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Case Report

A rare case of gas under diaphragm due to spontaneous perforation of uterus due to gas gangrene of uterus with clostridium perfringens infection presenting as intestinal perforation

D. Navya Sesha Harika*, T. Uma Maheswara Rao, P. Sireesha, D. Jithendra, Satya Sundeep Pandu

Department of General Surgery, KIMS, Amalapuram, Andhra Pradesh, India

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***Correspondence:**
Dr. D. Navya Sesha Harika,
E-mail: navya.dhoni99@gmail.com

ABSTRACT

Uterine perforation is an uncommon, perforation due to clostridium perfringens is very rare, but potentially serious complication of uterine gangrene is due to clostridial infection, uterine manipulation, evacuation of retained products, termination of pregnancy, during coil insertion and hysteroscopic procedures. We report a 60 year old female patient presented with abdominal pain, constipation and Fever with features of septic shock. X-ray showed free gas under both domes of diaphragm. CT showed gas under diaphragm and hollow viscus perforation. This report aims to alert surgeons to the possibility that perforation of uterus due to gangrene with clostridium perfringens infection also shows air under diaphragm apart from routine causes. Correct diagnosis and treatment is essential for the survival of the patients with gas under diaphragm due to gas gangrene of uterus.

Keywords: Gas gangrene of uterus, Clostridium perfringens infection, Air under diaphragm, Spontaneous perforation

INTRODUCTION

When patient comes with history of pain, features of peritonitis and X-ray findings of air under diaphragm surgeons generally think in terms of perforated duodenal or gastric ulcer. Uterine perforation is an uncommon condition and factors that include the risk of uterine perforation include uterine anomalies, infection, recent pregnancy and post menopause. It may be associated with Injury to surrounding blood vessels or viscera such as Bladder or Intestine. Uterine perforation causes severe morbidity and mortality, prompt management can improve outcome. Anterior wall is the commonest site.

Air under diaphragm due to perforation of gangrenous uterus is rare. Routine causes includes hollow viscus perforation, penetrating trauma, peritoneal infection, bowel cancer, necrotizing enterococci, after laparotomy, after laparoscopy. In this a multipara with perforation of uterus due to gas gangrene with clostridium infection has been reported.[1]

Early recognition, aggressive therapy and removal of septic foci can save patients life, antibiotic treatment is an adjuvant to surgical debridement.[2]

When the foci of the infection are unknown, surgical debridement is required to remove affected tissue and to determine the extent of the infection. While an antitoxin is available, there is ambiguity regarding the effectiveness of its use.[3] The use of hyperbaric oxygen (HBO) treatment may help as an adjuvant therapy prior to and after surgery.[4] The proper diagnosis and early use of aggressive antibiotics and emergent surgery can decrease the mortality seen from clostridial sepsis.[1]

CASE REPORT

A 60 year old multipara Female patient came to the Emergency department with chief complaints of 3days history of Constipation and low grade fever and 1 day history of diffuse pain abdomen. She was sick and appeared anaemic. Her vitals were unstable with tachycardia and hypotension. Known hypertnsive, she has 3 children with normal vaginal delivery. History of tubectomy 40 years back, attained Menopause 10 years back. On examination, the abdomen slightly distended, firm, tender and guarding present indicating peritonitis. Liver dullness obliterated. Bowel sounds absent. Per rectal examination was normal. Per vaginal examination revealed foul smelling vaginal discharge and cervical tenderness present. Ultrasound showed hollow viscus perforation. X-ray erect abdomen showed gas under both diaphragm. Blood investigations showed raised WBC count of 18,000/µl.

CT scan showed hollow viscus perforation. After stabilizing the patient exploratory laparotomy was done.

A frank pus of 1500 ml collected, adhesions between the Bowel loops present.

Gangrenous and perforated uterus seen with Perforation of about 3×4 cm present with pus oozing from it, then Hysterectomy was done. The surgical time was 3 hrs and the volume of blood loss was 1000ml. Intraoperatively 2 units of blood transfusion done. A drainage tube was kept. Intraoperatively blood pressure was maintained with Intravenous fluids and ionotropes. Oliguria which was present at the beginning of surgery, progressed to anuria with hypotension, tachycardia and fever indicating septic shock. After surgery patient failed to weanedoff from the ventilator due to low O2 saturation and patient transferred to intensive care unit. The very next day, even with Intravenous fluids, higher antibiotics, analgesics, ionotropes and ventilator, patient progressed to systemic inflammatory response syndrome and multi organ dysfunction syndrome and died due to myocardial infarction and acute kidney injury. Culture of pus from Necrotic part of uterus and vagina secretions showed clostrium perfringens infection. Hisopathological examination showed necrosis of endometrium and myometrium with chronic nonspecific cervicitis.

DISCUSSION

Uterine perforation is an uncommon, but potentially serious complication of uterine gangrene due to clostridial infection, uterine manipulation, evacuation of retained products, termination of pregnancy, during coil insertion and hysteroscopic procedures.

Gangrene is macroscopic death of tissue due to lack of blood supply. Incidence of uterine perforation is 0.002-1.7%. Most perforations are in the body of the Uterus mainly on anterior wall and are often small, tending to cause relatively little haemorrhage. Perforation at internal os and lower part of uterus are more serious as they are often lateral and can involve branches of the uterine vessels which can lead to serious intraperitoneal haemorrhage. Small perforations do not require treatment. Factors that include the risk of uterine perforation include uterine anomalies, Infection, recent pregnancy and post menopause. It may be associated with Injury to surrounding blood vessels or viscera such as bladder or Intestine.

Uterine perforation causes severe morbidity and mortality, prompt management can improve outcome. Anterior wall is the commonest site.

Air under diaphragm due to perforation of gangrenous uterus with clostridium infection is rare. Routine causes include hollow viscus perforation, Penetrating trauma, Peritoneal infection, bowel cancer, necrotizing enterococci, after laparotomy, after laparoscopy.

In this a multipara with perforation of uterus due to Gangrene with clostridium perfringens infection has been reported. Early recognition, aggressive therapy and removal of septic foci can save patients life. C.perfringens is an anaerobic, gram positive, nonmotile, spore forming pathogenic bacillus found in normal intestine and vaginal flora of healthy women.[5] It is encapsulated and is capable of producing numerous toxins. The bacterial diversity of this pathogen is remarkable, with more than 640 different strains of C. perfringens identified. Only 5% of these 640 strains are known to be pathogenic. Among the toxins produced is lecithinase C, which is responsible for the hemolysis seen in clostridial infections. Clostridia infections rarely result in septicemia. When septicemia ensues, the clinical presentation is shock, acute hemolysis, rapidly developing jaundice, tachycardia, hypotension, and often death. Symptoms from clostridia infection have a particularly rapid onset, compared to other infectious causes. Lecithinase C toxin is responsible for the rapid onset of symptoms that can be seen as soon as 12–24 hours after infection.[6]

Uterine clostridia infection should be considered in a patient presenting with extreme uterine pain and symptoms of shock, without any clear cardiac or pulmonary etiology. The presence of peritonitis should alert practitioners that the infection is likely to have spread beyond the uterus. Thrombophlebitis has been documented as a complication, but this is only seen in extremely rare circumstances and usually occurs as a co-infection.[7] Russell established a theoretical method of spread of infection to the uterus.[8] First, the infection requires introduction of the bacteria from either an external source or from normal flora (in a rare subset of women). Second, necrotic tissue must be present within the uterus for an extended period to allow for incubation of the bacteria. Third, the damaged uterine tissue must be exposed to the bacterial pathogen. This route of infection

explains why this infection is so rarely seen in nonpregnant patients.

Surgery to debride dead tissue in Gas gangrene and achieve source control is essential for survival. Aggressive fluid resuscitation and appropriate I.V. antibiotic therapy is required in tandem with surgical intervention. Proper antibiotic therapy includes the use of penicillin and ampicillin. However, antibiotic treatment is an adjuvant to surgical debridement.[2]

When the foci of the infection are unknown, surgical debridement is required to remove affected tissue and to determine the extent of the infection. While an antitoxin is available, there is ambiguity regarding the effectiveness of its use.[3] The use of hyperbaric oxygen (HBO) treatment may help as an adjuvant therapy prior to and after surgery.[4] Its use has been shown to decrease toxemia and produce improvement within 6 hours of treatment.

CONCLUSION

The proper diagnosis and early use of aggressive antibiotics and emergent surgery can decrease the mortality seen from clostridial sepsis.

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