IN THE NAME OF GOD

CERCLAGE

Cerclage

- Dx before pregnancy
- Indications
- Double /single Cerclage
- Tocolytics
- Antibiotics
- **PPROM**
- Activity restriction
- Future pregnancies following cerclage

Cervical Insufficiency

- The **ACOG** defines as :
- "the inability of the uterine Cx to retain a pregnancy in the 2nd **trimester** in the **absence** of clinical contractions, labor, or both.

Causes of 2nd trimester Loss

Structural cervical weakness is the likely cause of many **recurrent** 2nd trimester losses, but it probably accounts for only a **minor proportion** of all 2nd-trimester losses.

The **majority** of these cases are probably caused by other disorders, such as**Decidual inflammation/infection**

Placental bleeding

Uterine over distension

These disorders can **initiate biochemical changes** in the Cx that lead to premature **cervical shortening** and often a **single (non recurrent)** 2nd-trimester loss.

... Continue **Causes of 2nd trimester Loss**

Cervical Insufficiency

- Either **congenital** or as a result of **trauma**, are a risk factor for structural cervical weakness and, in turn, recurrent cervical insufficiency.

- ***Truma*** may result from labor or delivery (spontaneous, forceps or vacuum assisted, cesarean) , rapid mechanical cervical dilation before a gynecologic procedure, or treatment of cervical intraepithelial neoplasia.

- ***Congenital abnormalities*** that have been associated with structural cervical weakness include genetic disorders affecting collagen (Ehlers-Danlos syndrome) , uterine anomalies, in utero DES exposure, and biologic variation.

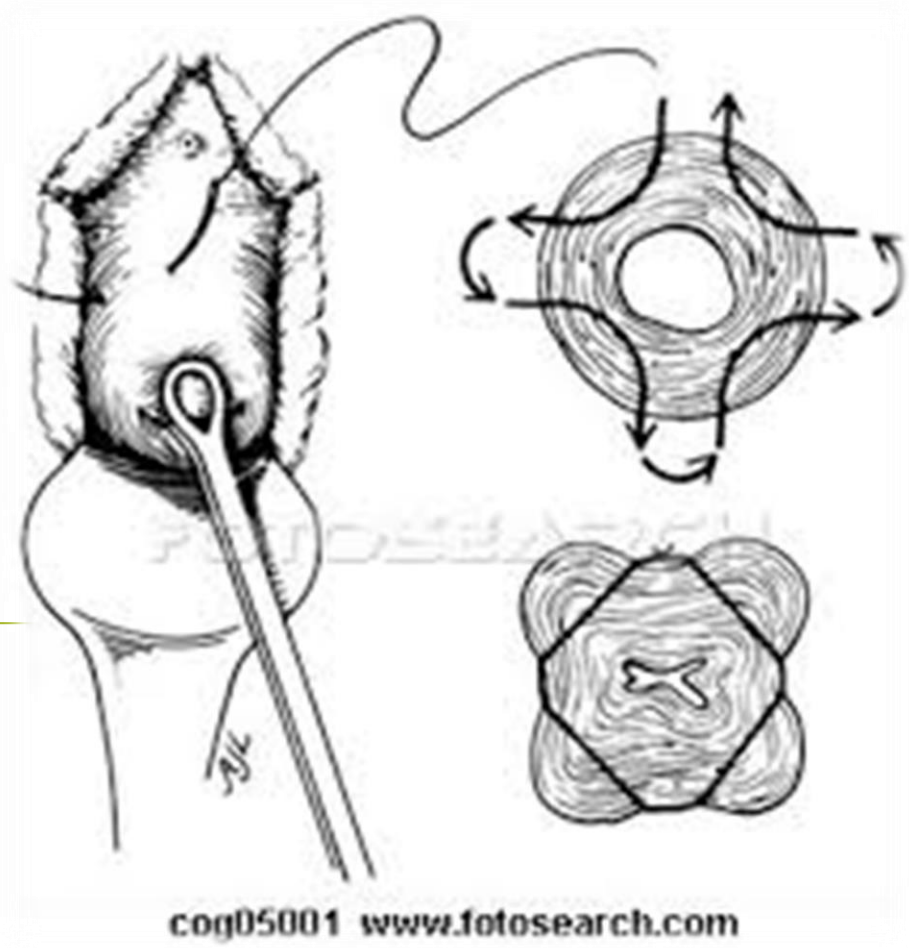
Diagnosis
Cervical Insufficiency

- The **transvaginal ultrasound** CL is typically short ≤25 mm, and debris (sludge [fetal squames, vernix, leukocytes, bacteria] or biofilm) may be seen in the amniotic fluid.
- If **serial ultrasound examinations** have been performed, a decrease in CL over time may be noted.

Treatment

- **Cervical cerclage** has been the treatment of **choice** for patients with presumed weakness of the Cx.

CERVICAL CERCLAGE



- There are four main indications for cerclage

- 1. *History-Indicated Cerclage.*
- *2. Ultrasound-Indicated Cerclage.*
- *3. Physical Examination–Indicated Cerclage.*
- *4. Transabdominal Cerclage*

HISTORY-INDICATED CERCLAGE

History-Indicated Cerclage

.Cervical insufficiency in women with a classic history of 2 consecutive prior 2nd-trimester pregnancy losses <28 wks. Mostly losses <24 wks.

Challenges to making this diagnosis are that the relevant findings in the prior pregnancy are often not well-documented in medical records and the patient's recounting of events may not provide adequate information; It is often a **subjective assessment**.

……Continue of History-Indicated Cerclage

- In a **meta-analysis** of singleton gestations with a **prior spontaneous PTB,** TVU screening of CL with the option of cerclage if the CL became less than 25 mm < 24 wks was ***compared*** with **routine placement** of history-indicated cerclage; **outcomes were similar**. Short Cx was detected by TVU screening in only about **40%** of singleton with a prior early PTB, thus avoiding cerclage in the **60% who did not manifest** short Cx.

……Continue of History-Indicated Cerclage

Based on trials of the efficacy of **cerclage indicated by history alone**, we limit consideration to women with either of the following:

- 1. Multiple prior 2nd-trimester (14 - 28 wks) pregnancy losses, **when risk factors for cervical insufficiency** are present and other differential diagnoses have been ruled out .

- 2. A prior singleton pregnancy with a short cervix (<25 mm) < 24 wks that led to **PTB at < 32 wks even with cerclage** when **risk factors** for cervical insufficiency are present and other differential diagnoses have been ruled out.

BOX 41.4 CERVICAL INSUFFICIENCY: RISK FACTORS

ACQUIRED

- Cervical laceration or obstetric injury
- Cervical instrumentation
- Dilation and evacuation (D&E)
- Dilation and curettage (D&C)
- Elective abortion
- Loop electrosurgical excision procedure (LEEP)
- Cold-knife conization
- Laser conization
- Hysteroscopy
- Prior second-trimester birth (at <28 weeks)

CONGENITAL

- Collagen disorders (e.g., Ehlers-Danlos)
- Uterine anomalies
- In utero exposure to diethylstilbestrol (DES)

BOX 41.5 CERVICAL INSUFFICIENCY: DIFFERENTIAL DIAGNOSIS

- Maternal or fetal infection
- Uterine distention (e.g., hydramnios, multiple gestation)
- Bleeding or placental disease
- Other fetal disease associated with preterm birth (e.g., structural or karyotypic anomaly)
- Other maternal disease associated with preterm birth (e.g., poorly controlled diabetes)

These disorders precede cervical changes.

ULTRASOUND-INDICATED CERCLAGE

Ultrasound-Indicated Cerclage

- In **asymptomatic** women with a **past history of a preterm** and those in whom a history-based diagnosis is uncertain, perform serial TVU examinations and make a diagnosis of cervical insufficiency when CL is **≤ 25** mm < 24 wks .

Additional evaluation should be excluded

- Labor by tocodynamometry.
- Infection by U/A,U/C
- Abruption placenta by physical examination
- Bleeding, placenta Previa by ultrasound examination
- as above disorders could account for biochemically mediated cervical ripening leading to 2nd-trimester loss or PTB independent of structural cervical weakness.

TVU Monitoring

- Therefore TVU screening for CL in women with singleton who had prior SPTB , starting at about **16 wks every 1 - 2 wks until 23** wks, is suggested so that cerclage can be offered to those who develop a CL of < 25 mm despite progesterone prophylaxis.
- TVU screening is discontinued at 24 wks , as cerclage is rarely performed after this time.

… Ultrasound-Indicated Cerclage

Singletons Without a Prior PTB

- Ultrasound-indicated cerclage has not been shown to be beneficial in singleton when a short Cx was identified < 24 wks' but there **was no prior PTB** .

- A meta-analysis of singleton pregnancies screened CL , found to have a short C x, and randomly assigned to **cerclage or no cerclage** showed a **nonsignificant** (24%) reduction in PTB at < 35 wks in the cerclage group if the patients **had no risk factors** for PTB , compared with 33% in the group without cerclage .

….Singletons Without a Prior PTB

- An observational study reported that women with progressive **cervical shortening to <10 mm** despite **vaginal progesterone** benefited from cerclage placement: mean gestational age at delivery with cerclage was 34+3 weeks versus 27+2 weeks with progesterone alone.

Cervical Length cutoffs for cerclage

- Benefit from cerclage was seen at all **cervical length cutoffs** between 0 and 24 mm

TRANSABDOMINAL-INDICATED CERCLAGE

Transabdominal-Indicated cerclage

- May be indicated in the setting of a prior history-indicated cerclage that resulted in PTB at < 33 wks.
- Extremely short or absent cervix, amputated cervix, marked cervical scarring, or cervical defect.
- Higher rate of serious operative complications, such as need for transfusion or organ injury by TA cerclage.

CONTRAINDICATIONS

- Contraindications to transabdominal cerclage are similar to those for transvaginal cervical cerclage.
- The presence of fetal membranes prolapsing through the external cervical os is a relative contraindication because the risk of iatrogenic rupture of the membranes in this setting may exceed 50 percent
- Placenta previa on ultrasound examination is not an absolute contraindication to cerclage placement; whether it decreases the risk of bleeding is controversial

APPROACH TO PATIENTS PRESENTING PRECONCEPTION

- No randomized trials have compared outcomes with preconception versus postconception cerclage. A review of 14 studies of abdominal cerclage published between 1990 and 2013 and involving a total of 678 patients reported live birth rates were similar whether abdominal cerclage was performed before or during pregnancy [13]. In a subsequent study of 161 consecutive women who underwent preconceptual or first-trimester transabdominal cerclage, preconceptual cerclage was associated with more successful pregnancies >34 weeks (90 versus 74 percent) and fewer serious surgical complications (bladder injury, bleeding >500 mL; 0/96 versus 34/65)

APPROACH TO PATIENTS PRESENTING IN EARLY PREGNANCY

- In patients presenting in early pregnancy, a transabdominal cerclage should be placed in the late first trimester to early second trimester as the risk of miscarriage is lower than earlier in gestation.
- Due to the size of the uterus, it is challenging to perform the procedure laparoscopically after 14 to 15 weeks of gestation

Can cervical insufficiency be diagnosed before pregnancy?

- The diagnosis of cervical insufficiency cannot be made or excluded in non pregnant women by any test.
- Evaluation of cervical function with dilators, balloons, or hysteroscopy is not helpful.
- Ultrasound, MRI, or hysterosalpingography **may reveal a uterine anomaly, which is a risk factor** for cervical insufficiency, but is not diagnostic.

Multifetal pregnancy

- **Cerclage is not indicated in multiple gestations**, given that the body of evidence shows no improvement in pregnancy outcome compared with appropriate controls without cerclage.

Time of Cerclage Placement

- **History-indicated cerclage—** suggest cerclage placement at 12 to 14 wks in women with this diagnosis.

- At 16 wks , also begin hydroxyprogesterone caproate wkly and continues it until 36 wks .

However

- Use of hydroxyprogesterone caproate in women with a history of **pregnancy losses < 20 wks** is neither well supported nor refuted by available data.

....Time of Cerclage Placement

Ultrasound-indicated cerclage

- Placement cerclage in women with one prior SPTB and CL ≤ 25 mm <24 wks in the current pregnancy.
- Women with a prior SPTB are prescribed **hydroxyprogesterone caproate** beginning at **16 - 20** wks (before or after cerclage placement) and continued through **36 wks**.

However

- **Continuation of** hydroxyprogesterone caproate in this setting is **neither well supported nor refuted** by available data.

PHYSICAL EXAMINATION-INDICATED CERCLAGE.

Physical Examination–Indicated Cerclage.

- Rarely, a woman presents <24 wks with minimal or no symptoms and speculum or digital examination reveals **cervical dilation of 1 to 4 cm**. Occasionally, such a finding follows the identification of a very short cervix (<5 mm) detected by TVU.
- **Placement of a cerclage** when a dilated cervix and visible membranes are detected on digital examination <24 wks appeared to prolong pregnancy by **about 1 month and to improve** pregnancy outcome, compared with expectant management.

Check for Infection

- Considering amniocentesis to check for infection in women with visible membranes and no clinical signs of infection, especially when the cervix is **dilated ≥2 cm**, **or** when there are **ultrasound findings** suggestive of inflammation:
- Membrane edema
- Separation of membranes from the decidua
- Debris (sludge) in the amniotic fluid.

Cerclage can be considered in these women only in the absence of infection, labor, and vaginal bleeding.

Common Consideration during Cerclage placement (up to date)

- Administer **Indomethacin** (usually 50 mg po Q6 hrs/48 hrs total, starting before the cerclage) and **antibiotics** (usually **one** dose of cefazolin 1 - 2 g IV pre-op /≤ 100 kg).
- The author's practice is to continue **hydroxyprogesterone caproate** post-cerclage in patients who had been on the **drug pre-cerclage** because of a previous PTB .
- For patients with **no history** of PTB, begin **vaginal progesterone** post-cerclage.
- We do **not follow** cervical length with ultrasound after cerclage placement, as the findings would not lead to a change in management.

Recommendation

- According to current recommendations from the ACOG and the Maternal-Fetal Medicine, **all women** with a **history of SPTB** should be offered **progesterone prophylaxis**, regardless of CL. **Cerclage** is beneficial in these women if sonographic short cervix **(<25 mm)** develops.
- A recent meta-analysis involving 169 singleton gestations with a prior SPTB and a CL of ≤ 25 mm, **most < 25 wks** , revealed that **vaginal progesterone** was associated with a **significant reduction in SPTB** at < 33 wks and in composite neonatal morbidity and mortality.

Double versus single cerclage for patients with recurrent loss

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Retention of cerclage after PPROM

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- Current evidence is insufficient to support the retention of cervical cerclage after the occurrence of PPROM

- The presence of fetal **membranes prolapsing** through the external cervical os is a relative contraindication to the procedure because the risk of iatrogenic ROM in this setting may exceed 50% .

- Evidence of **placenta previa** on ultrasound is not an absolute contraindication to cerclage placement.

Behavioral Counseling

- We advise women with an **obstetric history-cerclage to continue their normal daily activities**, with no restrictions other than those given to healthy pregnant women.
- In women with an **TVS -based or physical examination cerclage**, we advise avoiding coitus. However there are inadequate data on the safety of coitus in women at risk for PTB or preterm cervical ripening . We advise these women **to continue their normal daily activities**, with no restrictions.
- **Activity restriction** in women with a short TVS cervical length has been associated with an **increase** in PTB compared with no activity restriction.


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Future pregnancies following cerclage

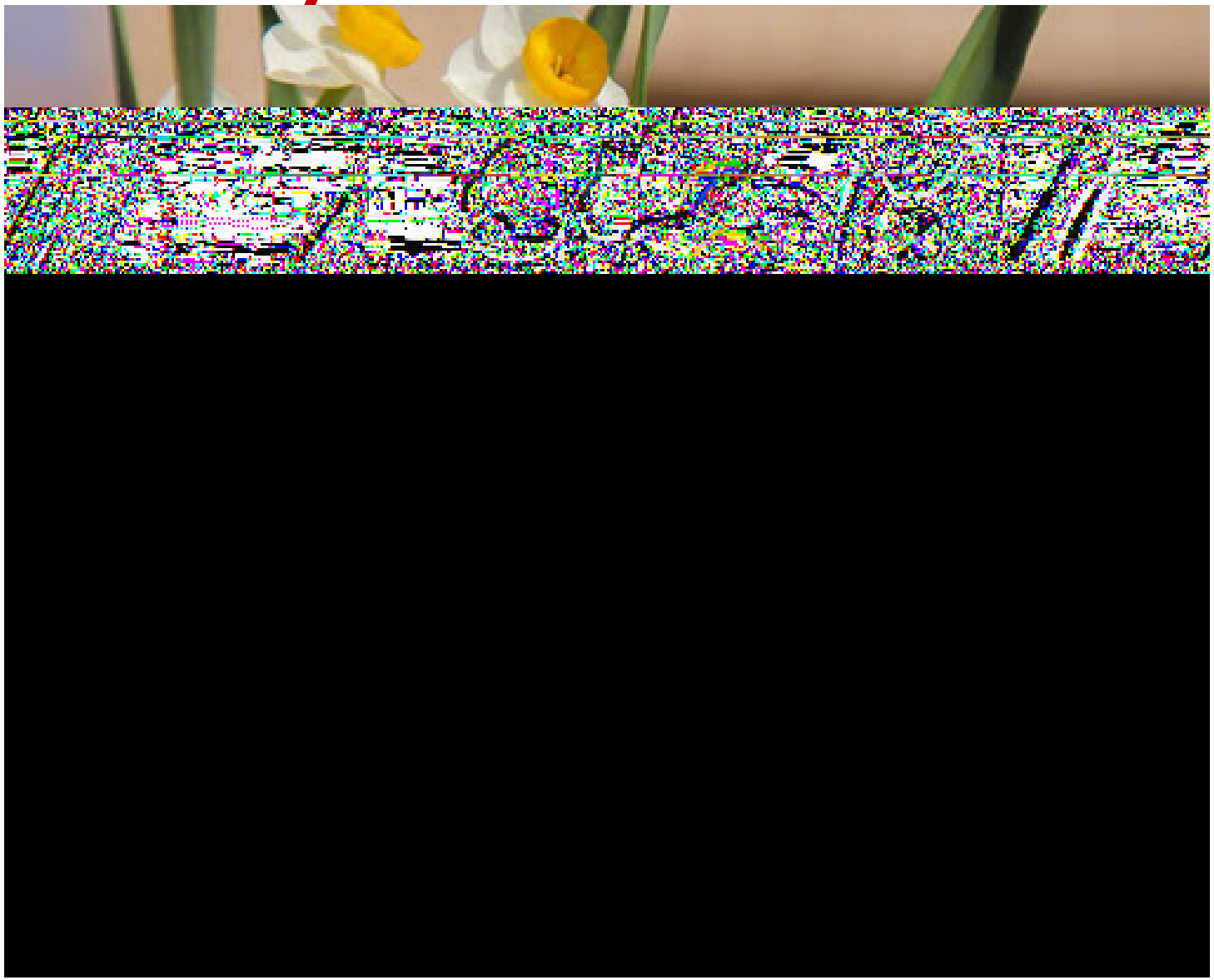
- **Prior successful obstetric history-indicated cerclage** – We usually **suggest repeat** history indicated cerclage for these patients.

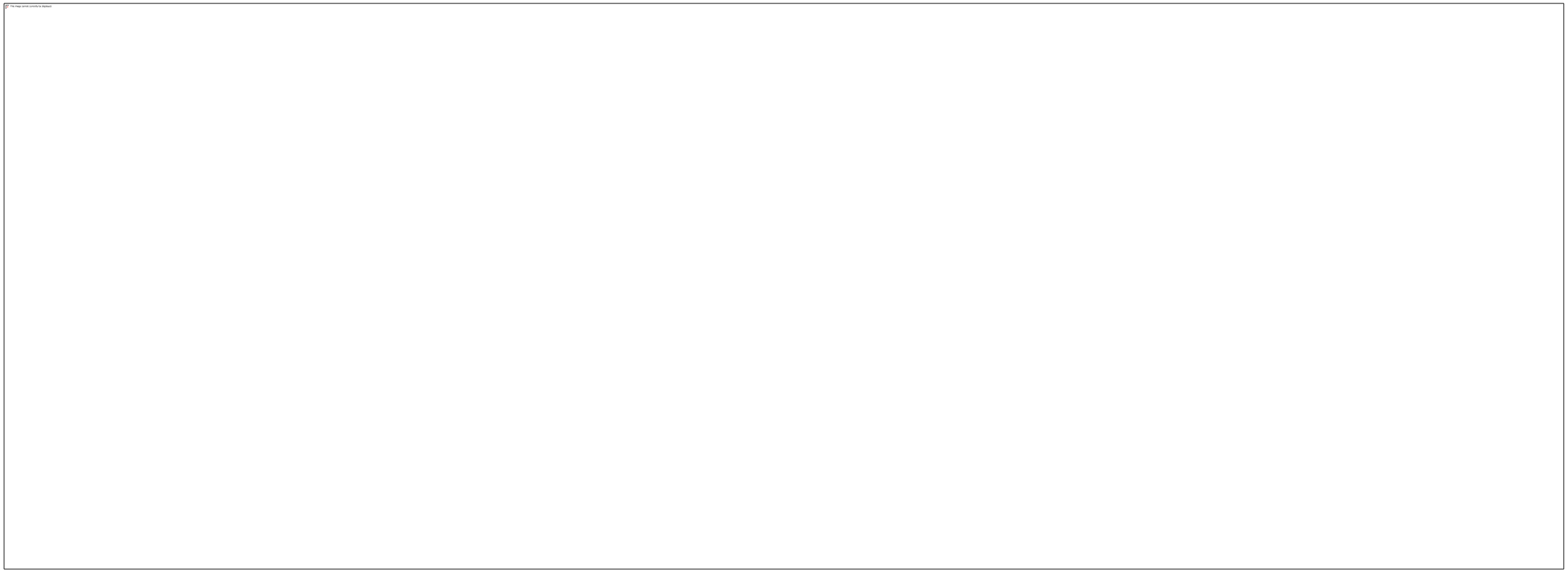
- **Prior successful ultrasound-indicated cerclage** – We suggest transvaginal ultrasound **cervical length screening** in future pregnancies for women who received an ultrasound-indicated cerclage in a prior pregnancy and had a successful outcome (delivery > 34 wks).

Prior Unsuccessful Cerclage

- **Prior unsuccessful obstetric-history indicated cerclage** We offer transabdominal or laparoscopic cervicoisthmic cerclage.
- **Prior unsuccessful ultrasound-indicated cerclage** – For women with a prior ultrasound indicated cerclage who went on to have an early PTB (<34 wks), we generally suggest vaginal cerclage at **12 to 14 wks** in the next pregnancy because these women always develop a short CL in subsequent pregnancies . If the cerclage is also unsuccessful, then we offer **transabdominal** or laparoscopic cervicoisthmic cerclage

Thank you for attention

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