Should Laparoscopy be the Gold Standard for Isthmocele?

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ABSTRACT

Isthmocele is born due to the overwhelmingly increasing cesarean section (CS) rates all over the world. It was an unknown entity in the last century. Cesarean sections are and can be responsible for short- and long-term maternal and fetal morbidity, mortality, and financial issues, directly and indirectly associated to the former. Out of the many problems that are caused by CS, isthmocele is a growing surgical concern that needs attention in identifying, diagnosing, managing, and treating this problem. Currently, treatments include medical and surgical approaches. Hysteroscopy as well as laparoscopy are used in the treatment. This review was carried out to show that laparoscopy is superior in treating an isthmocele than all other treatment modalities.

Materials and methods: An electronic search was done and various articles and studies were reviewed to support the hypothesis.

Keywords: Cesarean section, Hysteroscopy, Isthmocele, Niche, Postmenstrual bleeding, Scar defect.

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INTRODUCTION

Cesarean section (CS) was always believed to be a lifesaving operation for the mother and the unborn. But ironically, its rates are rising in the midst of highly improving medical advances in maternal and newborn care. Forbes magazine\(^1\) has recently published that in the Organisation for Economic Co-operation and Development (OECD) countries, the CS rate approximately stands at 28%. This includes 34 countries around the world. Further, the World health organization (WHO) Global Survey indicates that overall CS rates have increased over time in all countries except Japan from 26.4 to 31.2% in a multicountry survey (\(p = 0.003\)).\(^2\)

The exact reason is unknown, but there are many hypotheses regarding the contributing factors. The niche is typi-
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On this basis, treatment should be aimed to relieve the symptoms and strengthen the wall of the myometrium again to prevent potential complications, that is, surgical reconstruction of the uterotomy scar.7

Medical and hormonal (combined contraceptive pills and intra uterine device (IUD)) have not shown any improvement in quality of life. Hysteroscopy and treatment appear to remove the symptoms. Also some studies have suggested hysterectomies for postmenstrual bleeding. Laparoscopy has been used on its own or in conjunction with hysteroscopy in surgically correcting this defect. Very few cases of vaginal revision and endometrial ablations have also been mentioned.

Saline infusion sonohysterosonography (SIS lavage) was described by Ida et al25 in successfully healing the defect spontaneously in a single case report.

DISSCUSSION

The niche is still an unknown or a new entity for many. There is no clear definition for a CSD; neither is it a common terminology. Hence, the prevalence of the condition has huge variations. Some have a vague definition ie a U-, V-, or triangular-shaped anechoic or hypoechoic fluid collection17 seen on scan or SIS21 is simply considered as a niche. No standardized definition is found in the literature. Hence, comparing studies is challenging.

Possible Mechanism

The collected blood from the niche present as postmenstrual bleeding problems. The flow of menstrual blood through the cervix may be slowed by the presence of isthmocele, as the blood may accumulate in the niche because of the presence of fibrotic tissue, causing pelvic pain in the suprapubic area. Moreover, persistence of the menstrual blood after menstruation in the cervix may negatively influence the mucus quality and sperm quality, obstruct sperm transport through the cervical canal, and interfere with embryo implantation, leading to secondary infertility.9

Hysteroscopy is the most commonly reported approach in the literature. Other methods include mostly laparoscopy in combination with hysteroscopy or on its own. Few suggest vaginal, medical (hormonal, IUD),26,27 and SIS lavage). In spite of hysteroscopy being the famous method, it has its own pitfalls. Resectoscope is less invasive and can be used to correct the defect,9 but the hysteroscopic approach is not possible in all cases, and also it is good only in correcting the defect, not strengthening the myometrium or correcting the disruption and reinforcing the endurance. Potential scar rupture or dehiscence is not corrected in hysteroscopic approach.28,29

Patient Related Factors

- Multiple Cesarean deliveries
- Factors impacting wound healing
- Factors that possibly hamper normal wound healing and related angiogenesis,8 retroflexed uterus,18
- Labour before CS.21,22

Surgery Related

- Single-layer uterine wall closure (incomplete/disrupted closure of myometrium),
- Use of locking sutures, closure of hysterotomy with endometrial-sparing technique.7
- Low location (cervix) of uterine scar at the time of CS,
- Surgical activities that may induce adhesion formation (i.e., non closure of peritoneum, inadequate hemostasis, applied sutures, use of adhesion barriers).8

This abnormality can be visualized on transvaginal ultrasound, saline-infused sonohysterography (SIS), and hysterosalpingography (HSG).9 It is seen as a hypoechoic area as a discontinuation of the myometrium. An magnetic resonance imaging (MRI) should be used to confirm the position and defect size prior to attempting to repair the defect.23 Hysteroscopy is also a useful modality to assess the defect.24

Treatment Options

All theories point to a thin disrupted layer of myometrium surrounding the niche. Possibilities of the niche been covered by polypoidal endometrium, congested endometrium/new blood vessels,8,10 and hyalinized myometrium6 are being described in histological specimens.
In the hysteroscopy procedure, the surface is coagulated, distal rim resected, or polyps removed. The randomized controlled trial (RCT) by Vevroot compared hysteroscopy with other methods in the control group (Combined oral contraceptive pills (COC), Intrauterine device (IUD), and hysterectomy). They concluded that this is not good for defects that are too thin (less than 3 mm) since the bladder injury/perforation is too high; also this cannot be used for niches more than 5 mm. They found that quality of life and sex life improved following the procedure; they have not looked into the fertility outcome. Also hysteroscope has the capacity to only coagulate the superficial vessels, not the deep ones, so possibility of recurrence or converting to open or laparoscopy surgery is always there if the bleeding becomes heavy. Prospective and retrospective studies done by Gubbins et al., Fabres et al., and many others state possible improvement of fertility. All studies that show improvement in fertility following hysteroscopic treatment have a very small sample size.

CONCLUSION

A common terminology and definition is needed for this defect in the myometrium following hysterotomy. We need more RCT in order to assess the best treatment options. As opposed to hysteroscopy, in laparoscopy the defect explored, fibrous tissue excised, and the defect in the myometrium is closed, hence functional and anatomical aspects of the niche are restored. Symptoms vanish, fertility restored, and the potential future problems negated. Hence, with the available current evidence, laparoscopy is the way forward to correct the niche.

REFERENCES


