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CURRENT STATE OF THE PROBLEM OF SOFT TISSUES RUPTURE DURING VAGINAL BIRTH IN WOMEN WITH DIABETES AND GESTATIONAL MELLITUS

Submission Date: April 20, 2022, **Accepted Date:** April 25, 2022,

Published Date: April 30, 2022

Crossref doi: <https://doi.org/10.37547/ijmscr/Volume02Issue04-02>

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ABSTRACT

The review article provides detailed information on the problem of soft tissue ruptures during vaginal delivery in women with diabetes and gestational mellitus. The epidemiological data of various authors on the incidence of gestational diabetes mellitus, which have been studied in many countries, are presented. And the main part of the article describes the etiological features of soft tissue ruptures during vaginal delivery in pregnant women with diabetes and gestational mellitus, complication and prevention of postpartum sepsis.

KEYWORDS

Gestational diabetes, diabetes mellitus, perineal rupture, fetal macrosomia, sepsis.

INTRODUCTION

The process of childbirth is accompanied by a significant stretching of the birth canal of a woman, as

a result of which various degrees of damage to the tissues of the vagina, perineum and cervix may appear, which is physiological and represent abrasions, cracks and microtraumas with an

asymptomatic course, and rapid self-regeneration in the first 24 hours after childbirth. However, in cases of tissue overstretching or due to surgical intervention, ruptures of the cervix, vaginal walls, perineum can occur, up to injuries that threaten the life of a woman and lead to her disability, in particular uterine rupture [Sacks DA 2012; Riethmuller D 2018].

According to the International Diabetes Federation, in 2021 the number of patients with diabetes in the world has reached 537 million people.

An increase in the number of pregnant women with DM and GDM, a high incidence of complications of pregnancy, childbirth, and an increase in the number of pathologies in newborns with GDM of more than 80% caused the scientific and practical interest of obstetrician-gynecologists in gestational diabetes mellitus (GDM) [Ushakova O.V. 2014; Shakhnazaryan A.A. 2013; McIntyre HD. 2016; Metzger B.E. 2010].

Given the risks of DM, maternal and fetal outcomes at birth may be affected by complications of DM. These include: violations of the contractile activity of the uterus, due to diabetes - in 20% of the studied, and anomalies in labor activity, observed in 7-20% of cases [Anim-Somuah M. 2011].

Prevalence, etiology, and risk factors for soft tissue tears during vaginal delivery in women with diabetes and gestational diabetes

Every year in the world, according to the World Health Organization, more than 350 thousand women die as a result of complications that occurred during pregnancy and in the postpartum period. The indicator of the result of the act of pregnancy for the mother and child is determined by the timing, course and complications of pregnancy [Soimenova O.I. 2014].

Diabetes mellitus (DM) is a pathology of the endocrine system, in which hyperglycemia is observed at a chronic level, arising from a violation of the production and pathway of insulin action. DM that occurs during pregnancy is defined as gestational diabetes mellitus (GDM) [Bondar I.A., 2014; Dedov I.I., 2013; McIntyre HD 2018].

There are differing data on the etiology of GDM, for example, some sources report that GDM is a transient disorder of glucose utilization that develops during pregnancy [Ailamazyan E.K., 2014; Bashmakova N.V., 2012; Goncharova E.V., 2015; Dhulkotia J.S., 2010], as well as according to another source, previously undiagnosed and identified during pregnancy, type 1 or 2 diabetes can be the cause of GDM.

From 2 to 5% of pregnant women are with diabetes mellitus and 87.5% of them suffer from GDM, type 1 diabetes - 7.5%, type 2 diabetes - 5%, but current data indicate an increase in patients with type 2 diabetes [Ruyatkina L.A., 2015; Sievenpiper JL, 2012].

Modern women choose to give birth at a more mature age, which results in an increase in the number of women with pathologies of the endocrine system, the probability of a pregnant woman 35+ of developing GDM is 8 times higher than in a woman under 25 [Petrov A.V., 2014; Saprina T.V., 2012; Laughon SK., 2012; Sugiyama T., 2011]. Therefore, it must be taken into account that with GDM, risks are possible for both the mother and the fetus [Arzhanova O.N., 2011; Deryabina E.G., 2013; Zukhurova N.K., 2010; Logutova L.S., 2013; Mikhalev E.V., 2015].

Complications from the woman:

1) complications resulting from diabetes - diabetic ketoacidosis, retinopathy, nephropathy, hypoglycemia;

2) complications after surgery - spontaneous abortion, premature birth, gestational hypertension, polyhydramnios, shoulder dystocia.

As a result of obstetric interventions, the most extensive ruptures and injuries of the birth canal develop (use of obstetric forceps, vacuum extractor). Thanks to the research, experts were able to identify risk factors for perineal injuries in primiparous and multiparous puerperas. The first include: the age of the woman, the size of the fetus, the use of oxytocin to enhance the birth process, a protracted 2nd stage of labor (less than 30 minutes and more than an hour can increase the likelihood of ruptures). [Bychkov I.V. 2013].

The National Guidelines for Obstetrics cites data on infectious complications that occur in 19.3% of cases, despite advances in the treatment of perineal injuries. This leads to suppuration, divergence of the suture material, tightening by secondary tension. To date, most authors agree that the causative agents of most postpartum pathologies are non-spore-forming anaerobes, they cause colpitis and vulvovaginitis, which further contribute to the traumatization of the perineum and soft tissues. [Shornikov A.B. 2013].

In the treatment of inflammatory processes, drugs with a wide range of effects are used, since the microbial picture from the area of inflammation sometimes does not characterize the main pathogen. Special attention should be paid to new diagnostic technologies (naflora smears from the vagina) and therapy for risk groups, which can reduce the risk of infection [Pokrovsky V.I. 2012; Bishchekova B.N. 2017].

The risk group for DM includes: - family predisposition; - malformations of the fetus; - polyhydramnios; - glycosuria; - perinatal fetal death; - late toxicosis. The clinical symptoms include diabetes mellitus in pregnant women include: - dry mouth; - pustular skin lesions; - darkening in the eyes; - thirst; - polyuria; - polydipsia; - skin itching; - dramatic weight loss [Smirnova O.M. 2011].

Classification and pathogenetic basis of soft tissue ruptures during vaginal delivery in women with diabetes and gestational diabetes

To this day, the causes, pathogenesis and mechanisms of trauma during the dissection of the perineum into the functional component of the pelvic floor remain unknown. Complications that worsen the quality of life faced by patients make this problem quite acute.

The beginning of the pathogenic link in injuries of the perineum is a violation of the venous outflow, then due to the compression of the arteries, ischemia will be noted, in the classification of which there are 3 degrees of ruptures of the soft tissues of the perineum [Kulakov V.I. 2012, Radzinsky V.E. 2016, Toktar L.R. 2012]:

I degree — the presence of a violation of the integrity of the posterior commissure, injury to the posterior wall of the vagina and skin of the perineum, but there is no damage to the muscles and fascia of the pelvic floor;

II degree — the integrity of the skin, the walls of the vagina and the muscles of the pelvic floor is violated, but the wall of the rectum and the external sphincter of the anus remain undamaged;

III degree — the external sphincter is damaged, trauma to the anterior wall of the rectum is possible

(complete and incomplete rupture according to Malinovsky).

Postpartum high-quality rehabilitation of women with perineal ruptures is very important, since the trauma will contribute to the development of various infections that can lead to severe septic complications, the anatomical integrity of the perineum and pelvic floor may be impaired due to secondary wound, and this, in turn, can lead to followed by an atypical arrangement of organs, disability, up to disability [Kravchuk L.A. 2014]. Ruptures are determined after the birth of the placenta, when examining the perineum and vagina, the main sign of injury is bleeding.

During pregnancy, a decrease in glucose tolerance, a decrease in insulin sensitivity, is considered characteristic, however, the breakdown of insulin increases and the number of free fatty acids in the blood increases. The level of free fatty acids increases, for the energy costs of the mother in order to preserve glucose for the fetus during the lipolytic action of placental lactogen [Ametov A.S. 2015].

Due to diabetes, pregnant women may face serious complications associated not only with the health of the woman herself, but also affect the health of the fetus. It is necessary to follow the measures for planning pregnancy, to approach this issue rationally in order to prevent and prevent the development of complications and achieve the maximum comfortable course of pregnancy [Mkrumyan, A.M. 2008].

Preparation for pregnancy of a woman with diabetes mellitus begins half a year before the planned conception, with a medical examination and consultation with an endocrinologist to establish the degree of compensation for diabetes mellitus, determine the complications associated with

diabetes, the degree of complications, if any, and familiarize yourself with the methods of self-control and come to the conclusion in matters of gestation [Arkhangelsky V.I. 2013].

Necessary actions that a woman must perform before pregnancy:

- 1) Receive specific training in diabetes management and blood sugar management
- 2) A woman should be able to correctly set the dose of insulin using a glucometer to maintain a normal glucose level
- 3) Diet in preparation for conception
- 4) Passing a comprehensive examination before pregnancy

The risk of developing diabetes in the fetus increases in the presence of this pathology in both parents [Sumin S.A. 2015].

The parameters under which it is recommended to terminate the pregnancy: age over 37 years, the level of glycated hemoglobin - 13% and ketoacidosis in the initial period of pregnancy [Sumin S.A. 2015].

Modern trends in the treatment and diagnostic tactics of soft tissue ruptures during vaginal delivery in women with diabetes and gestational mellitus

Often with ruptures of the perineum, damage to the labia minora and labia majora, the vestibule of the vagina, and the clitoris is observed, which are corrected with catgut interrupted sutures. Abundant blood loss can be when suturing the clitoris. The peculiarity of suturing a part of the external opening of the urethra is that a metal catheter is first inserted into the bladder. Vaginal injuries are often violent or spontaneous. Spontaneous ruptures occur due to the

individual structure of the pelvic organs, for example, with a narrow, short and underdeveloped vagina, and is accompanied by trauma to all parts of the birth canal. Extensive injuries of the vagina are more often of a violent nature, they appear due to improper use of instruments, obstetric forceps, fetal vacuum eruption, etc. [Ivanyan A.G. 2014].

To date, there are many methods of suturing, but their essence is that suturing begins close to the edge of the wound (up to 1.0 cm), muscles are sutured with dip sutures, synthetic absorbable sutures are used when suturing the vagina, and the final stage is skin tightening. Another method was proposed by I.V. Bychkov et al. (2013), which, in their opinion, is the most effective and has minimal difficulties in the postoperative period. The technique is as follows: in the hymen area, one interrupted suture is superimposed shallowly, the mucosa remains intact, then the muscles are sutured with separate sutures at an interval of one and a half centimeters, the skin is sutured with cosmetic sutures [Baev O.R. 2012; Bychkov I.V. 2013].

Inflammatory diseases of the genitals increase the likelihood of soft tissue ruptures by 32.2% according to Rumyantseva Z.S. et al., which necessitates the treatment of inflammatory processes in the pregravidon period [Ishchenko A.I. 2014].

In the works of H.J. Landy (2011) noted that an increase in the number of perineal damage occurs with a long period of fetal expulsion and the use of reducing agents [Landy H.J. 2011; Buyanova S.N. 2015].

Epidural anesthesia significantly increases the likelihood of using the episiotomy method, when, as a conscious control by attempts of puerperas, on the

contrary, it reduces the likelihood of injury [Ailamazyan E.K. 2017].

Infectious complications in the postpartum period are not uncommon and result from several causes. However, it is worth noting that the decrease and suppression of immunity in the period after childbirth is absolutely physiological. During pregnancy and during the recovery period after childbirth, the body undergoes great changes, in particular, a decrease in the immunity coefficient by an average of 3-10% is observed, which is also manifested by a decrease in the activity of lymphocytes. Cellular and humoral parameters of immunity decrease in insignificant numbers, which does not require treatment [Ankirskaya A.S. 2013].

Aspects of rehabilitation and prevention of soft tissue ruptures during vaginal delivery in women with diabetes and gestational diabetes

Since the end of the 20th century, it has become widely used in the world to prevent deep ruptures of soft tissues - episiotomy or perineotomy. A feature of the methods is the dissection of the perineum, which allows you to increase the size of the vulvar ring up to 5-6 cm, this greatly facilitates the process and prevents perineal ruptures. This method of surgical dissection has a number of advantages, for example, the wound has a linear character and smooth edges, which will promote tissue healing without crushing; Under favorable conditions, wound healing occurs by primary intention. Effective prevention of ruptures is the exact technique of delivery to remove the fetal head, shoulder girdle, anterior and posterior handles [Berashevich G.I. 2016].

Episiotomy and perineotomy are techniques used to facilitate childbirth, prevent ruptures and shorten the

second stage of labor. Thanks to the dissection of the perineum, it becomes possible to prevent its rupture. With surgical dissection, the rehabilitation of women is more favorable, the wound heals faster, it is possible to achieve an anatomically more holistic restoration of structures, etc.

In addition, it is recommended to perform dissections in the following conditions: hypoxia, premature birth, as there is a possibility of compression of the head of the premature fetus by the pelvic floor muscles. As a rule, this is always a complex of indications in relation to the mother and fetus, in particular, a large fetus, atypical insertion of the head, inactive labor, breech presentation.

Prevention of ruptures in the first place will be the preparation of the cervix for childbirth, that is, it is necessary to observe the maturity of the structures, it is especially important for women who are nulliparous and women with a predisposition to overbearing the fetus. Taking into account and observing the correct technique of childbirth, the imposition of obstetric forceps, with the timely use of drugs that relax the myometrium of the uterus and analgesics, cervical ruptures are not observed.

In order to accelerate the healing and resorption of sutures, specialists prescribe physiotherapeutic methods of treatment.

The use of BIOLuch (the first 5 postpartum days), which improves microcirculation in the area of the seams and perineum, has shown high efficiency. Thanks to this method of physiotherapy, healing is accelerated and sutures dissolve, and special rays of a certain spectrum provide thermal and other types of influence on tissues. The use of BIOLuch reduces pain in the area of the scar, in turn, the scar on the perineum becomes almost invisible.

Another method that has shown its effectiveness is electrotherapy. It is based on the effective administration of a pharmacological preparation and the effect of galvanic current (electrophoresis), high efficiency lies in the activation of higher nerve centers, mediated reflexively through the excitation of skin receptors.

Electrophoresis has enough advantages in the treatment of purulent-inflammatory complications and long-term complications after perineal dissection. The method is also used for better resorption of scars. Preparations administered by electrophoresis are 10 times smaller in quantity, but retain high therapeutic efficacy, compared to the usual route of administration.

Under the influence of direct current, ions penetrate into tissue cells, in the skin, where a drug depot is created, in which it retains its pharmacological activity for several days, slowly and evenly enters the bloodstream, spreads throughout the body, having a therapeutic effect on tissues and cells. most sensitive to this drug. [Zalikhanov Z. M. 2020].

With the help of electrophoresis, it is possible to administer various kinds of drugs: analgesics, antibiotics, etc. Electrophoresis is indicated for patients with purulent-inflammatory diseases and to accelerate the tightening of the scar. In addition, electrophoresis has shown its effective effect on microelements, thanks to it there is a good dissociation of elements in water (copper, iodine, magnesium and calcium), which improves the regulation of metabolic processes in the body. For example, calcium ions are involved in the regulation of smooth muscle tone, blood clotting and contribute to the recovery mechanisms of the body after blood loss during childbirth. However, this physiotherapeutic procedure is contraindicated in women with cicatricial

adhesions of the small pelvis, since calcium contributes to the thickening of adhesions. An alternative is electrophoresis using iodine to dissolve abdominal adhesions. Electrophoresis of ichthyol, lidase and aloe is used to soften scars and adhesions.

CONCLUSION

This article analyzes the literature, reflecting the current views of soft tissue ruptures during vaginal delivery in women with diabetes and gestational mellitus, as well as modern methods of treatment and prevention.

Despite the high level of medical diagnosis and treatment of soft tissue ruptures during vaginal delivery, every 4-5 women are prone to postpartum infectious complications, which in turn cause suppuration and rupture of the perineal sutures, wound healing by secondary intention.

A characteristic sign of the threat of rupture of the birth canal in women is the presence of a history of spontaneous injuries of the perineum. Prevention of soft tissue rupture is the timely implementation of the optimal surgical method - episiotomy. Bilateral asymmetric episiotomy is necessary for women giving birth for the first time, whose fetal weight exceeds 3900 g. In this case, with posterior occipital presentation and anterior presentation, using obstetric forceps and vacuum extraction. The use of this technique allows to reduce the frequency of early complications by almost 3 times, in the late postpartum period - by 2 times. This method allows you to speed up the recovery period by 1.5 times, which minimizes the need for rehabilitation.

To identify risk factors and reduce obstetric perineal trauma, regular medical examination of women is necessary, which will allow to identify the risk group

for repeated perineal injuries in women of reproductive age with a history of obstetric perineal trauma, timely diagnosis, prevention and treatment of pregnancy complications associated with violation of the vaginal biocenosis is also necessary. competent management of childbirth (non-aggressive, gentle), the use of episiotomies strictly according to indications.

Summarizing the above, the most common complication of childbirth are perineal injuries, namely, soft tissue ruptures during vaginal delivery. According to modern medical literature, early and late complications of the birth act, determined by perineal injuries, are clearly defined. These include complications that occur in a third of cases, this is prolapse of the pelvic floor muscles, with further possible prolapse of the walls of the vagina, bladder, rectum, prolapse of the uterus. The most serious and formidable are septic complications, anomalies in the position of internal organs - gaping of the genital slit (20% of cases) secondary healing, infertility, habitual miscarriage, isthmic-cervical insufficiency, anus fissures (60% of cases), rectal and vesicovaginal fistulas, moderate bleeding, infection of the sutures.

Thus, at the present stage, the scientific and practical interest in this issue is caused by the presence of conflicting data on the pathogenetic mechanism of the occurrence and effectiveness of the treatment of soft tissue ruptures during vaginal delivery in women with diabetes and gestational mellitus, as well as the need to improve the quality of life of women after childbirth.

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