

INCIDENCE OF INCOMPETENT CERVIX

Gestational Diseases and the Placenta

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Cervical Incompetence

Historical/Clinical Background

Cervical incompetence is a clinical diagnostic term that is synonymous with cervical insufficiency and is classically defined as recurrent second-trimester pregnancy loss following painless cervical dilatation, attributed to the inability of the cervix to retain the gestation.²⁸ Cervical incompetence can result from prior traumatic injury to the cervix associated with a prior delivery or previous surgery (e.g., conization, amputation), congenital uterine anomalies, such as those resulting from diethylstilbestrol (DES) exposure, or intrinsic deficiencies in cervical collagen and elastin.^{29,30} **The incidence of cervical insufficiency is estimated to be 1% of all pregnancies and as many as 20% of midsecond trimester spontaneous pregnancy losses.**³¹

From UpToDate

Prior unsuccessful outcome after cerclage

•**Prior unsuccessful obstetric-history indicated cerclage** – We offer transabdominal or laparoscopic cervicoisthmic cerclage to patients who fail to deliver a healthy newborn after placement of a history-indicated cerclage.

•**Prior unsuccessful ultrasound-indicated cerclage** – For patients with a prior ultrasound-indicated cerclage who went on to have an early spontaneous delivery (eg, <34 weeks), we generally suggest an obstetric history-indicated transvaginal cerclage at 12 to 14 weeks of gestation in the next pregnancy because these patients always develop a short CL in subsequent pregnancies [38]. If the obstetric history-indicated cerclage is also unsuccessful, then we offer transabdominal or laparoscopic cervicoisthmic cerclage in a subsequent pregnancy.

CANDIDATES FOR A TRANSABDOMINAL RATHER THAN A TRANSVAGINAL APPROACH

Criteria — The transabdominal approach is a more morbid procedure than the transvaginal approach, especially if laparotomy rather than laparoscopy is performed for placement, and a cesarean birth is generally required. Therefore, most experts recommend reserving the transabdominal approach for patients with cervical insufficiency who meet one (or both) of the following criteria:

•**Unable to undergo a transvaginal procedure** because an extremely short or absent cervix, amputated cervix, marked cervical scarring, or cervical defect makes it technically impossible to perform.

•**Failure to deliver a healthy newborn after at least one previous prophylactic transvaginal cerclage** (ie, history-indicated or ultrasound-indicated but not a physical examination-indicated cerclage [also called rescue or emergency cerclage]).

The technique (McDonald versus Shirodkar) used for the previous cerclage does not influence our decision. No compelling evidence indicates that, before resorting to a transabdominal

approach, a Shirodkar cerclage should be attempted in the pregnancy after a failed prophylactic McDonald cerclage.

The Society for Maternal-Fetal Medicine also recommends offering transabdominal cerclage placement to patients with a previous transvaginal cerclage (history or ultrasound indicated) that resulted in a subsequent spontaneous singleton birth before 28 weeks of gestation [1].

Evidence

•**Open approach** – In the above patient groups, several observational studies have reported that a transabdominal approach was associated with better birth outcomes than the transvaginal approach, thus justifying its higher morbidity [2-4].

The only randomized trial comparing the two approaches in 111 patients with a failed vaginal cerclage (prior birth at 14 to 28 weeks despite cerclage [physical examination-indicated cerclages were excluded]) confirmed this benefit, transabdominal cerclage resulted in a lower rate of preterm birth <32 weeks (8 versus 33 percent, relative risk [RR] 0.23, 95% CI 0.07-0.76; number needed to treat to prevent one preterm birth: four) [5]. The trial also found no benefit of placing a high vaginal cerclage (involving mobilization of the bladder from the anterior cervix to allow the suture to be placed higher) compared with a low vaginal cerclage (preterm birth <32 weeks: RR 1.15, 95% CI 0.62-2.16), although it was not powered to detect a clinically significant difference in this outcome. The techniques used for high and low transvaginal cerclage were at the clinician's discretion, but almost all used Mersilene tape.

•**Laparoscopic approach** – The laparoscopic approach is equally effective and probably superior to the open approach as long as the provider has the requisite laparoscopic experience to perform the procedure.

In a systematic review of 83 observational studies that evaluated pregnancy outcome after laparoscopic versus open transabdominal cerclage performed during pregnancy and between pregnancies in nearly 3400 patients, neonatal survival was >90 percent and gestational age at birth was >36 weeks overall for both approaches, and neither approach appeared to be superior [6]. However, the subgroup undergoing an open interval procedure had slightly less favorable outcomes (neonatal survival 79 percent, gestational age at birth 32 weeks) than the other subgroups (open pregnancy procedure, laparoscopic procedure during pregnancy or as an interval procedure).

Why is the transabdominal approach more effective than vaginal cerclage? — Improvement in birth outcome from transabdominal cerclage may be related to [7]:

- More proximal placement of the stitch (at the level of the internal os)
- Decreased risk of caudal suture migration as the uterus enlarges, and
- Absence of a foreign body in the vagina that could promote infection and inflammation

SUMMARY AND RECOMMENDATIONS

•**Advantages of transabdominal versus transvaginal cerclage** – A transabdominal cerclage is placed at the cervicoisthmic junction. Potential advantages of this procedure over the transvaginal approach include: placement at the level of the internal os, reduced risk of suture migration, no foreign body in the vagina that could promote infection, and option of retention of the suture in situ for future pregnancies

•**Candidates** – Transabdominal cervicoisthmic cerclage is performed in patients with cervical insufficiency who have either failed at least one previous prophylactic transvaginal cerclage or in whom a transvaginal cerclage is technically impossible to perform due to an extremely short or absent cervix, amputated cervix, marked cervical scarring, or cervical defect.

•**Timing** – In patients who meet criteria for a transabdominal cerclage, the procedure can be performed either preconceptionally in patients planning to conceive or in the late first/early second trimester.

•**Procedure** – Transabdominal cerclage can be performed using an open or laparoscopic approach. **Due to lower morbidity, the laparoscopic approach is preferable when the requisite surgical expertise is available.**

•**Complications** – Rates of complications such as blood loss >400 mL, procedure-related fetal loss, and wound infection are generally lower for the laparoscopic compared with the open procedure and even lower for cerclages placed prior to conception.

•**Delivery** – Delivery after transabdominal cerclage is by cesarean birth. We suggest planning the procedure for 36+0 to 37+6 weeks of gestation, and immediately performing the procedure at the onset of regular uterine contractions if labor occurs prior to the scheduled delivery. The infant is extracted through a hysterotomy incision made above the stitch; the stitch can then be removed or, if future pregnancies are planned, it is left in place

•**Management of fetal demise** – First-trimester and often second-trimester fetal demise can be managed without removing the cerclage.