



# CERVICAL INSUFFICIENCY

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# Objective

# definition

**'cervical insufficiency'** was used to describe a disorder in which painless cervical dilation led to recurrent second trimester pregnancy losses/births of otherwise normal pregnancies. Structural weakness of cervical tissue was thought to cause or contribute to these adverse outcomes. The diagnosis has also been applied to women with one or two such losses/deliveries or at risk for such a loss/delivery



# Incidence

Cervical incompetence affects 1 % of the obstetric population. ■

15-20 percent of miscarriages that occur between 16 and 24 weeks of pregnancy are believed to stem from this etiology ■



# Cervical risk factors

## Congenital factors

Collagen abnormalities — ■

Uterine anomalies — ■

Diethylstilbestrol (DES) exposure ■

**Biologic variation** — The length of the cervix during the second trimester in an obstetric population is distributed in a bell-shaped curve. The wide range in normal cervical length (the 10<sup>th</sup> and 90<sup>th</sup> percentiles are 25 and 45 mm, respectively) during this period is due, in part, to biologic variation, but may also result from premature cervical effacement. Although a short cervix is predictive of preterm birth, it is not diagnostic of cervical insufficiency and many women who have a congenitally short cervix deliver at term. ■



# Acquired factors ■

Obstetric trauma —. ■

Mechanical dilation — ■

Treatment of cervical intraepithelial neoplasia ■



# Diagnosis

based on an obstetric history of recurrent second- or early third-trimester fetal loss with the above criteria mentioned (painless cervical dilation). ■

However in the absence of recurrence the term cervical insufficiency is used as a working diagnosis based on a single event with the same clinical history, after exclusion of other causes of preterm delivery. ■  
Without a prior history of fetal loss, using this term in connection with a short or traumatized cervix alone is not sufficient.

Digital exam is very subjective. And diagnosis by **transvaginal ultrasonography** is more of a reproducible method of measuring the cervix. ■

# Transvaginal ultrasound

- -Clinically useful to identify signs of effacement (funnelling) and cervical length.

- -Assessment of the cervix can be done at rest and with application of transfundal/abdominal pressure. TFP is more effective than standing in eliciting cervical changes.



# TVU vs TAU

TAU missed 57% of short cervixes found on TVUS

Hernandez-Andrade, J Mat-Fet Neonat Med 2012

Short cervixes often missed on TAU

Rust, Am J Obstet Gynecol 2001

To, Lancet 2004

Althusisius, Am J Obstet Gynecol 2001

Fonseca, N Engl J Med 2007

Hernandez-Andrade, J Maternal-Fetal Neonatal Med 2012

Sensitivity of TAU for PTB is low (8%)

Iams, N Engl J Med 1996

Owen, JAMA 2001



Saul, JUM 2008

# TAU Pitfalls



TAU CL = 37 mm



TVUS CL = 25 mm

Bladder filling may elongate cervix and mask funnel

Long distance from probe decreases resolution

Manual pressure may compress lower uterine segment and mimic cervix

# TVU Technique

Withdraw probe until blurred, then reapply pressure until anterior = posterior width

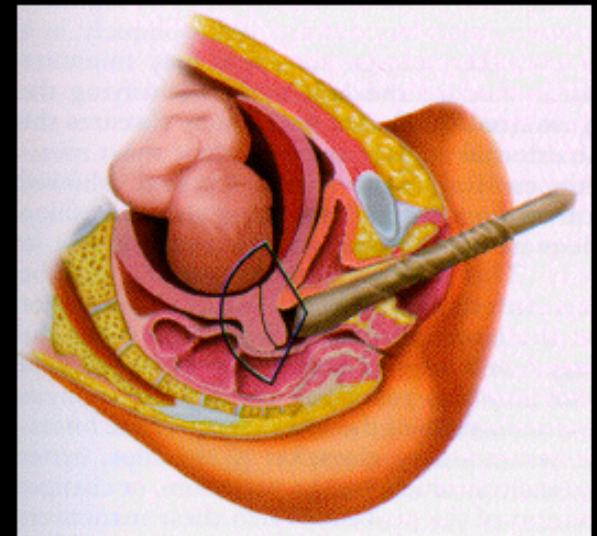
Rotate probe for best long axis of canal

Make image 75% of screen

Measure along canal (IO to EO)

Apply transfundal pressure

Repeat 3x, use shortest best



# Image Criteria

Cervix is 75% of Image

Anterior = Posterior Width

Empty Maternal Bladder

Internal & External Os Seen

Visible Cervical Canal

Correct Caliper Placement

Consider Mobility



**Cervix is 75% of Image**

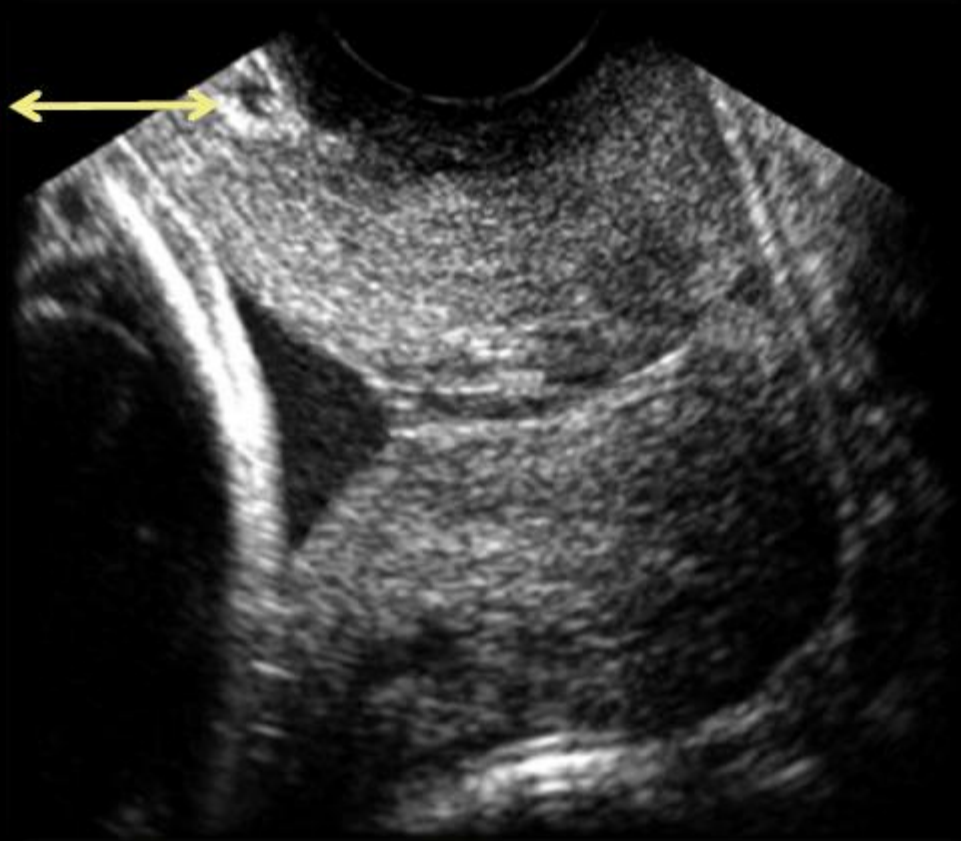


# Anterior = Posterior Width



# Empty Maternal Bladder

Bladder



## Internal & External Os Seen





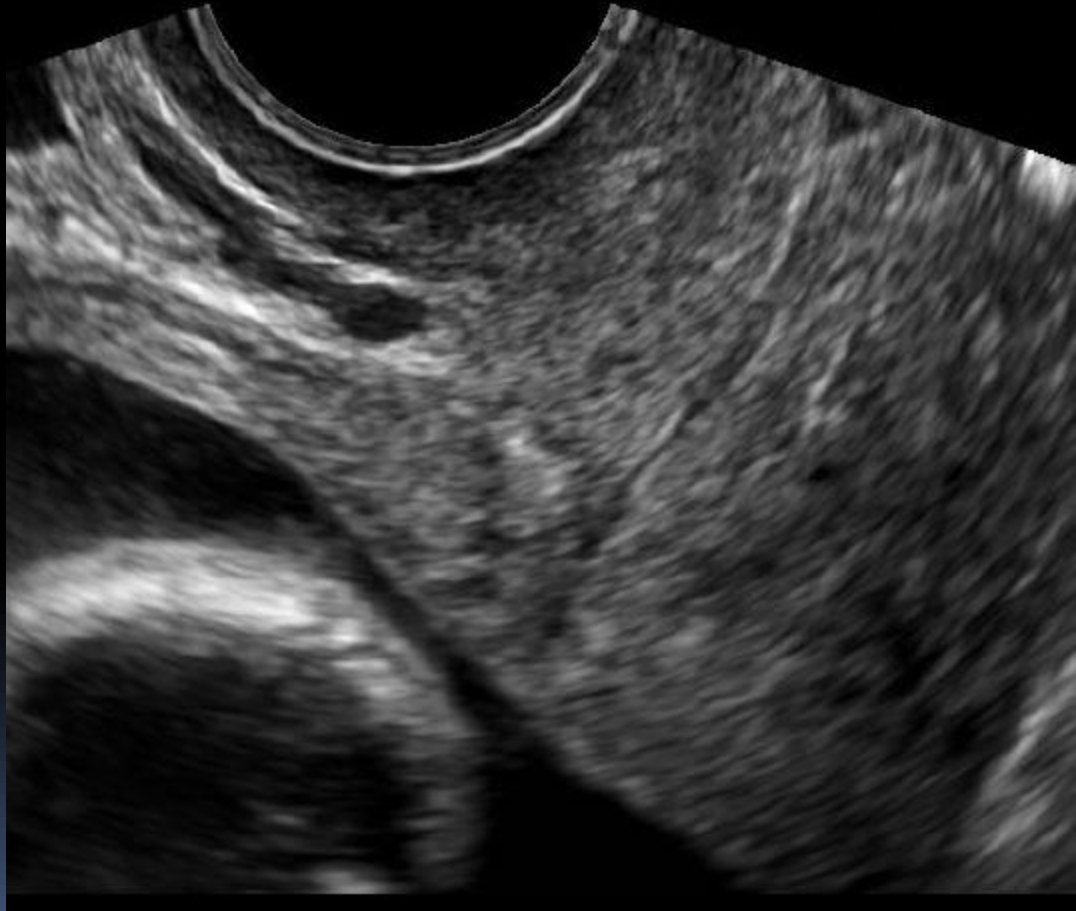
Internal & External Os **Not** Seen



Internal & External Os **Not** Seen



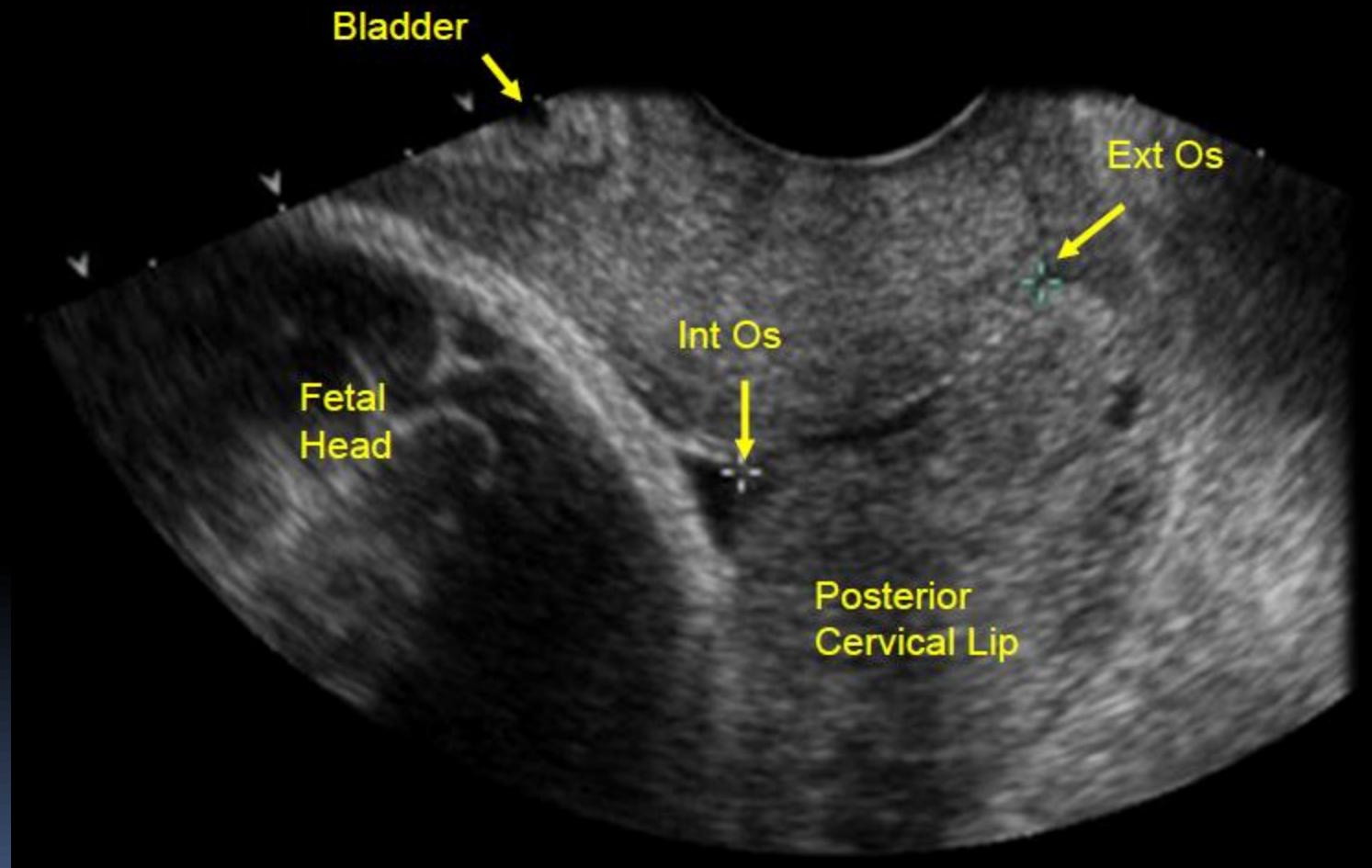
# Cervical Canal Visible



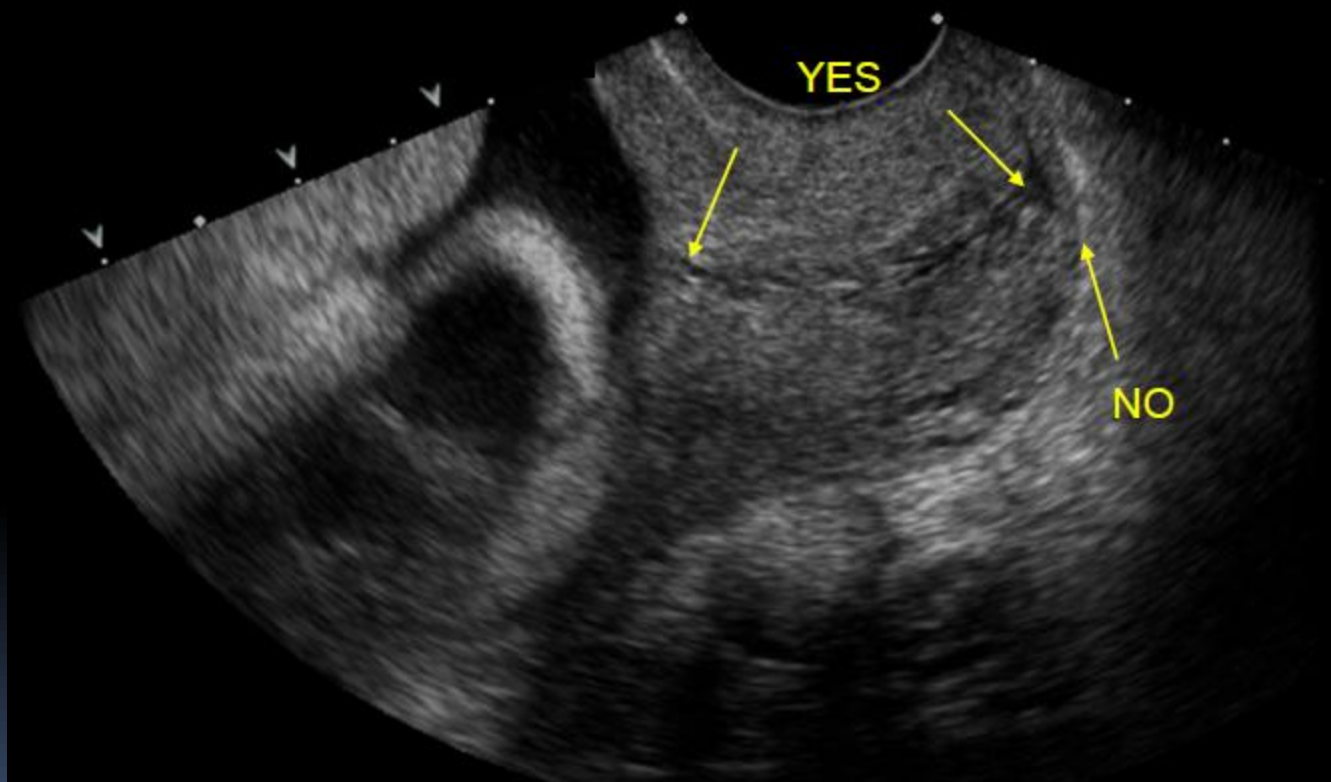
# Cervical Canal Visible



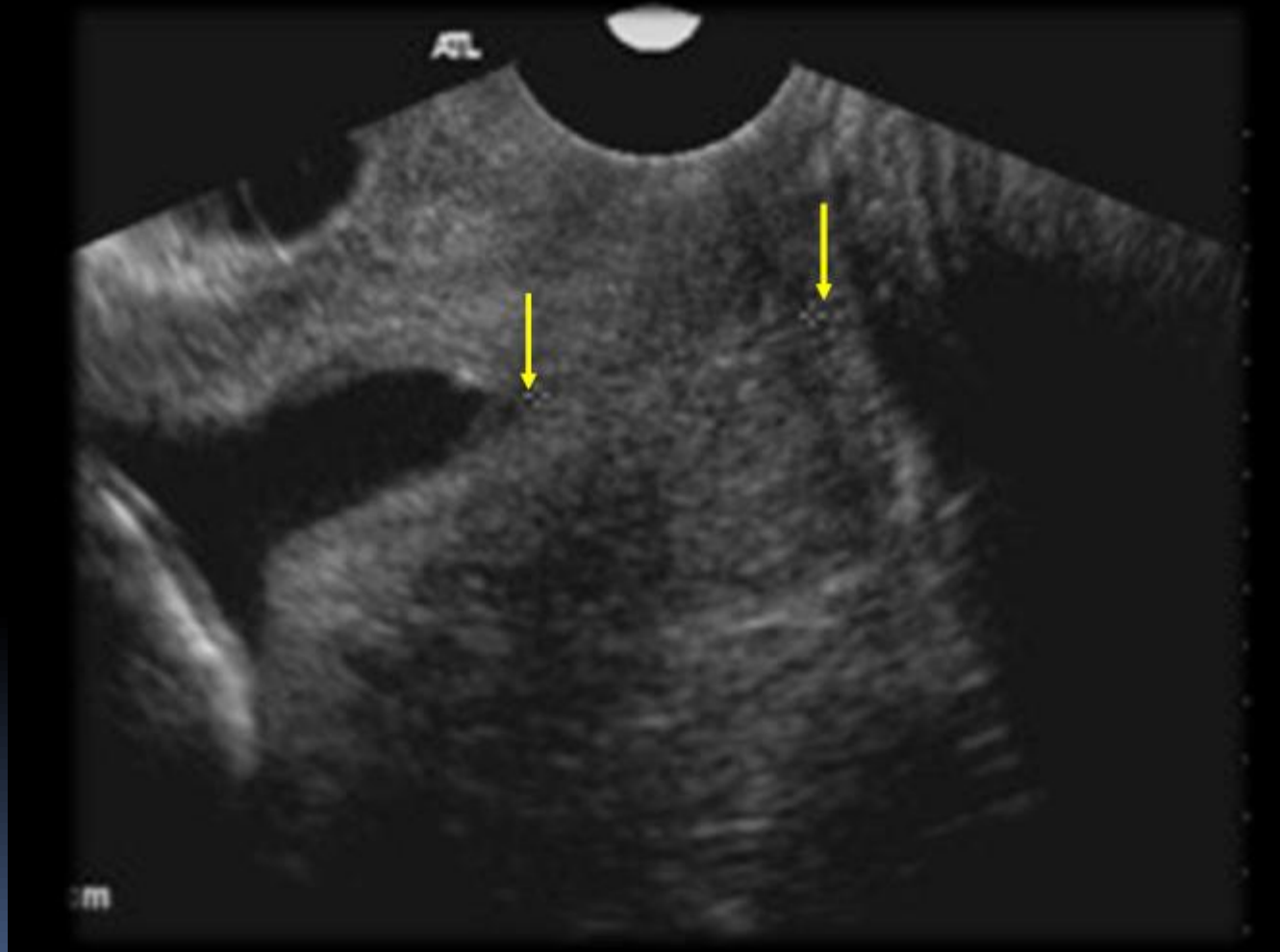
# Correct Caliper Placement



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# Correct Caliper Placement



-Funnelling specifically refers to the separation of the internal os from the two sidewalls of the upper end of the cervical canal. ■

- A normal sagittal view of the cervix shows a “T” shaped endocervical canal vs. deviations such as Y, V, U. ■

Y= initial effacement and subsequent V, U visualized on progressive endocervical change and cervical shortening. ■

# Measurement

The cervical length (CL) is obtained by measuring the endocervical canal from the internal cervical os to the external cervical os. ■

The normal cervix should be at least **30 mm** in length. Cervical incompetence is variably defined, however a cervical length of **< 25 mm** at or before 24 weeks is often used. The risk of preterm delivery is inversely proportional to cervical length : ■

18 % for < 25 mm ■

25 % for < 20 mm ■

50 % for < 15 mm ■



**Sonographic findings** include (requires trans-  
vaginal scanning) ■

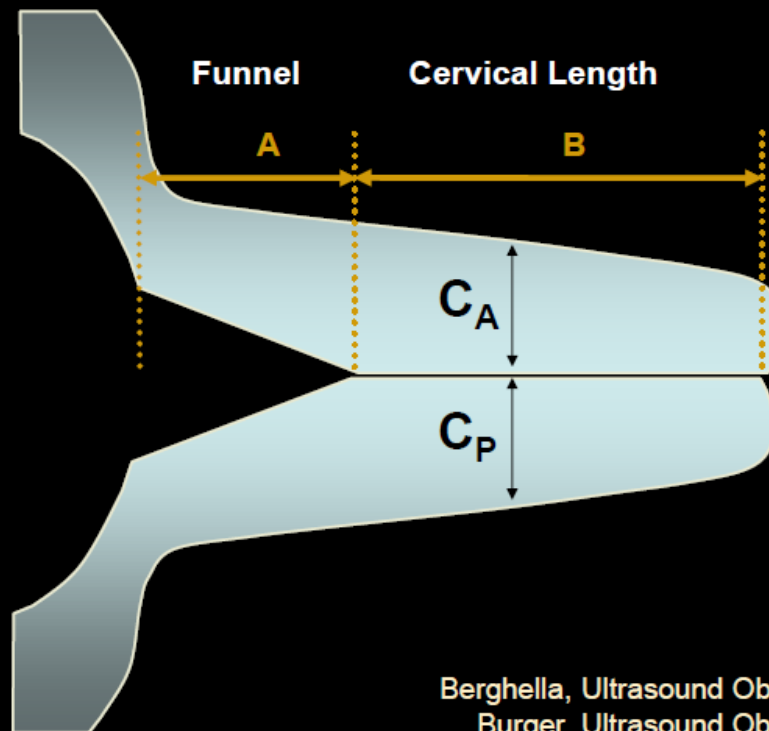
in a late 1<sup>st</sup> trimester scan, opening of the cervical  
os at rest or in response to fundal pressure is  
considered an early feature ■

bulging of the fetal membranes into a widened  
internal os (considered the most reliable sign) : ■

the appearance of this can worsen from a T shape to a  
Y shape to a V shape and finally to a U shape. □

if there complete bulging, it can give a hourglass type  
appearance □

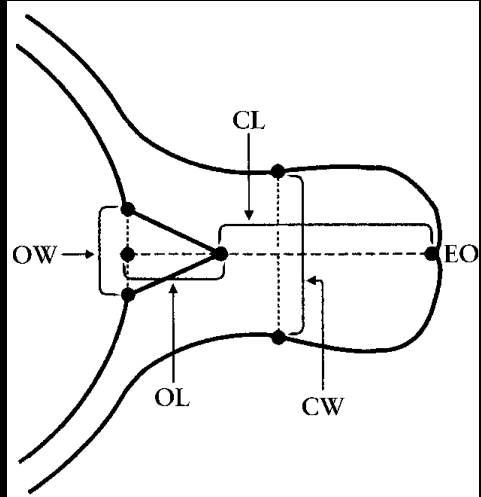
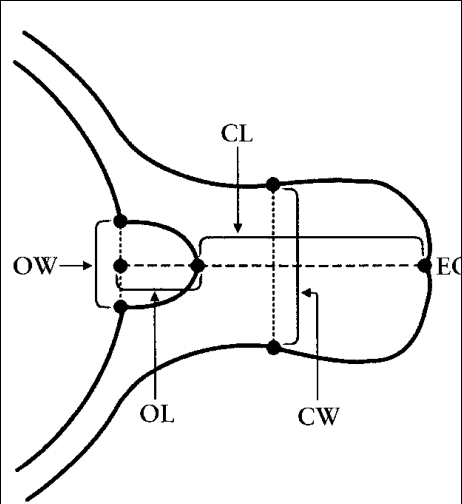
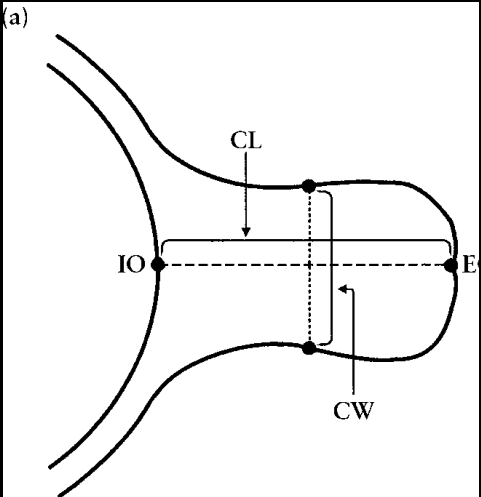
# How to Measure the Cervix

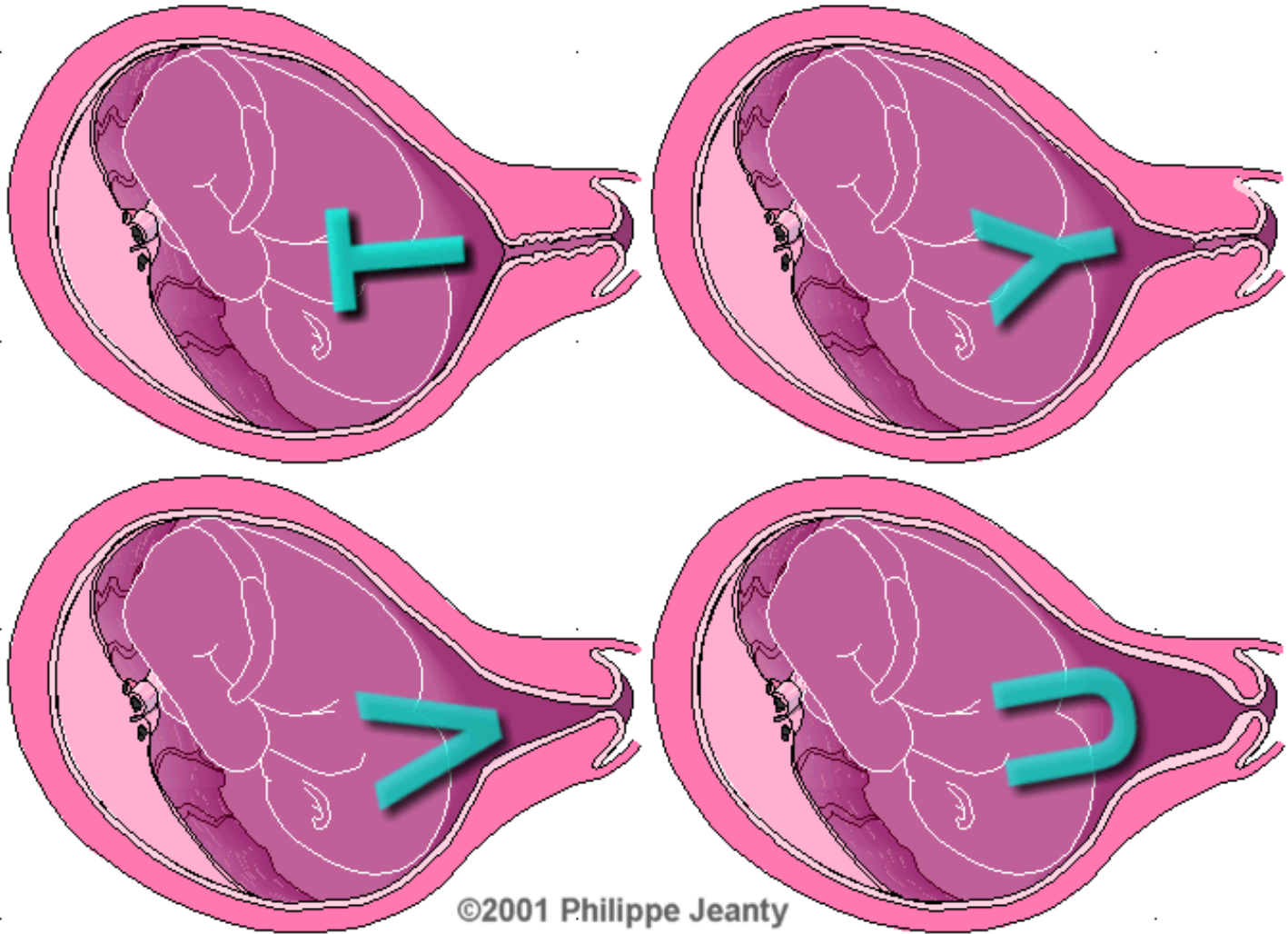


Berghella, Ultrasound Obstet Gynecol 1997  
Burger, Ultrasound Obstet Gynecol 1997



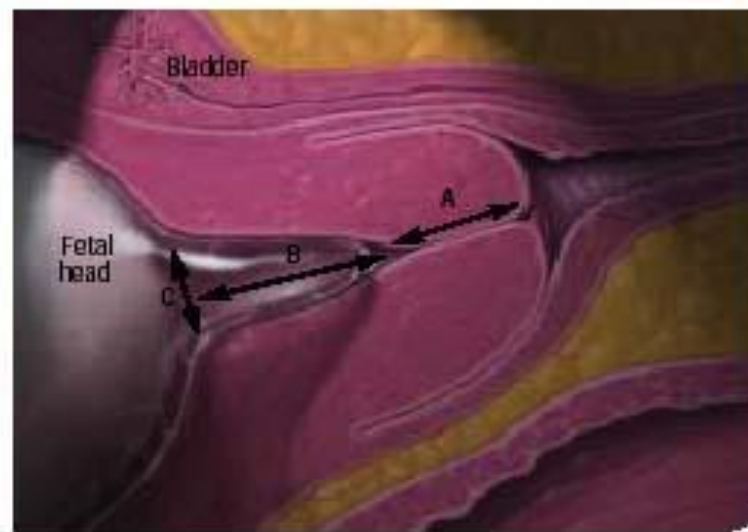
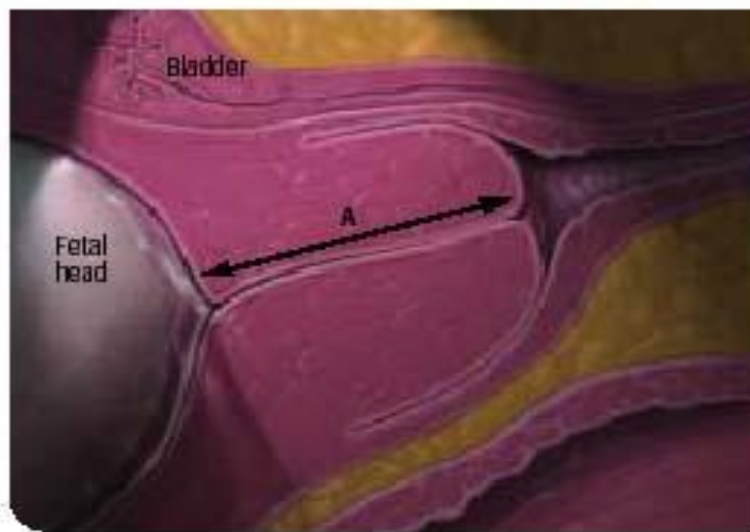
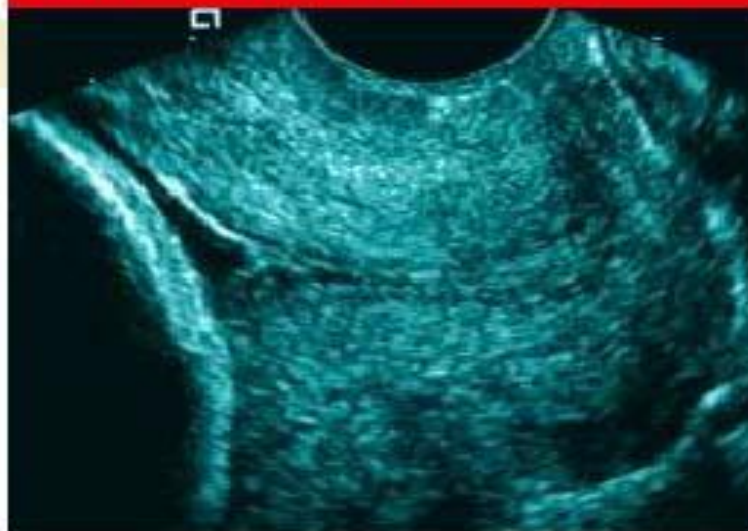
(a)





©2001 Philippe Jeanty

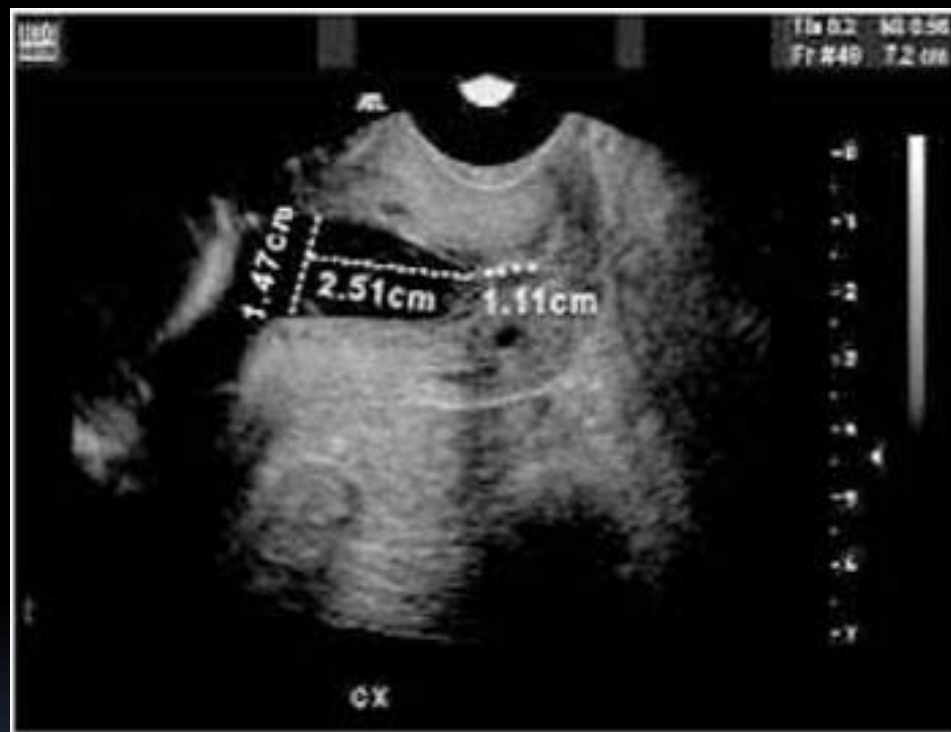
FIGURE 1. The funneled cervix

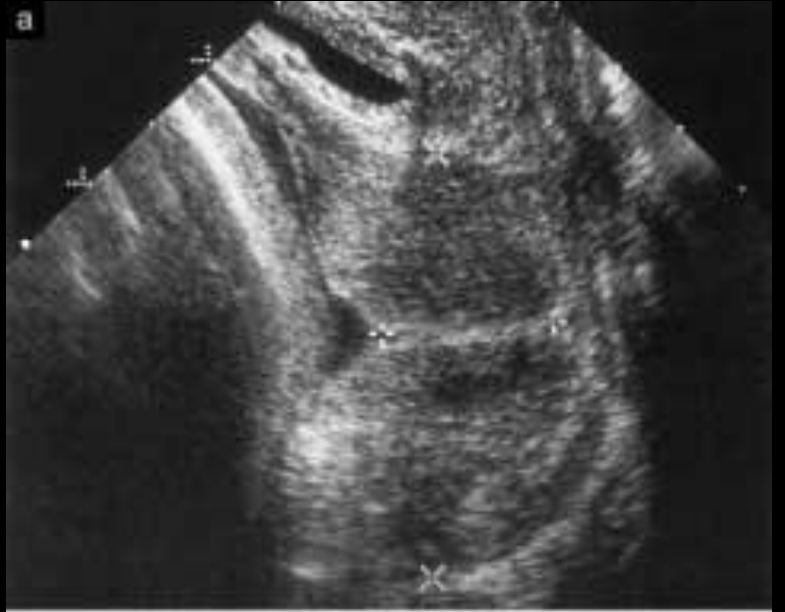


Transvaginal ultrasound of a normal cervix (left) and of a short cervix with significant funneling (right).

funneling (mnemonic: Trust Your Vaginal Ultrasound 😊)

- cervical length <25mm
- protrusion of membranes
- presence of fetal parts in cervix or vagina





Gynecology

#36

/ 9.0cm MI 0.9

16-03-2006

C9-5 /

Gen TIs 0.4

01:43:45 pm

HDI

[2D] G38 / 100dB

FA2 / P90



+D 1.47cm



# How To Build Confidence?

Standardization → Reliability





conclusion