

# Potential Use of Misoprostol in Obstetrics and Gynaecology



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## Abstract

Misoprostol is a synthetic prostaglandin E1 analogue that is used off label for a variety of purposes in the practice of Obstetrics and gynaecology which includes medical termination of pregnancy, medical management of abortion, artificial induction of labour, ripening of cervix before surgical procedures, and the treatment of postpartum haemorrhage. So, due to its wide-ranging applications in reproductive health, misoprostol is on the model list of essential medicines of world health organization. The main focus of this article is to briefly review the potential use of misoprostol in Obstetrics and Gynaecology.

**Keywords:** Misoprostol; Prostaglandin; Haemorrhage; Gynaecology

## Introduction

Misoprostol is sold under the brand name Cytotec. It is a medication which is used to prevent and treat stomach ulcers, induce labour, cause an abortion and treat postpartum haemorrhage due to poor contraction of uterus [1]. Its effectiveness for abortion is between 66% and 90% and is often used with mifepristone or methotrexate [2]. It is administered orally to treat gastric ulcers but for labour induction or abortion, it is taken either in the cheek, under the tongue or placed in vagina [3-5]. The effects of misoprostol are dose dependent and it includes cervical softening and dilation, contraction of uterus, nausea, vomiting, diarrhea, fever and chills [1]. However, it has various other advantages over other synthetic prostaglandin analogues like its low cost, long shelf life, lack of need of refrigerator and its worldwide availability.

## Routes of Administration of Misoprostol

Various routes of administration are oral, vaginal, sublingual, buccal or rectal. Comparison of oral and vaginal administration have shown that vaginal administration is associated with slower absorption. It is also associated with overall greater exposure to drug and greater effects on cervix and uterus. Sublingual pattern shows greater absorption and high peak levels. Buccal pattern shows lower area under the curve and has lower side effects. Nonetheless buccal and vaginal routes have similar effects on uterine tone and activity.

## Medical Abortion

600mg of oral mifepristone with 400µg of oral misoprostol 48 hrs later for pregnancies up to 49 days of gestation is approved by

FDA in 2000. Success rate of these regimes ranges from 95% to 98% with failure due to ongoing pregnancy is 1% approximately. Medical termination of pregnancy accessorially involves heavy bleeding and cramping as the pregnancy is expelled. Other side effects include nausea, vomiting, fever and chills. The death rate for mifepristone abortion is 1 per 100000 women, that too due to fatal sepsis [6]. When mifepristone is not available, misoprostol is used alone. Cervical ripening before surgical abortion: misoprostol is a proven cervical ripening agent prior to first trimester surgical abortion [7]. Studies have shown that its possible doses are 400µg [8]. Routes of administration can be oral, vaginal, sublingual.

## Use of Misoprostol in Hysteroscopy

The main aim of using misoprostol in hysteroscopy is to prevent complications of mechanical dilations such as cervical laceration, uterine perforation and creation of false passage [5]. Studies have shown that misoprostol leads to a much greater dilation, decreased need of more dilation and reduced the rate of cervical laceration in premenopausal women [5]. The greatest benefits were seen in nulliparous women and with operative hysteroscopy.

## Induction of Labour With A Viable Fetus

In comparison with placebo, misoprostol causes cervical ripening before induction with oxytocin [8]. It is administered vaginally, and the used dose is 25µg every 4 hours as needed, with a maximum dose of 150µg [8]. Primary outcomes included rate of vaginal delivery within 24 hours, incidences of uterine hyperstimulation with fetal heart rate changes, rate of cesarean delivery, and risk of serious adverse event in mother or fetus.

### Post-Partum Haemorrhage

Apart from its uterine properties, misoprostol is used to treat post-partum haemorrhages [9]. Studies have shown that 1000µg of rectal administration of misoprostol when given to patients-controlled post-partum hemorrhage within 3 minutes 94.

### Conclusion

In a nutshell, misoprostol has many implications in obstetrics and gynaecology. Research is going on its potential use to apply in different complications. Its low cost and easy use make it a potential drug to improve women's health worldwide.

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