

# McDonald's Cerclage in Cervical Incompetence: A Case Report

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## Abstract:

Cervical incompetence is a condition where the cervix painlessly dilates in the absence of uterine contractions, leading to pregnancy loss or preterm birth. This case report presents a 21-year-old pregnant woman in her second trimester who experienced lower abdominal pain and pelvic pressure. Ultrasound confirmed cervical shortening and premature dilation, indicative of cervical incompetence. A McDonald cervical cerclage was performed under spinal anesthesia to reinforce the cervix and prevent further dilation. Preoperative care included antibiotics, progesterone supplementation, and gastrointestinal protection, while postoperative management focused on infection prevention, pain control, and pregnancy maintenance. The patient had an uneventful recovery, was discharged with appropriate medications, and was advised on strict antenatal follow-up. Serial ultrasounds were planned to monitor cervical length and fetal well-being, with cerclage removal scheduled at 36-37 weeks or earlier if labor occurred. This case highlights the significance of early diagnosis, timely intervention, and careful monitoring in managing cervical insufficiency to improve pregnancy outcomes.

**Keywords** — Cervical incompetence, Cervical insufficiency, McDonald cerclage, Preterm birth, Transvaginal ultrasound, Antenatal care, premature cervical ripening, Spinal anaesthesia, Second-trimester pregnancy loss.

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## I. INTRODUCTION

Cervical incompetence or cervical weakness is a medical condition of pregnancy that refers to the cervix's inability to retain the foetus without the presence of uterine contractions or labour, leading to painless cervical dilation (widening) due to a structural or functional defect. This condition involves cervical ripening occurring well before term. The term "cervical incompetence" was first used by Cole and Culpepper in 1658 in their treatise *Practice of Physick* <sup>[1, 2&3]</sup>.

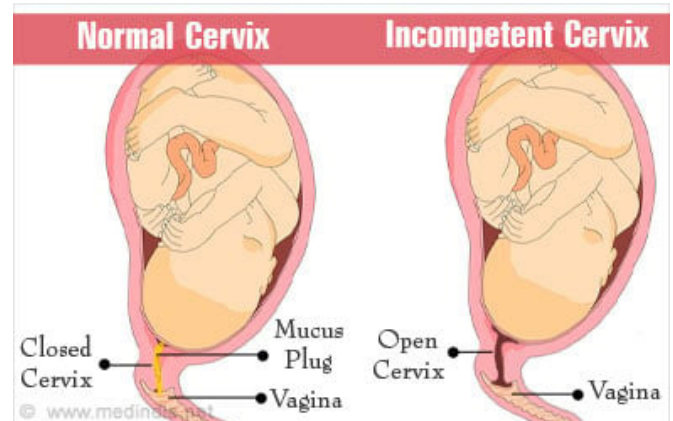


Fig. 1: Normal cervix Vs Incompetent Cervix  
An incompetent cervix, also known as cervical insufficiency, occurs when weakened cervical

tissue contributes to premature birth or the loss of a healthy pregnancy. The cervix, the lower section of the uterus connecting to the vagina, usually remains closed and firm before pregnancy. As pregnancy progresses and the body prepares for childbirth, the cervix gradually softens, shortens, and opens. However, in cases of an incompetent cervix, this opening may occur too early, potentially leading to preterm birth [1&4].

It is estimated that cervical incompetence will complicate anywhere from 0.1% to 2% of all pregnancies and is thought to be responsible for approximately 15% of habitual immature deliveries between 16 and 28 weeks of gestation [5]. Common causes include cervical trauma such as cervical lacerations during childbirth, cervical conization, LEEP (loop electrosurgical excision procedure) and forced cervical dilatation during the uterine evacuation in the first or second trimester of pregnancy [6]. Patients may present with lower abdominal pain, vaginal bleeding, or be asymptomatic [2]. Diagnosis involves documenting a widely dilated internal cervical Os, premenstrual hystrocervicography (US) and transvaginal ultrasound [1]. Nonsurgical treatments like bed rest and pelvic rest are ineffective, while a vaginal pessary may be considered. Surgical options include transvaginal and transabdominal cervical cerclage, with the McDonald and modified Shirodkar procedures being common [6].

**McDonald cervical cerclage:** It was first introduced by Shirodkar in 1955 and then his technique was simplified by McDonald's in 1957, involves placing a non-absorbable suture high in the cervix using four or five bites of number 2 monofilament suture, with the knot placed anteriorly for easy removal. This procedure is preferred due to its simplicity, minimal complications, and the ability to remove the suture electively at 36-37 weeks of gestation or in case of preterm labour [6&7].

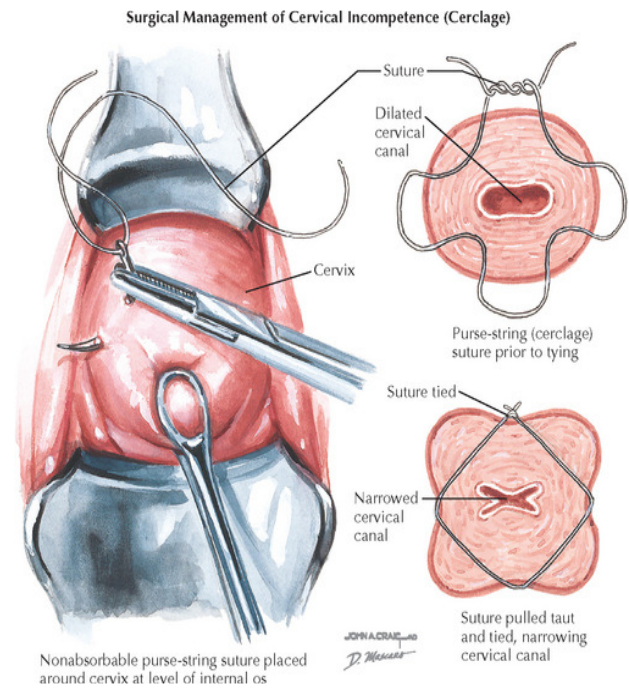


Fig .2: Surgical management of Cervical Incompetence (Cerclage)

#### CASE PRESENTATION:

A 21-year-old female patient presented to the Department of obstetrics and gynaecology (OBG) at Sri Balaji Medical College, Hospital and Research Institute, Renigunta, Tirupati, with Chief Complaints of abdominal cramps, lower back pain and a feeling of pressure in pelvis. She was in the second trimester of pregnancy and had no significant past medical or surgical history. There was no reported history of vaginal bleeding, leakage of amniotic fluid or fever.

#### Clinical Examination:

On physical examination, the patient was hemodynamically stable with normal vital signs. Speculum examination showed bulging membranes in vagina and it was also noted that there was no rupture of membranes or leaking of amniotic fluid vaginally.

#### Diagnostic Investigations:

Laboratory investigations, including complete blood count (CBC), urine analysis and serum electrolyte levels, were within normal limits. Viral markers were also unremarkable. An Ultrasound

(USG) was performed, which confirmed cervical shortening with premature cervical dilation, indicative of cervical insufficiency. A vaginal swab for culture and sensitivity was taken and a gentle bimanual vaginal (PV) examination was done where it was found that the Os was 4cm dilated and membranes were bulging till Os.



Fig 3A:  
Dilated cervix with bulging membrane till Os before Cerclage.

3B: After placing a suture close to the Os after cerclage

After explaining to the patient about the possibility of preterm labour, rupture of membranes and poor outcome of pregnancy, decision for cervical cerclage was taken with patient's consent.

#### **Treatment:**

##### **Pre-Operative Care**

The patient was admitted and prepared for cervical cerclage. She was administered intravenous antibiotics for infection prophylaxis, anti-emetics

to prevent nausea, Proton pump inhibitors (PPIs) to reduce gastric acid secretion and progesterin hormone supplementation was initiated to support pregnancy maintenance. Spinal anaesthesia was administered prior to the procedure.

A **McDonald cervical cerclage** was performed under spinal anaesthesia, with a purse-string suture placed around the cervix at the internal Os and secured without excessive tightness.

##### **Post-Operative Care**

The patient was closely monitored and continued on intravenous antibiotics, laxatives to prevent constipation or to reduce strain and progesterone supplementations. She has minimal pain at the surgical site that was well-controlled with analgesics. She was discharged from the hospital on the fifth postoperative day with discharge medications, which included oral antibiotics, analgesics, progesterone supplements and multivitamins.

##### **Outcome & Follow Up:**

The procedure was successfully completed without complications. The patient was advised bed rest as needed and regular antenatal check-ups. Serial ultrasounds were planned to monitor cervical length and foetal well-being. The cerclage would be removed at 36-37 weeks of gestation or earlier if labour ensued. She was instructed to report immediately in case of vaginal bleeding, fluid leakage, contractions or fever.

##### **DISCUSSION:**

Cervical insufficiency is a significant contributor to second-trimester pregnancy losses and preterm births, often diagnosed based on clinical presentation and ultrasound findings. In this case, a 21-year-old patient presented with symptoms of lower abdominal pain and pelvic pressure with ultrasound confirming cervical shortening and premature dilation, necessitating a McDonald cervical cerclage was performed under spinal anaesthesia to prevent preterm labour or reinforce cervical integrity. Preoperative management included antibiotics, progesterone supplementation, and gastrointestinal protection, while postoperative care focused on infection prevention, pain control,

and pregnancy support. The patient recovered well, was discharged on the fifth postoperative day with appropriate medications and was advised on strict follow-up. Regular antenatal monitoring, including serial ultrasounds was planned to ensure foetal well-being and timely cerclage removal at term. Early diagnosis and timely intervention with cerclage play a crucial role in prolonging pregnancy and improving foetal outcomes and emphasizing the importance of individualized management.

#### **CONCLUSION:**

This case highlights the successful management of cervical insufficiency through timely diagnosis and McDonald cervical cerclage, preventing pregnancy loss and improving foetal viability. With appropriate preoperative and postoperative care, the patient had a favourable outcome, emphasizing the effectiveness of cerclage in prolonging gestation. Regular antenatal monitoring and patient education remain essential to ensure maternal and foetal well-being. Early identification and intervention in high-risk pregnancies can significantly reduce the incidence of preterm birth and associated complications.

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