

Life-Saving Procedure Cervical Cleavage Protects Precious Pregnancies in Particular

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Abstract:

Cervical incompetency is a condition when the cervix of the uterus opens too early during pregnancy without pain or contractions. Main Causes of this condition are a) genetic- born with a weak or differently shaped uterus, b) connective tissue disorders, c) Injury from a previous birth and d) past surgery on the cervix. The condition is diagnosed by an ultrasound test to check the length of the cervix. The problem is fixed conservatively first by giving Progesterone to help keep the uterus calm, close monitoring, of all high-risk pregnancies. If that fails a small stitch put in the cervix to keep it closed until the fetus is 37 weeks old.

Pregnancies of women in their mid-30s brings, or any uterine problems like septate uterus unique social and emotional advantages like emotional maturity and financial stability, alongside important biological considerations regarding fertility decline and health risks that require mindful medical tracking and prenatal care. Having a baby through IVF in mid-30s helps beat natural fertility decline. Egg quality and quantity drop fast after age 35. IVF increases the chances of getting pregnant. Women aged 35 to 37 have higher live birth rates with IVF than older age groups

This problem usually manifests in the second trimester. It can lead to early birth or loss of the baby. Common Signs include mild pelvic pressure, low back pain, cramps in the belly, change in vaginal discharge, light spotting.

Materials and Methods: This article tries to address the problem of Cervical incompetency management through two precious cases of pregnancies. The most recent one, a rare case in New Delhi, India, an IVF twin pregnancy where the first twin was delivered following early cervical dilation at 19 weeks. An emergency cervical cerclage combined with high cord ligation and antibiotics allowed the remaining twin's pregnancy to successfully continue for over 17 weeks, culminating in a delivery past viability in a lady who continued the pregnancy and delivered through cesarean section in 37th week. The second case is also precious as the primigravida was lost due to septal uterus and cervical incompetence in early second trimester, followed by Cervical cleavage, conceiving delivering after about 18 months.

Keywords and Abbreviations:: Septate uterus, CI= Cervical incompetency, MicroTSE = Microsurgical Testicular Sperm Extraction, ICSI= intracytoplasmic sperm injection, IVF=

Introduction

Pregnancy refers to a time when a woman has fetus (one or multiple) developing in uterus. It most often happens after sexual intercourse, but it can also happen through assisted reproductive technologies (ARTs). A "precious pregnancy" is a medical and emotional term for a pregnancy that is heavily anticipated, achieved after a long struggle with infertility, or conceived via fertility treatments like IVF [2]. It also involves uterine problems like septate uterus, bicornuate uterus, uterine fibroids, endometrial polyps etc., cervical incompetency, advanced maternal age, higher medical risks like diabetes or pregnancy induced hypertension, & severe anemia needing extra specialized monitoring and management [3]. There is also higher likelihood of premature birth or needing a C-section delivery. Managing demands scheduled prenatal screenings & tests to identify adverse health conditions early.

Cervical incompetency is a condition when the cervix of the uterus opens too early during pregnancy without pain or contractions. This problem usually starts in the second trimester. It can lead to early birth or loss of the baby. Common Signs include mild pelvic pressure, low back pain, cramps in the belly, change in vaginal discharge, light spotting. Main Causes of this condition are a) genetic- born with a weak or differently shaped uterus, b) connective tissue disorders, c) Injury from a previous birth and d) past surgery on the cervix. The condition is diagnosed by an ultrasound test to check the length of the cervix. It is fixed by a small stitch put in the cervix to keep it closed. Progesterone is given to help keep the uterus calm, close monitoring, and regular visits with a high-risk pregnancy [3,4,5,6,7].

Pregnancy in a woman's mid-30s brings unique social and emotional advantages like emotional maturity and financial stability, alongside important biological considerations regarding fertility decline and health

risks that require mindful medical tracking and prenatal care. Having a baby through IVF in mid-30s helps beat natural fertility decline. Women aged 35 to 37 have higher live birth rates with IVF than older women in their 40s. IVF cuts down the months of trying to get pregnant naturally. IVF twins most often result from the transfer of multiple embryos into the uterus, giving the couple double joy, just a miracle. IVF and other advanced fertility treatments make up under 2% of total overall annual births (25 million) out of a total 28 million pregnancies in 2026 in India. Assisted reproduction accounts for a vastly higher share about 30% to 40% of all multiple births nationwide due to multi-embryo transfers, a precautionary practice by the IVF centers in India.

This article is based on two precious case reports, one very rare, almost like a miracle as the first baby of IVF twins at 19 weeks of pregnancy in January 2026 due to CI followed by cervical cleavage and continuation of the pregnancy leading to the second live birth through cesarean section 127 days after in May 2026. The second baby was also precious as the mother had both septal uterus and cervical incompetence during primigravida that had to be terminated, following cervical cleavage and septal resection was done and she delivered the second gravida to a baby- girl in August 2025.

Case Report:

Case 1 in Delhi: A woman aged 34 years with pregnancy of 19 weeks through IVF was brought to a private hospital in Delhi with severe lower abdominal pain [9]. An ultrasound showed that her cervix was opening too early. Her history revealed that her pregnancy had taken years to achieve as her husband was cancer survivor and chemotherapy had reduced his sperm count. The couple had undergone Micro-TESE, a surgical procedure to retrieve sperm from the testicles, followed by ICSI where a single sperm was injected directly into an ovum. The twins were Monozygotic where one embryo splits into two, which happens slightly more often in IVF than in natural pregnancy after long and difficult journeys.

By the time woman reached the hospital, labour had started. In such cases most gynecologists place a vaginal stitch at the external opening of the cervix. When the dilatation is progressed as was in this case vaginal stitch fails. The correct place to halt early labour is internal OS of the cervix, which can be reached either by Laparoscopy or Laparotomy or opening the abdomen. The Gynecologist decided to do Laparoscopic Cerclage which is stitching the cervix to prevent it from opening too early.

Procedure: Under general anesthesia the first twin was delivered prematurely as it had no life. The placentas did not separate and removing it would have triggered labour and risked the life of the other twin. The umbilical cord of the deceased twin was tied, left the placenta inside and did cerclage. The stitch held and labour stopped. The patient stayed in the hospital for a month, receiving appropriate antibiotics and monitoring. After discharge also she had blood tests & ultrasound every fortnight. The pregnancy slowly stabilized & retained placenta began functioning normally for the surviving twins, until completion of 37 weeks. In May 2025 the cervical cerclage was removed around the 37th week of pregnancy & she delivered a healthy baby girl weighing 3.27 Kg by cesarean section, both mother and Baby went home healthy. Today the girl is about a year old and healthy.

Case 2: Ms. Shilpa, aged about 28 yrs., gave a pleasant message saying she was pregnant, completing 14 weeks on 19 October 2023. She and her husband Kiran were classmates in MPH course and had become very close to this author during 2020-2022. In the first scanning a septate uterus was identified and placenta was lying low, therefore classified as high-risk pregnancy. It was being managed conservatively with close antenatal monitoring. Then she had spotting after a week. Another scan on 22 November identified Cervical incompetence and single umbilical artery were

diagnosed, for which she was given a cervical stitch on 22 November. During the cervical Cerclage surgeon found a membrane tear and mild leakage of amniotic fluid and were told that saving baby had hardly 50% chance. Anyway, stitch was put in, but for the next 2 days there was continued leakage despite being on antibiotics and full bedrest. Finally, a scan on 24th November showed no amniotic fluid and placenta previa with no chance of survival of the bay, as the heartbeat was very weak. Therefore, an MTP was done on 7 December 2023, and a surgical correction via Hysteroscopic Septal Resection. Fortunately, she became pregnant in late 2024 and gave birth to a baby girl in August 2025 without thanks to the Cervical Cerclage done in 2023 without any problem and baby would be celebrating first birthday on 25th August 2026.

Discussions:

Human pregnancy lasts about 40 weeks (280 days) from the last menstrual period and is divided into three trimesters. Parturition (childbirth) is the active process of delivering the foetus and placenta, triggered by complex hormonal signals between the mother, foetus, and placenta. First Trimester of pregnancy (Weeks 1–13) includes fertilization, implantation of the blastocyst, organogenesis, and high human chorionic gonadotropin (hCG) levels. Second Trimester (Weeks 14–27) involves rapid growth, refinement of organ systems, and active movement felt by the mother. Third Trimester (Weeks 28–40): Maximum foetal weight gain, maturation of the respiratory system, and preparation for birth. Hormonal Regulation of Pregnancy involve a) Progesterone, which keeps the uterine muscle relaxed and quiet during gestation b) Oestrogen counters progesterone late in pregnancy to increase uterine sensitivity c) Placenta Secrete hormones like hCG, human placental lactogen (hPL), relaxin, and oestrogens to support foetal growth and maternal metabolic adaptation.

The Process of Parturition (Labor) includes i) Initiation: Foetal cortisol & placental oestrogen rise while progesterone declines, stimulating prostaglandins and oxytocin receptors ii) First Stage (Cervical Dilatation): Regular uterine contractions start; the cervix thins (effacement) and opens fully to 10 cm iii) Second Stage (Expulsion): Strong maternal pushing & uterine contractions move the foetus through the birth canal for delivery iv) Third Stage (Placental): Uterine contractions continue briefly to separate and expel the placenta (afterbirth)

Some women have unusually weak cervix which may not be able to properly hold a baby in place during pregnancy. This is called an incompetent cervix or cervical insufficiency. Having an incompetent cervix can cause a woman to go into early labour, posing a risk or even fatal for the baby. A premature opening of the internal os of the cervix, leads to further dilatation and causes uterine activity leading to miscarriage or premature delivery.

Certain structural and tissue problems present from birth or developing later in life, like Congenital Septate uterus, Bicornuate or unicornuate uterus, Submucosal fibroids disrupt the womb or endometrium, Intrauterine adhesions and Endometrial polyps disrupt the main function of the uterus and contribute to second-trimester losses or recurrent miscarriages. Such problems too are identified only during first pregnancy through first trimester scans and give a scope to save precious babies.

Indian demography in 2026 indicates that Estimated a) Total Population: ~1.46 to 1.47 billion, b) Total Fertility Rate (TFR): 1.9 births per woman, c) Estimated Crude Birth Rate: ~16.35 annual live births per 1,000 population d) Annual Live Births: ~24 million to 25 million newborns e) Total Pregnancies: ~28 million to 30 million (factoring in standard pregnancy wastage & loss ratios of 10%, i.e. first- & second-trimester miscarriages roughly 7% + 3% MTPs) [10]

Though pregnancies in mid-30's has benefits and Advantages of financial stability, due to better career establishment which provides a secure

environment for a child. The parents too have greater patience, life experience, and preparedness to support mindful parenting. Pregnancies at this stage are usually well-planned and deeply desired.

In India, the chance of having twins with IVF is roughly 25% to 30% if two or more embryos are transferred as some doctors do and if both embryos attach to the womb, fraternal twins occurring is the single biggest factor for twins. If doctors transfer only one embryo, the chance drops to under 2%. Few couple's request for a double embryo transfer, hoping to complete their family in one attempt or save money on repeat cycles, may also lead to twins. Rarely, a single transferred embryo splits inside the uterus after implantation (Monozygotic), due to advanced laboratory culture methods creating identical twins. Fertility drugs given before egg retrieval make the ovaries mature multiple eggs and IVF fertilizes them outside the body and putting back more than one created embryo drives the high twin's rate [8].

Cervical incompetence gives few warning signs. Severe cramping or lower belly pain, Vaginal bleeding, leaking fluid or your water breaking Fever or bad-smelling discharge as was in both of our cases. Many reach a hospital only after labour process has advanced as was in both cases. Women with second semester loss, preterm labour, IVF pregnancies or twin gestations should have cervical length scans every two weeks from 12 week onwards. A vaginal swab to check for infections is also recommended in high-risk cases.

Cervical Cleavage surgery: Cervical cerclage or cervical stitch is a treatment used during pregnancy to sew the cervix shut with a strong stitch or band, between 11 & 24 weeks of pregnancy to prevent pregnancy loss / early birth in women with a weak or short cervix [7].



Shirodkar Cerclage: with this method the stitching is done in the walls of the cervix rather than the opening. This is a more difficult procedure compared to the traditional McDonald method, but the deeper level of the sutures is believed to reduce the risk of infection. This is permanent & will be in for all future pregnancies. The original technique is described below:

1. A strip of fascia lata 1/4 inch wide and 4 1/2 inches long, is removed from the outer side of the thigh, and each end of this strip is transfixed with a linen suture.
2. The cervix is pulled down, a transverse incision is made above the cervix as in anterior colporrhaphy, and the bladder is pushed well up above the internal os.
3. The cervix is then pulled forward, toward the symphysis pubis, and a vertical incision is made in the posterior vaginal wall, again at and above the internal os, going only through the vaginal wall.

Cervical cerclage is surgical procedure in which stitches or surgical tape are used to close the cervix opening. It is a common treatment for cervical incompetency and helps to ensure that the baby stays in the uterus for the appropriate amount of time. The cervical cerclage will keep the cervix closed until around 37-38 weeks of pregnancy, when the doctor will remove the cerclage and allow labor to naturally begin.

Types of Procedure: 1. Transvaginal Cerclage: The most common method. The doctor places the stitch through the vagina using a speculum. 2. Transabdominal Cerclage: A less common method. The doctor places a band high around the cervix through an incision in the abdomen or Laparoscopic approach. Three types of cervical cerclage procedures in India are:

McDonald Cerclage: This is by far the most common type of cervical cerclage. The cervical opening is cinched shut with traditional surgical stitching between 16 to 18 weeks and the stitch is removed around week 37.

Procedure: The bladder having been emptied, the cervix is exposed and grasped by Allis' or Babcock forceps. A purse string suture of No. 4 Mersilk on a Mayo needle is inserted around the exo-cervix as high as possible to approximate to the level of the internal os. This is at the junction of the rugose vagina and smooth cervix. Five or six bites with the needle are made, with special attention to the stitches behind the cervix. These are difficult to insert and must be deep. The stitch is pulled tight enough to close the internal os, the knot being made in front of the cervix and the end left long enough to facilitate subsequent division.



4. Through the right and left corner of the anterior incision an aneurysm needle is passed between the cervix and the vaginal wall until its eye comes out of the posterior incision.

5. The linen attached to each end of the fascia is passed through the eye of the aneurysm needle, and the right end of the fascia is pulled retro-vaginally forward into the anterior incision. The same thing is done from the left side.

Abdomen Cerclage: the cervix is stitched shut at the very top of the cervical opening (internal OS) as was done in our first case). This method is permanent and is usually only done in cases where conventional cerclage methods are not viable. This procedure is often indicated because doing the cerclage vaginally is difficult because of the degree of funneling, cervical dilatation or effacement. This type is chosen, if a prior cervical cerclage had failed.

Cervical cerclage places a stitch at the right anatomical level and usually allows women to continue normal activity with fewer restrictions. Elevating foot end of the bed or strict bed rest is advocated unlike in vaginal cerclage is not required. Most such women can work from home or even take light tasks with a long rest after lunch.

Resting for a few days to a week or more depending on individual risk is advised. Patients must avoid sexual intercourse, tampons, and heavy lifting. The stitch is usually cut and removed around 36 to 37 weeks of pregnancy so that patients can deliver safely. Transabdominal stitches are left in place, requiring a C-section for delivery.

Cervical cerclage is usually performed during the third month of pregnancy, or between 12-14 weeks. Early detection of the problem is key to preventing further issues later in the pregnancy. Some women may need a cervical cerclage later in pregnancy due to a sudden problem of the cervix shortening or opening, called as emergent cerclage. If a woman ends up needing an emergent cerclage, this is usually a sign that future pregnancies will face the same problem.

Laparoscopic cervical cerclage: Laparoscopic cervical cerclage is a minimally invasive surgery where a non-absorbable stitch is placed around the top of the cervix to prevent second-trimester miscarriages or premature birth caused by a weak cervix. This surgery is done in cases of failed vaginal cerclage, or when a standard vaginal stitch did not work in past pregnancies or when the cervix is too short, scarred, or damaged from prior procedures. Key Steps of the Procedure Anesthesia: a) Performed using general anesthesia b) Small incisions (ports) are made in the abdomen for a camera and fine tools iii) The tissue near the bladder and uterine blood vessels is gently moved to expose Isthmus- the lower part of the uterus, iv) A strong, non-absorbable tape or suture is tied securely around the upper cervix. Most patients go home within 24 to 48 hours and resume light activities within a few days. Delivery later in pregnancy requires a C-section as was in our Delhi case report [11]

In few cases, there could be some side effects that range from mild to severe such as i) Premature contractions leading to miscarriage or labour ii) Vaginal bleeding iii) Cervical dystocia, or the cervix's inability to dilate properly during labor iv) Rupture of membranes v) Cervical infection as indicated by Foul smelling vaginal discharge and high fever vi) Cervical laceration vii) Nausea and vomiting from anesthesia

Summary:

Some women are known to have what's called an incompetent cervix or cervical insufficiency). This means that a woman's cervix is unusually weak and may not be able to properly hold a baby in place during pregnancy. Having an incompetent cervix can cause a woman to go into early labor, which can be risky or even fatal for the baby. In such patients there is a

premature opening of the cervix's internal os and causes uterine activity, leading to miscarriage in early second semester or premature birth.

A more conservative approach opted initially in such patients would involve bedrest in supine position at a slight incline with her feet elevated.

Cervical cerclage is surgical procedure in which stitches or surgical tape are used to close the cervix opening. It is a common treatment for cervical incompetency and helps to ensure that the baby stays in the uterus until around 37-38 weeks of pregnancy, when the cerclage is removed and allows labor to naturally begin. An abdominal cerclage is also an option to treat cervical insufficiency. This procedure is standard treatment for women with an incompetent cervix with success rates of 80-90% and rarely has any type of complications.

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