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CESAREAN SCAR ON THE UTERUS: INCIDENCE, CONSEQUENCES, AND RESTORATION METHODS

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Abstract: Cesarean section is one of the leading methods of delivery, with a global trend toward increasing frequency. According to statistical data, 15.2% to 42% of all deliveries are performed via cesarean section [1]. One of the significant complications following cesarean section is uterine scar insufficiency, which is particularly important when planning subsequent pregnancies. The risk of scar rupture, accompanied by life-threatening hemorrhage, ranges from 0.62% to 9% [2].

Keywords: Cesarean section, uterine scar insufficiency, scar defect, niche, uterine rupture, myometrial thinning, postoperative complications, placenta accreta spectrum, adhesion process, ultrasound diagnostics, magnetic resonance imaging (MRI), reconstructive uterine surgery, obstetric outcomes, reproductive health, interpregnancy monitoring.

Reconstructive uterine surgeries aim to restore the anatomical integrity of the myometrium and reduce the likelihood of complications in future pregnancies. In recent years, increasing attention has been paid to the diagnosis of scar conditions not only during pregnancy but also in the interpregnancy period. Modern diagnostic methods include the detection of scar defects ("niche") using ultrasound and magnetic resonance imaging (MRI) [3].

True uterine scar insufficiency may be associated with the formation of fistulous tracts due to impaired healing processes of the postoperative wound, which most commonly occurs within the first 21 days after surgery. The main causes include postoperative infection, the formation of hematomas between sutures, infiltrates, and abscesses [4]. Fistulas are most frequently detected in the corners of the postoperative scar [5].

The diagnosis of uterine scar insufficiency requires a comprehensive approach, incorporating clinical data, ultrasound diagnostics, and, if necessary, endoscopic methods. The management of such patients depends on the severity of the scar defect and reproductive plans [6].

Introduction

A scar defect ("niche") in the lower uterine segment is one of the most common consequences of cesarean section. According to ultrasound studies, scar defects are detected in 60% of patients who have undergone cesarean section, with large "niches" identified in 25% [7].

A large "niche" is diagnosed when more than 50% of the myometrial thickness in the scar area consists of scar tissue. Despite their high prevalence, in many cases, "niches" remain asymptomatic and do not require treatment. However, the underlying mechanisms of their formation remain insufficiently studied, and their presence may contribute to the development of obstetric and gynecological complications [8].

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Recent studies suggest that the formation of "niches" is more closely associated with impaired postoperative reparative processes rather than surgical technique. Additionally, scar defects are more commonly observed in women with concomitant adenomyosis [9].

Current Data on the Frequency of Cesarean Section and Its Consequences

According to the World Health Organization (WHO), the rate of cesarean sections has steadily increased over recent decades, reaching up to 27.2% of all deliveries in Western countries [10]. The growing number of cesarean deliveries has led to an increase in cases of uterine scar insufficiency and associated complications, including uterine rupture, placenta accreta spectrum disorders, and uterine perforation [11].

Complications following cesarean section in subsequent pregnancies may include not only uterine rupture but also placental attachment abnormalities, premature placental abruption, placental hemorrhage, fetal malposition, low birth weight, and the need for repeat cesarean delivery [12].

A study involving 30 patients who had undergone cesarean section was conducted to analyze the condition of the postoperative scar following primary, repeat, and tertiary cesarean sections. In 63.3% of patients who underwent repeat or tertiary cesarean delivery, thinning of the scar area to less than 2.5 mm was observed, while in 40% of cases, a pronounced adhesion process was detected in the lower uterine segment and the anterior abdominal wall [13].

A clear correlation was identified between the number of prior cesarean sections and the severity of degenerative changes in the scar area.

The greater the number of previous operations, the higher the frequency of large "niches" and areas of localized myometrial hypotrophy [14].

During interpregnancy ultrasound examinations, 70% of patients with previous repeat cesarean sections exhibited areas of thinned myometrium and localized deformities of the scar area [15]. These findings highlight the necessity of dynamic monitoring and timely diagnosis of scar insufficiency before planning a subsequent pregnancy [16].

Conclusion

The increasing rate of cesarean sections has led to a rise in the number of women with uterine scar insufficiency. Early diagnosis of scar defects, particularly in the interpregnancy period, enables the development of individualized patient management strategies and reduces the risk of uterine rupture and other complications in future pregnancies [17].

The advancement of new diagnostic methods, including improved ultrasound protocols and magnetic resonance imaging, facilitates the early detection of pathological changes and the optimal selection of treatment strategies [18]. Furthermore, surgical techniques for scar defect correction continue to improve, reducing the incidence of complications and enhancing women's reproductive potential [19].

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Further research is required to develop effective algorithms for diagnosing and managing patients with myometrial scar alterations. Special attention should be given to the comparative analysis of various surgical treatment methods and their long-term reproductive outcomes [20].

A comprehensive approach to the issue of uterine scar insufficiency following cesarean section will help minimize risks for both mother and fetus, improve pregnancy outcomes, and reduce the incidence of obstetric complications [21, 22].

References

1. World Health Organization. (2015). Practice Guide on Cesarean Section. Geneva: WHO.

2. R.M. Silver. (2012). Delivery after previous cesarean: long-term maternal outcomes. Semin Perinatol, 36(5): 411-417.

3. A. Tower, F. Regan. (2017). Scar pregnancy after cesarean section. Obstet Gynecol, 109(6): 1373-1380.

4. S.I. Stegwee, L. Klinkert, E. Hink, M. Lambregts, R.A. de Leeuw, P.M. van de Ven, et al. (2018). Systematic review and meta-analysis of surgical techniques for Cesarean scar defect repair. Ultrasound Obstet Gynecol, 51(2): 176-185.

5. A.P. Betran, J. Ye, A.B. Moller, J.P. Souza, J. Zhang. (2021). Trends and projections of cesarean section rates: global and regional estimates. BMJ Global Health, 6(6): e005671.

6. E.N. Rovenskaya, N.V. Letova, L.S. Solovyova, L.A. Chebotareva. (2020). Cesarean scar insufficiency: modern aspects of diagnosis and treatment. Obstetrics and Gynecology, 3: 43-48.

7. M. Tanimura, et al. (2017). A new scoring system for predicting cesarean scar defect in pregnant uterus. J Obstet Gynaecol Res, 43(10): 1523-1529.

8. O.V. Osser, L. Jokubkiene, L. Valentin. (2010). High prevalence of defects in cesarean section scars at transvaginal ultrasound examination. Ultrasound Obstet Gynecol, 36(1): 72-77.

9. A.Y. Razumovsky, O.G. Samokhvalova, Yu.I. Belousova. (2019). Cesarean section: optimization of surgical techniques. Russian Journal of Obstetrician-Gynecologist, 19(3): 41-46.

10. O. Vikhareva, L. Valentin. (2011). Clinical importance of cesarean hysterotomy scar appearance at routine transvaginal sonographic examination in nonpregnant women. Obstet Gynecol, 117(3): 525-532.

11. A.Y. Sobolev, L.I. Melnik. (2020). Obstetric complications after cesarean section. Russian Journal of Obstetrician-Gynecologist, 20(5): 60-66.

ISSN: 2692-5206
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INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

12. O. Naji, A. Daemen, A. Smith, et al. (2012). High prevalence of uterine niches in women with cesarean section scar: a systematic review and meta-analysis. Hum Reprod, 27(7): 2021-2032.

13. A.F. Chugunova, I.A. Karpova, S.K. Alimova. (2018). Features of ultrasound diagnostics of the uterine scar after cesarean section. Obstetrics and Gynecology, 4: 45-49.

14. I.E. Timor-Tritsch, A. Monteagudo. (2019). Unforeseen consequences of the increasing rate of cesarean deliveries: early placenta accreta and cesarean scar pregnancy. A review. Am J Obstet Gynecol, 221(6): 557-569.

15. N.N. Yudina, O.I. Efremova. (2020). Cesarean section: impact on women's reproductive health. Obstetrics and Gynecology, 5: 7-12.

16. S. Ferrero, E. Arena, A. Morando, V. Remorgida, U. Leone Roberti Maggiore. (2019). Reproductive outcomes after cesarean scar pregnancy: a systematic review and meta-analysis. J Ultrasound Med, 38(6): 1561-1569.

17. A.V. Chirkova, E.M. Zakharova, E.A. Ignatova. (2021). Modern approaches to the diagnosis and treatment of cesarean scar insufficiency. Issues of Gynecology, Obstetrics and Perinatology, 20(3): 78-85.

18. A. Kaelin Agten, G. Cali, A. Monteagudo, J. Oviedo, J. Ramos, I.E. Timor-Tritsch. (2017). The clinical outcome of cesarean scar pregnancies implanted "on the scar" vs. "in the niche". Am J Obstet Gynecol, 216(5): 510.e1-510.e6.

19. L.V. Adamyan, R.R. Damirov, E.V. Tskhai, E.N. Malyutina. (2019). The impact of cesarean section on maternal mortality. Obstetrics and Gynecology, 5: 13-17.

20. D. Jurkovic, K. Hillaby, B. Woelfer, A. Lawrence, R. Salim, C.J. Elson. (2003). First-trimester diagnosis and management of pregnancies implanted into the lower uterine segment cesarean section scar. Ultrasound Obstet Gynecol, 21(3): 220-227.

21. N. Gonzalez, T. Tulandi. (2017). Cesarean Scar Pregnancy: A Systematic Review. J Minim Invasive Gynecol, 24(5): 731-738.

22. N.M. Zelenskaya, Yu.A. Arbatskaya, N.V. Sivova, I.V. Kovalenko, E.N. Pechenina. (2020). Features of diagnosis and management of patients with scar changes in the uterus. Issues of Gynecology, Obstetrics and Perinatology, 19(3): 72-78.