

An Overview on Cervical Anatomy and the Cervical Dilation

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DESCRIPTION

The cervix is a small, tubular channel at the lower end of the uterus. In pre-menopausal women, the uterus is a pear-shaped organ with the narrower portion, the cervix, pointing downwards and extending slightly into the vagina. As such, the cervix functions as a passage between the endometrial cavity and the vagina and is vital to reproduction and childbirth.

The cervix is divided into three sections: endocervix, endocervical canal, and ectocervix. The endocervix is the part of the cervix that connects to the uterine corpus. The ectocervix is the cervix's most inferior section that protrudes into the vagina. The internal os of the cervix is the aperture of the cervix that connects to the uterus, whereas the external os of the cervix is the junction of the cervix and the vagina. The internal os will efface during labour, whereas the external os will dilate.

The cervix acts as a barrier between the endometrial cavity and the vagina, which is effectively the outside world. The cervix produces mucus of varying consistency depending on the phase of a female's menstrual cycle to either promote or prevent sperm passage into the endometrial cavity. Furthermore, during pregnancy, the cervix creates a thick mucus plug that keeps infections out of the endometrial cavity, protecting the growing fetus and maintaining the uterus sterile.

As the end of the pregnancy approaches, the cervix must shrink and open wider to allow the foetus to pass through during birth. This is known as cervical effacement and dilatation. Cervical progression determines the first stage of labour; when the cervix is totally effaced and dilated, the second stage of labour begins. If this process becomes hindered or moves too slowly, the obstetrician might increase cervical effacement and dilatation.

Cervical dilation occurs when the cervix dilates to 10 cm. The rate at which a female progresses to full dilatation is determined by various factors, including her age, medical history, pelvic anatomy, foetal size, and location at the time of labour. Multigravidas reach complete dilatation faster than primigravidas. A history of diabetes mellitus or gestational diabetes raises the risk of a large-for-gestational-age foetus and macrosomia, which can lead to labour difficulties such as descent arrest, a prolonged latent phase, or active phase arrest. If the mother's pelvic anatomy is excessively narrow or has any other anatomic defect, cephalopelvic disproportion between the foetus and the mother may cause labour to be extended or to be terminated. If the foetus is in the supine position, this might cause labour complications and limit the cervix's capacity to dilate fully.

The cervix is made up of several cell types. The endocervix is made up of columnar epithelium and mucus-producing goblet cells. The epithelial cell type changes to squamous cell epithelium at the cervix's outer border. Squamous epithelium makes up the ectocervix and the upper third of the vagina. The "transition zone" refers to the area where two kinds of epithelium meet.

The cervix is a collagenous structure consisting of proteoglycans, fibrin, and glycosaminoglycans at the micromolecular level (GAGs). It is not a muscle like the uterus, but rather more elastic and contains fibres interwoven into the foundation, allowing it to dilate and efface during pregnancy and recoil after birth, making it more comparable to connective tissue. The collagen and GAG composition allows the cervix to quickly metabolise these proteins and convert from a rigid, tubular shape to a soft, flattened one appropriate for birth.

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