but does not kill these species. Combining a cell wall–active agent such as ampicillin or vancomycin with an aminoglycoside may result in synergistic bactericidal activity against enterococci.[12,18] The afore-mentioned informed the choice of Coamoxiclav, combined with the earlier prescribed gentamicin, given to this patient following the culture of E faecalis. There was an observed clinical response within 72 hours and clinical improvement was steady leading to her discharge home with full recovery.

The role of E faecalis in human infections has long been recognized. The dreaded multidrug resistance associated with enterococcal infections has been highlighted in this case presentation. It will appear clinically acceptable that empirical treatment with high doses of a combination of penicillinase-susceptible penicillin and aminoglycoside can be instituted in the face of a multidrug resistant infection, while waiting for reports of specific cultures. The suspicion for E. faecalis infection might be stronger when Gram-positive cocci growing in chains are demonstrated in the Gram stain. The diagnosis will depend, however, on the isolation of esculin positive, lactose, sucrose, mannitol and sorbitol fermenting organisms which are starch-degrading and grow on 6.5% NaCl.[19]

In conclusion, postabortal infection due to Enterococcus faecalis presents a management dilemma, and so early diagnosis will require a high index of suspicion. Furthermore, access to safe abortion helps to minimize the severe morbidity and mortality associated with unsafe abortion.

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