MANAGING CERVICAL INSUFFICIENCY THROUGH LIFESTYLE MODIFICATIONS AND CERVICAL CERCLAGE: AN ANALYTICAL LITERATURE REVIEW

Abstract:

The goal of this study is to determine how beneficial each of these treatment options could be in assisting women to have a safe pregnancy free from worry about problems. The term "cervical insufficiency" describes the uterine cervix's failure to hold the fetus in place in the absence of any vigorous uterine contractions or labor. Only 0.5% of women, or 1 in 2000, are affected by this extremely rare illness. But when it does, there will undoubtedly be a more complicated etiology and pathogenetic mechanism at play. A rare anatomical or functional cervix deficiency called cervical insufficiency causes labor to start spontaneously or without any discomfort, which results in deliveries. It affects one in every 2000 women and typically starts during the beginning of the second and third trimester. Numerous studies have been conducted to find a cure for cervical insufficiency since it invariably results in preterm labor. In order to entirely prevent this citation, bed rest, water, and rigorous limitation on all forms of intense work are now regarded to be effective. However, it's still important to consider what could be done to completely avoid this circumstance.

Keywords: Cervical insufficiency, hysterosalpingography, radiographically, pathogenetic mechanism, embryological development, Mullerian ducts.

INTRODUCTION

Cervical insufficiency refers to the inability of the uterine cervix to retain the fetus in the absence of any active uterine contractions or labor. It is a very rare condition, affecting only 0.5% or every 1 in 2000 women. However, when it arises, there is bound to be a more complex etiology and pathogenetic process behind it. (1)

Due to cervical insufficiency, pregnant women experience the painless dilatation, shortening, flattening, and funneling of the cervix before the pregnancy reaches full-term, thus leading to the spontaneous delivery of the pre-term fetus, mostly within the start of the second or third trimester in the majority of the cases. (2)

This incompetency of the cervix is found to occur mostly at the beginning of the second or third trimester of pregnant women. Whenever it occurs, it is seen ot have either a congenital or an acquired etiology. When the reason is a congenital cause, it mostly occurs due to the defective embryological development of the Mullerian ducts. This is a common occurrence seen in Ehlers-Danlos Syndrome, where due to the deficiency of collagen, the cervix is unable to retain its competency, and therefore, this results in cervical insufficiency. (3)

When the reason is an acquired cause, it is almost always due to cervical trauma. Trauma to the cervix could result in many ways, with traumatic childbirth causing cervical lacerations, forced cervical dilatation, and cervical conization. However, in many females, cervical inflammation or infections have also been found to be the causative factors behind this insufficiency. (4)

The cervix is a part of the female reproductive system that undergoes several changes throughout the period of gestation, implantation, and parturition. There are several exogenous and endogenous factors that influence it and have their respective impact on the cervix. Any

irregularities or factors that may affect the cervix or its structure or function negatively could lead to such outcomes in the future. (5)

When cervical insufficiency is present in the woman and she undergoes a miscarriage, it is majorly because of these underlying issues. Thus, this factor makes cervical insufficiency a very important factor that causes miscarriages in females.

Whenever a female undergoes miscarriage due to an incompetent cervix, it is often accompanied by symptoms and at times, could be an utterly symptomless process as well. The most common signs that a female undergoing miscarriage due to cervical incompetency include lower abdominal pain or cramping, backaches, vaginal discharge or spotting, and pressure on the pelvis that increases with time. (6)

However, an unfortunate part of suffering from cervical insufficiency is that it is completely dependent upon clinical diagnosis for its confirmation. It is usually characterized by recurrent or repeated painless dilatation of the cervix that eventually leads to the birth of the fetus, dead or alive, midway through half of the pregnancy situation. This could be a challenging situation for many women who might not even realize that they are pregnant before this happens. (7)

Despite that, gynecologists and obstetricians believe in regularly screening their patients, with special emphasis on pregnant patients here, to check for any prior warning signs of cervical insufficiency. The early screening tests that help with the diagnosis of this condition include hysterosalpingography and radiographically obtaining the imaging of balloon traction on the cervix. Apart from this, the balloon elastance test, the usage of graduated cervical dilators, and Hegar or Pratt dilators are also used to assess the nature of the cervix and to see whether it is competent or not. (8) Although not exactly specific for the diagnosis of an insufficient cervix, these diagnostic tests help to some extent in assessing whether the cervix has any structural or

functional abnormalities that might predispose or lead the woman to develop any complications due to that throughout their future pregnancies. (9)

This review focuses on managing cervical insufficiency through cervical cerclage and lifestyle modifications. The purpose of this study is to assess how helpful either of these modalities could be in helping women lead a healthy pregnancy without the fear of any complications. The motive is also to assess how non-surgical and least-invasive techniques could help in treating a complicated, rare condition like this.

MANAGEMENT AND TREATMENT OPTIONS FOR PREGNANT WOMEN WITH CERVICAL INSUFFICIENCY

Once a pregnant female has been diagnosed with cervical insufficiency, the next stage is to discuss with them the probable risk factors and the possible outcomes of the entire situation. There are also some other ways that work to manage and treat this condition.

During the very early stages, it has been advised that the approach should be kept minimally non-invasive and conservative to prevent other complications from taking over.

A brief overview of the different treatment and management protocols that have been put forward for dealing with cervical insufficiency is given as under:

Lifestyle Modifications:

The first and foremost priority of any doctor is to deal with the problem through non-surgical methods. The same is the case with cervical insufficiency as well. The most popularly advised methods to deal with this problem are bed rest, rest to the pelvis and the lower abdominal region in general, and strictly restricting all kinds of activities that might be both laborious and strenuous for the upper and lower halves of the body. Another non-surgical method that involves making lifestyle changes is the incorporation of the usage of vaginal pessaries routinely. (10)

However, out of all these methods advised, very few of them have been found to be effective in achieving the desired outcomes. On another different occasion, it was concluded that the practice of bed rest and hydration together would prove to be more helpful than when done alone. This was supposed to help reduce the incidence of pre-term births in pregnant women, however, no helpful evidence was found to date that could have helped prove that point. (11)

On the other hand, using cervical pessary as another method for avoiding pre-term birth has also been found to be helpful to some extent. It is a much less invasive and cheaper method than cervical cerclage which is also used for the same purpose. (12)

In some females, the role of progesterone was also found to be beneficial to some extent. Progesterone is the hormone that helps keep the pregnancy and the fetus intact and avoids unnecessary uterine contractions. (13) It was found through various studies that using progesterone-based gels vaginally helps keep the pregnancy intact in cases of cervical insufficiency. By doing so, progesterone helps avoid or reduce the risk of pre-term births, which is the most feared complication of this scenario. (14)

However, despite these lifestyle modifications being advocated as measures to help reduce the rates of pre-term births, there is little that they have done to actually help the woman practically.

Cervical Cerclage:

Cervical cerclage is a very commonly used method for the prevention of pre-term births in patients with cervical insufficiency. (15) It is a method that has helped several women avoid the risk of spontaneous pre-term births. Although it is a surgical and more painful method than the use of tocolytics and cervical pessaries, it has its advantages over the former. It is said that doing a prophylactic cerclage at 13 to 15 weeks of gestation could prove to be very helpful in several women dealing with cervical insufficiency. (16)

However, in a randomized controlled trial study, it was proved that although cervical cerclage is indeed a life-saving and helpful method for avoiding pre-term births, it only does so in women who are expecting a single, live baby. (17) In women who are expecting multiple babies, it was not found to be of much help alone. Moreover, the same was concluded in the case of multiple births, where performing a cervical cerclage in one birth after the other had little to no benefits.

Performing cervical cerclage could be achieved through two main processes - transabdominal and transvaginal. The former is further subdivided into two methods, the McDonald's and modified Shirodkar. In both these methods, the approach is done in such a way as to avoid injuring the bladder or rectum. (18)

On the other hand, transabdominal cerclage is done by placing a suture at the uterine isthmus. Nowadays, it is also being done laparoscopically to avoid any impending complications. However, the incidents of bleeding, rupture of membranes, and infections still remain a matter of controversy.

USING LIFESTYLE MODIFICATIONS AND CERVICAL CERCLAGE TOGETHER FOR CERVICAL INSUFFICIENCY

Although still in its early stages with a lot of research in situ and to be done properly on this matter, it is still better to discuss the outcome of doing such an intervention.

So far, it has been established that the practical implementation of bed rest and hydration alone has been found to be of not much help. But, when both these modalities are done along with cervical cerclage, then they could prove to be very helpful in achieving the desired outcomes. This modality could both be emotionally and physically better for the female, who is definitely in a state of distress and anxiety due to her condition. (19)

However, whatever the intervention is, the priority remains the outcome. The main motive behind doing this is to reduce or even avoid the occurrence of pre-term births in women with cervical insufficiency. However, so far, it has only been found that only a few women experience benefits from doing so. The rest of them still experience miscarriages and that leads to adverse outcomes in the long term.

Therefore, there is still a need to come up with plausible explanations and theories that could help explain all those factors that could prove to be helpful in preventing this situation entirely. Only then could pregnant women with cervical insufficiency could be treated successfully. (20)

CONCLUSION

Cervical insufficiency is a rare, structural, or functional defect in the cervix that leads to the spontaneous or painless initiation of labor, leading to childbirth. It occurs 1 in every 2000 women and usually is seen to occur anywhere between the start of the second or third trimester.

Due to the outcome of cervical insufficiency always resulting in pre-term labor, a lot of research has bene done to eliminate it.

So far, bed rest, hydration, and strict restriction on all kinds of strenuous work are thought to be helpful in avoiding this citation completely. But there is still a need to see what could be done to prevent this situation entirely.

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