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Minimally invasive procedure for repair of cesarean scar defect – case report

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Abstract
Introduction: Isthmocele is defined as the deficient uterine scars or dehiscence of scar after cesarean section is a pouch defect on the anterior surface of the uterus at isthmic junction situated at prior cesarean scar.
Case Report: In this case series, we describe two patients who came to us with different clinical presentations and were treated with two separate surgical techniques. After one month, Transvaginal ultrasound showed complete anatomical repair of uterine defect.
Conclusion: Both hysteroscopy and laparoscopy seem to be good management options for the treatment of abnormal uterine bleeding, pelvic pain and subfertility secondary to this condition. Hysteroscopy is a quick non-morbid procedure that allows concurrent removal of other uterine pathology, a fast recovery while being cost-effective. Laparoscopy is characterized by improved visualization of the defect, decreased risk of complications with defects less than 3 mm.

Keywords: Isthmocele, Cesarean scar defect (CSD), postmenstrual bleeding, Re-check Hysteroscopy, Transvaginal ultrasound, Resectoscopy, Laproscopy.

Introduction

Isthmocele is defined as the deficient uterine scars or dehiscence of scar after cesarean section is a pouch defect on the anterior surface of the uterus at isthmic junction situated at prior cesarean scar [1]. It was first reported by Morris [2] while analyzing hysterectomies of women with prior cesarean deliveries. Cesarean scar defect (CSD), i.e. isthmocele is usually detected incidentally as a wedge-shape anechoic area at previous scar site in transvaginal ultrasound [1]. The prevalence of isthmocele has been reported to be as high as 52% after a cesarean delivery [3, 4] Cesarean scar defect are observed in Patients who have undergone multiple cesarean sections. Female with Cesarean scar syndrome (CSS) can present with postmenstrual bleeding or spotting, dysmenorrhea, or infertility. In this case series, we describe two patients who came to us with different clinical presentations and were treated with two seprate surgical techniques.

Case report 1- A 28 year old patient, Para one live one with previous cesarean section with secondary infertility presented to us with complaint of persistent postmenstrual spotting and chronic pelvic pain for two years. Her menstrual cycles were regular with normal blood flow. She underwent cesarean section two years ago. Postoperative period was uneventful. General and systemic examination was normal. There was no abnormality detected on basic infertility workup. Transvaginal Scan revealed a uterus of normal size with anterior wall defect 5mm at the level of internal os. (Figure 1)

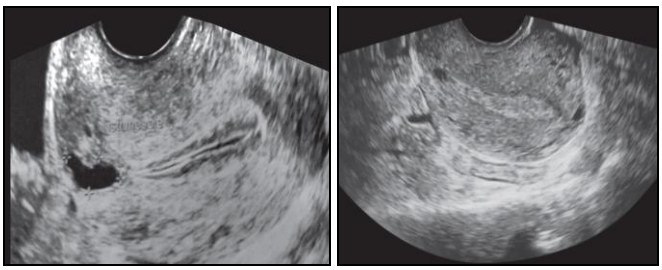


Fig 1: Ultrasound image of isthmocele

Procedure: Patient opted for Laproscopic isthmocele repair. First Hysteroscopy was performed to know the exact scar defect location. On laparoscope, exploration of introduced, peritoneum, uterus and adenexa was performed to rule out any other pathology. On Hysteroscopy trans illumination–defect of 5mm was noted anteriorly just below the internal os (Figure 3). Uterovesical fold of peritoneum was identified and carefully dissected (Figure2). Bladder was mobilized in downwards direction. Dilute Vasoprresin was injected into the uterus 20 U in 200 ml NS). Edge of the isthmocele was delineated and the defect was excised using harmonics with hysteroscopic illumination. Neoapproximation of edges was done with continuous sutures using vicryl no.1 (Figure 4) with Foleys no. 20 placed intracervically (Figure 5). At the end of the procedure, Repeat Hysteroscopy was performed to visualize the correction of defect and to check the continuity of the cervical canal with the uterine cavity. Operating time was approximately 50 mins. Patient tolerated the procedure well.

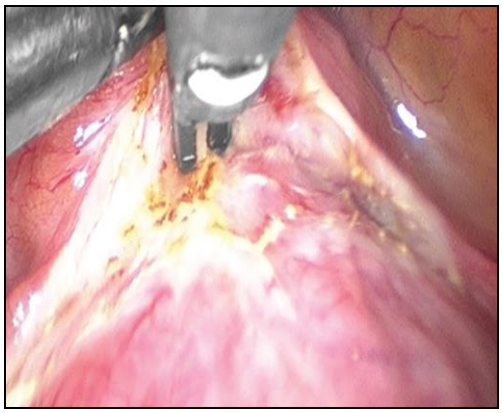


Fig 2: UV fold of peritoneum opened

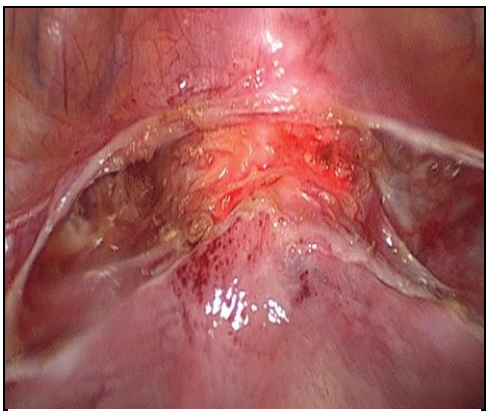
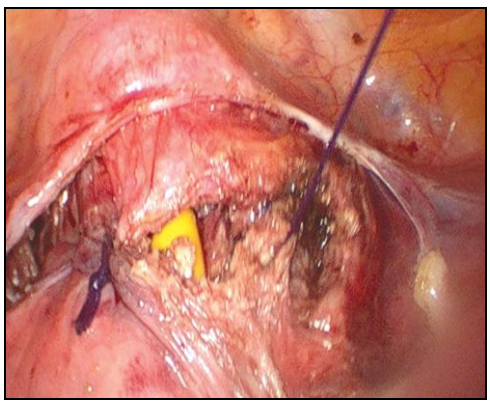


Fig 3: Isthmocele seen on transillumination with hysteroscopy as seen on laparoscopy.



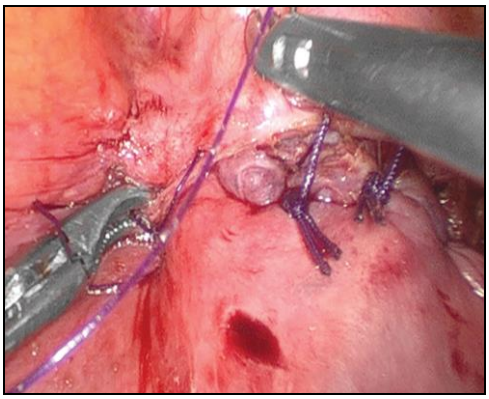


Fig 4 and Fig 5: Closure of isthmus in layers after excision of fibrous tissue of cesarean scar defect over Foley catheter.

Case Report 2: A 41-year-old para two live two with previous two cesarean sections came to our hospital with complaints of postmenstrual pain and dysmenorrhea for two years. Her periods were otherwise regular, normal flow. She had moderate to severe pain during menses which lasted for about 2 days. Her general and local examination revealed no abnormality. On Transvaginal scan uterus was of normal size with bilateral ovaries normal, isthmocele was present, measuring 20x15mm defect size.

Procedure: Isthmocele repair was done using resectoscpe, a channel-like hysteroscopic treatment with 16-Fr resectoscope was used. Bladder was filled with methylene blue solution to enable early identification of any bladder injury. The isthmocele was localized using vaginoscopic approach and a bipolar loop was used to resect the fibrotic tissue of the proximal and distal part of the niche with 360° resection (endocervical ablation) of the all residual cervical canal inflamed tissue surrounding the diverticulum (Figure 6,7). The surface was superficially coagulated with a roller ball electrode in order to replace it with mono-stratified cubic cell-type epithelium. Hemostasis of endocervical vessels was achieved by decreasing inflow and pressure of the distending medium. Hysteroscopic isthmoplasty flattens the CSD (cesarean scar defect) area, improves menstrual drainage and restores the continuity of the cervical canal thus reducing blood accumulation in the niche and reflux into the uterine cavity. Operating time was approximately 15 mins.

Fig 6: Resection of superior margin of isthmocele

Fig 7: Resection of lower margin of isthmocele

Follow Up: Postoperative period was uneventful in both the patients. They discharged on first postoperative day. After one-month, Transvaginal ultrasound showed complete anatomical repair of uterine defect. Patient were put on oral contraceptives pills to avoid pregnancy and Re-check Hysteroscopy done after three months. Both Patient were comfortable and asymptomatic. At one year of follow-up, revealed normal finding, both patients were satisfied and asymptomatic. Second patients who presented with secondary infertility got spontaneously conceived.

Result: Both procedure were equally good and comparable with resepect to patients resolution of symptoms. Hysteroscopy is quick minimally invasive procedure while laparoscopy will take longer operative time for repair. Laparoscopy decreases the risk of bladder injury and uterine perforation with defects less than 3 mm. Each technique of isthmocele repair offers its own benefits and disadvantages. The decision to proceed with one technique or the other should be made on a case-by-case basis and should be guided by the operator's preference and experience.

Discussion

Isthmocele is often detected incidentally in patients presenting with clinical symptoms such as postmenstrual spotting, dysmenorrhea, dyspareunia, chronic pelvic pain or dull sensation following menstruation, and infertility. The prevalence of isthmocele has been reported to be as high as 52% after a cesarean delivery, [3, 4]. Different imaging modalities, from hysterography to ultrasonographic evaluation, have been used to evaluate the integrity of the anterior uterine wall. They allow good visualization of the depth and width of the dehiscence at the level of the cesarean scar [5, 6]. The diagnosis of isthmocele is based on ultrasound. Transvaginal sonography (TVS) with high-resolution transducers and the recent introduction of son hysterography have proved to be useful tools in the study of intrauterine lesions [7-8]. The best time during the cycle to identify the pouch with sonography is during the bleeding episode, usually a few days after the menses, as the principal symptom is postmenstrual spotting [9]. The isthmocele appears as an anechoic area like an isosceles triangle, with the apex pointing to the anterior wall of the isthmus and the base directed to the posterior wall of the cervical canal. Larger scars corresponded to heavier and longer bleeding episodes [1, 8, 10, 11]. The diagnosis of this defect by TVS had 100% correlation with hysteroscopy, and both positive and negative predictive values were similar for both methods [7, 12]. Transvaginal sonography is a noninvasive, low-cost examination that should be considered as the first choice for screening because it highly correlates (100%) with hysteroscopy in the diagnosis of isthmocele and may help rule out other causes [9].

Different imaging modalities, from ultrasonographic evaluation to hysterography, have been used to evaluate the integrity of the uterine wall. They allow good visualization of the width depth and of the dehiscence at the level of the cesarean scar [5, 6]. The diagnosis of isthmocele is based on ultrasound. Transvaginal sonography (TVS) with high-resolution transducers and the recent introduction of sonohysterography have proved to be useful tools in the study of intrauterine lesion.

Both hysteroscopy and laparoscopy were shown to significantly improve abnormal uterine bleeding and difficulty conceiving from isthmocele [13].

Hysteroscopy is a direct visualization and minimally invasive procedure that allows the isthmocele resection as well as concurrent removal of other uterine pathology [14]. The fibrotic tissue removed will be replaced by a no inflamed epithelial layer allowing renewal of the continuous canal between the cervix and the uterine cavity [15, 16].

Laparoscopy is optimal for patients seeking fertility due to improved visualization and direct myometrium reap proximation. It is also characterized by a lower risk of bladder injury and uterine perforation. Furthermore, laparoscopy can diagnose and treat other pathologic findings such as endometriosis, in addition to the possibility of uterine retroversion correction.

Conclusion

The Prevelance of isthmocoele is expected to increase with rise in the incidence of cesarean sections worldwide. Both hysteroscopy and laparoscopy seem to be good management options for the treatment of abnormal uterine bleeding, pelvic pain and subfertility secondary to this condition. Hysteroscopy is a quick non-morbid procedure that allows concurrent removal of other uterine pathology, a fast recovery while being cost-effective. Laparoscopy is characterized by improved visualization of the defect, decreased risk of complications with defects less than 3 mm as well as the possible correction of uterine retroversion. Laparoscopy allows thorough repair of the uterine defect, thus restoring a normal myometrial thickness. The decision to proceed with one technique or the other should be made on a case-by-case basis and should be guided by the operator's preference and experience.

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Ethical approval: Not required

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