



# Experience in Multidisciplinary Treatment of Infectious Abortion and Severe Sepsis after Cervical Cerclage

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**Abstract:** Objective: to analyze the multidisciplinary treatment and effectiveness of infective abortion and severe sepsis after cervical cerclage. Methods: the data of one patient with infective abortion and severe sepsis after cervical cerclage, admitted to our hospital in May 2019, were retrospectively reviewed, and the patients were well-established related examinations after admission and received multidisciplinary treatment. Results: the patient was transferred back to the general ward after treatment in the intensive care unit for a January, please be evaluated in the Department of traditional Chinese medicine, Department of psychology and rehabilitation, underwent Chinese medicine conditioning, and was estrated psychologically, and the patient recovered and was discharged from the hospital after rehabilitation training for a total of 58 days. Conclusion: the multidisciplinary diagnosis and treatment model can be applied during the treatment of patients with infectious abortion and severe sepsis after cervical cerclage.

**Keywords:** cervical cerclage, infective abortion, sepsis, multidisciplinary treatment

## 1. Introduction

Clinically, the situation of some pregnant women is complex and combines multiple diseases, which brings many challenges to the obstetric work. Sepsis is a syndrome encompassing a spectrum of pathophysiologic mechanisms that remain undefined and can significantly increase maternal morbidity and mortality [1]. The occurrence of sepsis in obstetrics mostly occurs after infective abortion, puerperium infection or cesarean section, and the occurrence of sepsis after cervical cerclage is rarely reported. Patients with infectious abortion and severe sepsis after cervical cerclage are complicated and critically ill, and in clinical care, timely and effective treatment is still required. In recent years, the multidisciplinary diagnosis and treatment model has begun to be increasingly applied in the management of such patients. In this article, we review the clinical data of one patient with infective abortion and severe sepsis after cervical cerclage, who was admitted to our hospital in recent years. The patient in this case was in a complicated and critically ill state, and during the course of care, she actively implemented multidisciplinary comprehensive diagnosis and treatment. Eventually the patient turns to safety and belongs to the multidisciplinary diagnosis and treatment model for the rescue and treatment of critically ill maternal success cases, fully reflecting the importance of this model in the current critical critical care in obstetrics. The following are reported:

## 2. Materials and methods

### 2.1 General materials

The patient was 34 years old, was admitted to our hospital at 20:23 on 29-may-2018 due to "" menorrhagia 19 + 5 weeks, cervical cerclage after 3 weeks, chills and chills with fever 2 + hours "" , at the time of admission, no cough and expectoration, no abdominal pain, no vaginal fluid; She was hospitalized for 5 days at 3 weeks because of cervical insufficiency by transvaginal cervical cerclage (preoperative vaginal discharge and negative bacterial culture) in our hospital, and she was discharged without vaginal bleeding fluid and abdominal pain. G6P1, LMP: 2019-1-11, EDC: 2019-10-18; Cesarean section was performed outside hospital 12 years ago because of dystocia, LEEP knife conization 10 years ago because of cervical erosion, two for human flow, and one late abortion 2 years ago.

### 2.2 Methods

Transferred to ICU for multidisciplinary treatment. One hour after admission to ICU the patient had shortness of breath, oxygen desaturation, underwent endotracheal intubation ventilator assistance, could strengthen anti infection, correct coagulation function for a week. During the period the patient continued fever, oliguria, oronasal mucosal bleeding, multiple ecchymoses on the skin, blood culture drawn during admission results identified Escherichia coli. WBC fluctuated at  $24.42 \sim 42.50 \times 10^9/l$ , Hb decreased to  $58g / L$ , PLT decreased to  $9 \times 10^9 / L$ , PCT persisted at  $> 50ng / ml$ , D-D dimers remained

high (37-85ug / ml), and BNP significantly increased up to 23083pg / ml. Transaminases, renal function was mildly elevated, albumin decreased, vaginal ultrasound suggested intrauterine effusion, again after discussion by the MDT team (infectious, respiratory, hematology, Nephrology, pharmacy, imaging, general surgery, vascular surgery, obstetrics). Considering the infective focus is derived from the genital tract, it is occult in location, drug treatment is not effective, surgical resection may be considered, transabdominal total hysterectomy after full communication with family members. Intraoperatively, pelvic congestion, parametrial thickening, brittle quality, bilateral sacral cardinal ligament thickening, see blood clot attachment in the uterine cavity, disease examination showed large areas of endometrial inflammatory necrosis, bleeding with more neutrophils invading, muscular layer blood vessels seen inflammatory necrotic tissue. After hysterectomy, the patient was changed to polymyxin + tigecycline + daptomycin combined with anti-infection, blood transfusion and blood products were continued, the body temperature gradually decreased 3 days after surgery, and the urine volume, liver enzymes, renal work, coagulation function, cardiac function and oxygen saturation returned to normal. One week after hysterectomy, during ventilator evacuation the patient had repeated low fever, alveolar lavage under fiberoptic bronchoscopic manipulation, airway aspirate a large amount of purulent sputum, sputum smear see a large number of gram negative bacilli, sputum culture see carbapenem resistant *Acinetobacter baumannii*, *Stenotrophomonas maltophilia*, *Pseudomonas aeruginosa*, fungi, urine culture see *Escherichia coli*. CT suggested progressive aggravation of exudative changes in both lungs, and the diagnosis was severe pneumonia with Pan drug resistant bacterial infection, fungal infection, respiratory failure, and again deterioration of the condition. To draw the provincial and our hospital's Department of infection, respiratory medicine, pharmacy, imaging, obstetrics and other multidisciplinary multiple discussions, after giving more antimicrobial doses, strengthening supportive care and other measures, the control of lung infection, ventilator use 29 days after smooth offline.

### 2.3 Observation indexes

The clinical symptoms and signs of the patient were observed to improve, and the hospital stay was counted.

### 2.4 Statistical treatment

The data obtained from the study were all entered into Excel sheets, the database was built, and the SPSS 15.0 software introduced by the SPSS company was used for statistical analysis.

## 3. Results

The patient was transferred back to the general ward after January of treatment in the intensive care unit, and after returning to the Department, he was seen to be nalyzed and had vomiting, easy crying, easy startling, normal rolling over activity, but was unable to walk. Please evaluate in the Department of traditional Chinese medicine (TCM), Department of psychology and rehabilitation, perform conditioning with Chinese medicine (TCM), and estrate the mind. After rehabilitation training, the patient recovered and was discharged from the hospital for a total of 58 days. Key discharge diagnoses: ①sepsis (*Escherichia coli*) ②Septic shock; ③Genital tract infection; ④Severe pneumonia (carbapenem resistant *Acinetobacter baumannii*, *Stenotrophomonas maltophilia*, *Pseudomonas aeruginosa*, carbapenem resistant *Pseudomonas aeruginosa*, fungi); ⑤Multiple organ dysfunction syndrome.

## 4. Discussion

Sepsis in pregnancy (sepsis) is an important cause of maternal mortality [2]. One in 10 maternal deaths worldwide is caused by sepsis [3], and the most common causative organisms in maternal sepsis are *Escherichia coli*, group A and B streptococci, staphylococci, Gram-negative bacteria, anaerobes, and other microorganisms, with *Escherichia coli* and group B streptococci being the most common bacterial pathogens, but with *Escherichia coli* and group A streptococci being associated with the most severe outcomes [4]. In the puerperium, the occurrence of sepsis is associated with operative delivery (cesarean section and instrumental delivery) as well as perinatal interventions such as intrauterine tamponade for massive obstetric hemorrhage [5].

Since women of advanced age undergo conization for many cervical pathologies, cervical conization can lead to cervical insufficiency after cervical conization. Cervical cerclage is a very important treatment modality for patients with cervical insufficiency. However, after cervical cerclage, it is highly susceptible to the occurrence of certain adverse outcomes, among which, infectious abortion is a common type. Previous theories and studies on the pathophysiology of preterm birth have considered various causes of preterm birth, including infection or inflammation [6], vascular disease, uterine overdistension, cervical disease, and others. Infective abortion due to cerclage placement has been well documented in the literature, but reports resulting in sepsis are rare. Increased awareness of sepsis, and active implementation of targeted care for patients, to do early detection, and to intervene effectively, can lead to better outcomes for patients. During specific

rescue procedures, multidisciplinary rescue patterns can be applied with aggressive attempts. Multidisciplinary collaboration (MDT) is a novel medical model that is widely used in the rescue and treatment of high-risk pregnant women. Under the multidisciplinary collaborative treatment model, the multidisciplinary rescue and treatment team performs active, rapid, and orderly analysis and treatment of patients, and through multidisciplinary collaboration, exerts collective wisdom to obtain more optimal treatment outcomes. At the time of multidisciplinary care of critically ill pregnant women, the joint Department of Gynecology, neonatology, neonatal care, obstetric care, midwifery, and anesthesiology and other disciplines, use a multidisciplinary and collaborative integrated medical model, achieve the maximized integration of resources and advantages of each department, a full-scale and gap free bridging, and navigate for maternal and child health to improve the quality of diagnosis and treatment of maternal, fetal, and neonatal patients. In recent years, multidisciplinary treatment paradigms are beginning to become more widely used in the clinical treatment of critically ill pregnant women and play a very important role. Previously Yiqiang et al selected 1200 critically ill pregnant women for analysis in their study [7], and divided them into two groups according to the condition of receiving clinical treatment, one group implementing conventional rescue treatment, the other group implementing multidisciplinary joint rescue treatment. Comparing the effectiveness of rescue treatment between the two groups revealed that the incidence of postpartum hemorrhage, neonatal asphyxia, and respiratory distress syndrome were significantly lower or less in the pregnant women who received the multidisciplinary combined modality of care. It is well documented that the implementation of multidisciplinary joint care for critically ill pregnant women can achieve remarkable results. In our case, the patient in the second fetus, 34 years old, underwent cervical conization because of cervicitis, and presented with a late miscarriage at the time of a second pregnancy 8 years after surgery, with the diagnosis of cervical insufficiency. While in our hospital, transvaginal cervical cerclage was performed at 16 + 5 weeks of pregnancy, 3 weeks after cerclage, emergency admission due to fever for 2 hours, spontaneous abortion after admission when cervical cerclage wire was removed, placental residue was performed artificial stripping of placenta, blood culture was positive for less than 24 hours at admission, and nosocomial infection was excluded, the causes of which were analyzed mainly as uterine contraction after cerclage operation, cutting of cerclage wire, bacterial retrograde blood entry. Abortion was followed by artificial removal of the placenta, which exacerbated the spread of infection, resulting in multiple organ dysfunction, conservative treatment with drugs for a week, and no improvement in infection indicators. During the rescue treatment, it was found that the clinical condition of this patient was quite complicated, the condition was severe, and the treatment was intractable. In response to the clinical situation of the patient, it was chosen to implement multidisciplinary care. During the rescue treatment process, doctors from multiple different disciplines collaborate together to analyze the patient's condition and develop a comprehensive rescue and treatment plan [8-10]. After the consultation of multidisciplinary experts, the patients were comprehensively evaluated to develop a comprehensive treatment plan, and the focus of clinical disposition was clarified. After multidisciplinary discussion, to control the infection and save the patient's life, the decision to undergo hysterectomy was made carefully. "Super drug-resistant bacteria" and fungal infections after hysterectomy. After multidisciplinary diagnosis and treatment, it lasted nearly 2 months and cost huge financial and human resources. Throughout the diagnosis and treatment process, it involves many disciplines, such as obstetrics, ICU, infectious, respiratory, hematology, imaging, pharmacy, psychology, and rehabilitation departments, and through a multidisciplinary cooperation, we aimed at complications, and let this patient turn to safety and belong to the multidisciplinary diagnosis and treatment model for the treatment of critically ill maternal success cases, which also fully illustrates the importance of this model in the current critical critical care in obstetrics [11-12]. The rescue experience of this case is worth drawing upon in clinical work, and the lessons involved are a cautionary note for our clinical workers.

## 5. Conclusion

In conclusion, in the clinical course of caring for critically ill pregnant women, multidisciplinary diagnosis and treatment model can be actively considered to better analyze the patient's condition, develop a comprehensive and scientific treatment plan, and maximize patient health and life safety.

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